

SAMPLING, SAMPLE TRANSPORTATION, AND FIELD MONITORING PROTOCOLS

Soil, water and gas sampling and monitoring methodologies employed by **CC GEOTECHNICAL LTD** are presented hereunder.

SAMPLING OF SOIL FOR CHEMICAL ANALYSIS

Soil samples may be recovered from a variety of intrusive investigation methods including *inter alia* dynamic sampling boreholes, cable percussion boreholes, machine or manual excavation of trial pits.

All equipment which has the potential to introduce extraneous materials into soils – borehole casings, sampling drilling rods, borehole sampling tools, hand tools such as trowels and spades etc. – must be cleaned by jet washing before initial use and between sampling positions.

Cable Percussion Boreholes

In this method of investigation disturbed bulk and small disturbed samples are recovered at regular depth increments throughout the length of the borehole. Each bulk/small disturbed sample is uniquely labelled with the Project Name / Project No / Borehole No / Depth / Date. Where possible, samples are immediately scanned by PID.

Light Dynamic Sampling Boreholes

In this method of investigation samples are recovered in relatively undisturbed 1m long Perspex liners. Each liner is uniquely labelled with the Project Name / Project No / Borehole No / Depth / Date. The liner tubes are sealed by air tight caps fitted at each end, and are temporarily stored out of sunlight. Where possible, samples are immediately split, scanned by PID, logged and subsampled. In the event that splitting and logging on site is not practicable, then the liners are immediately transported to the laboratory where they are immediately split, scanned by PID, logged and subsampled.

Trial Pits

Samples are to be taken from the bucket of an excavator and placed in appropriate airtight containers. Each container is uniquely labelled with the Project No / Trial Pit No / Depth / Date. The samples are then immediately placed in a cool box chilled by ice packs, and the boxes are sealed for transportation to the chemical laboratory.

Sampling Containers

Containers used to store soil samples are selected dependant on the required analysis. The testing laboratory will be consulted should there be any doubt as to the correct sampling container. Typically, a minimum of 1nr 1kg plastic tub, 1nr 500g plastic tub, 1nr 250g amber glass jar and 2nr glass vials are taken at each sample depth. Samples held on site awaiting same day courier collection are stored at 4°C in a cool box. Only in circumstances where same day collection cannot be arranged are samples held overnight, and in this event all samples are refrigerated at 4 °C either on site (if a refrigerator is available) or at CC GEOTECHNICAL soil laboratory. Courier collection is then arranged for immediate pick up the following day.

Chain of Custody records

A Chain of Custody Record (CoC) is to be sent with each batch of samples submitted to the testing laboratory. A copy of the CoC will be made available for inspection by the client, their agents, or any requesting regulatory authority.

HEADSPACE ANALYSES

Duplicate subsamples of all soil samples selected for laboratory analysis may be taken for headspace analyses.

Headspace analysis is undertaken using a MiniRae 2000 Photo Ionisation Detector (PID). In the test method, an amber glass jar is half filled with soil, and the lid is sealed with aluminium foil secured by an elastic band. The jar and contents are agitated for 30 seconds and left for a minimum of 30 minutes out of direct sunlight for the headspace to achieve equilibrium. The PID then pierces the seal and the maximum reading is recorded. Prevailing weather conditions and ambient air temperature are also recorded.

The PID headspace results are recorded on the exploratory borehole or trial pit logs.

PID headspace data is then used to inform the chemical testing schedule for volatile organic compounds analyses.

SAMPLING OF GROUNDWATER FOR CHEMICAL ANALYSIS

Groundwater is sampled from standpipes or piezometers installed during borehole drilling. On completion of the construction of the standpipe, the installation is initially developed by removing up to 10 x the internal volume of the

installation. The volume of water purged is recorded. The installation is then typically left for a week for hydraulic equilibrium to be restored.

Prior to sampling the standpipe, the depth to the water table, and the depth to the base of the installation are monitored using an electronic dipmeter. In circumstances where free phase product is suspected to be present, then an 'Interface Meter' is used to determine the free phase film thickness.

A minimum of 3 x the installation volume is then removed. The pH of the water is then monitored and the sample is taken when the change in pH between any two consecutive extracts is less than 10%. The volume of water removed is recorded.

A sample comprises of a minimum of 3 litres. Two litres are taken in amber glass bottles, and one litre in a plastic bottle.

To avoid cross-contamination one bailer is used per position.

The samples are uniquely labelled with Project Name / Project No / Borehole No / Depth / Date Sampled. They are placed in a cool box chilled by ice packs, and the containers are sealed for transportation to the laboratory.

Once the samples are received in the **CC GEOTECHNICAL LTD** laboratory, the samples are stored in a refrigerator and returned to the cool boxes once collected.

Water taken from the installations are taken back to the **CC GEOTECHNICAL LTD** laboratory and disposed.

Other data recorded in the sampling comprises:

- Volume of water removed during development of well
- Volume of water removed during purging of the well
- Results of on-site pH analyses
- Sample appearance – colour, suspended solids

MONITORING OF GAS

Prior to embarking on a gas-monitoring round, all equipment is checked for functionality and the calibration status is confirmed.

At the commencement of the monitoring round, the prevailing weather conditions, air temperature, barometric pressure and direction of movement of barometric pressure are recorded.

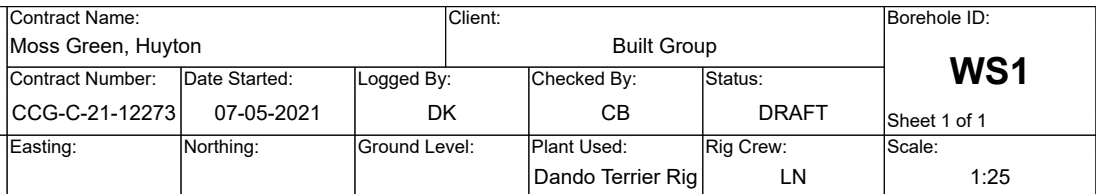
The flow meter is first attached to the standpipe valve, and the flow rate is measured (peak and steady flow) for 1 minute. The results are recorded in l.hr^{-1} . The flow meter tube is protected from the effects of wind by aligning the exhaust downwind.

Following measurement of borehole flow rate, the installation is left for a minimum of 10 minutes for the headspace to restore equilibrium.

Once the gas in the installation has regained equilibrium, the gas analyser is connected and monitoring commences. The peak and steady state readings for CH_4 , CO_2 , CO , H_2S and CO are recorded. The steady state is monitored for a minimum of one minute, and possibly up to a maximum of 10 minutes where fluctuations continue.

When the monitoring is complete, the depth to the water table, and the depth to the base of the well are monitored using an electronic dipmeter. In circumstances where free phase product is suspected to be present, then an 'Interface Meter' is used to determine the free phase film thickness.

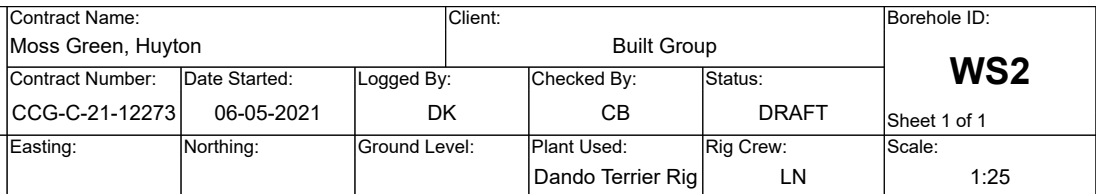
APPENDIX D: BOREHOLE LOGS



Samples & In Situ Testing	Strata Details	Groundwater
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Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
0.00 - 1.00	U			0.20 (0.30)		Dark brown very gravelly silty SAND. Gravel is fine to medium sub-angular cinders, coal, brick and sandstone (MADE GROUND)			
				0.50 (0.40)		Light brown slightly gravelly sandy silty CLAY. Gravel is fine to medium sub-rounded sandstone			
1.00 - 2.00	U	SPT(S)N=3 (1,0/0,1,1,1)		0.90 (0.90)		Very loose light brown slightly gravelly silty fine to medium grained SAND. Gravel is fine to medium sub-angular sandstone	1		
2.00 - 3.00	U	HVP=80 SPT(S)N=9 (1,2/2,2,3,2)		1.80 2.00 2.15	  	Firm brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded sandstone Loose light brown silty fine to medium grained SAND Firm tending to stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded sandstone	2		
3.00 - 4.00	U	HVP=100 HVP=70 HVP=90 SPT(S)N=14 (2,3/3,4,3,4)		(2.85)			3		
4.00 - 5.00	U	HVP=110 HVP=110 HVP=110 SPT(S)N=8 (1,2/2,2,2,2)					4		
		HVP=90 HVP=110 HVP=110 SPT(S)N=11 (1,2/2,3,3,3)		5.00			5		
						End of Borehole at 5.00m			

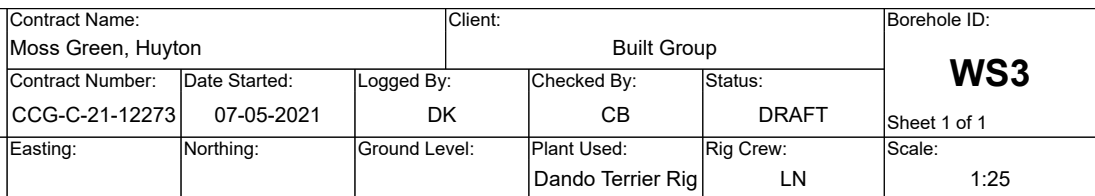
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	1 hour hand excavating 1.20mgl service avoidance pit					
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	0.40	PLAIN		4.00			0		
					0.40	4.70	SLOTTED							
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Samples & In Situ Testing	Strata Details	Groundwater
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Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 1.00				0.20 (0.30) 0.50	  	Dark brown very gravelly silty SAND. Gravel is fine to coarse sub-angular brick, coal and cinders (MADE GROUND) Dark brown very clayey slightly gravelly fine to medium grained SAND. Gravel is fine to medium sub-angular sandstone with frequent inclusions of rootlets Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-angular to sub-rounded sandstone		
1.00 - 2.00		SPT(S)N=8 (1,2/2,2,2,2)					1	
2.00 - 3.00		HVP=110 HVP=110 SPT(S)N=11 (1,2/2,3,3,3)					2	
3.00 - 4.00		HVP=110 HVP=110 HVP=110 SPT(S)N=12 (2,2/2,3,4,3)		(3.60)			3	
4.00 - 5.00		HVP=110 HVP=110 HVP=110 SPT(S)N=8 (2,2/3,2,1,2)					4	
				4.10 (0.90)		Loose to medium dense brown slightly sandy slightly silty fine to medium grained SAND. Gravel is fine to medium sub-rounded sandstone		
		SPT(S)N=10 (1,2/2,3,2,3)		5.00		End of Borehole at 5.00m	5	

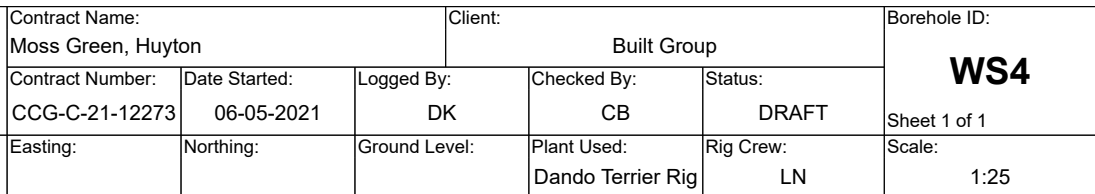
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	1 hour hand excavating 1.20mgl service avoidance pit					
Chiselling					Installation				Water Strikes					
									Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	3.00			0		
					0.00	0.50	PLAIN							
					0.50	4.00	SLOTTED							
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Samples & In Situ Testing	Strata Details	Groundwater
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Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 1.00	U			0.20		TOPSOIL		
				(0.45)		Dark brown very clayey gravelly fine to medium grained SAND. Gravel is fine to coarse sub-angular brick, coal, cinders and sandstone with frequent inclusions of rootlets (MADE GROUND)		
				0.65		Firm locally stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-angular to sub-rounded sandstone		
1.00 - 2.00	U	SPT(S)N=8 (1,2/2,2,2,2)					1	
		HVP=110						
		HVP=110						
2.00 - 3.00	U	SPT(S)N=11 (1,3/3,3,2,3)					2	
		HVP=110						
		HVP=110						
		HVP=110						
3.00 - 4.00	U	SPT(S)N=15 (1,2/3,4,4,4)		(4.35)			3	
		HVP=110						
		HVP=110						
		HVP=110						
4.00 - 5.00	U	SPT(S)N=10 (1,2/2,3,3,2)					4	
		HVP=110						
		HVP=110						
		HVP=110						
		SPT(S)N=9 (1,2/2,2,2,3)		5.00			5	
						End of Borehole at 5.00m		

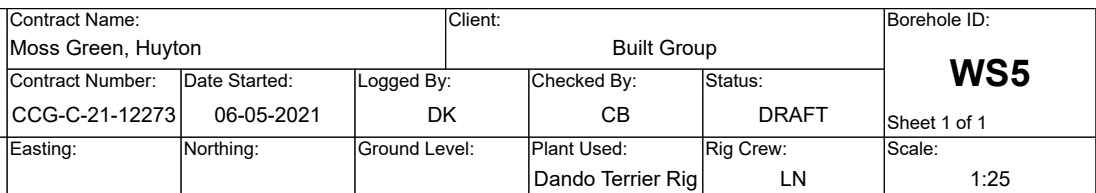
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks: 1 hour hand excavating 1.20mgl service avoidance pit Water Strikes <table><thead><tr><th>Strike (m)</th><th>Casing (m)</th><th>Sealed (m)</th><th>Time (mins)</th><th>Rose to (m)</th><th>Remarks</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> CC GEOTECHNICAL LTD 0151 545 2750 www.ccgeotechnical.com	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks						
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks																
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)													
Chiselling				Installation																	
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)														



Samples & In Situ Testing	Strata Details	Groundwater
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Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 1.00	U			(0.30)		Grassed TOPSOIL		
				0.30		Loose dark brown very gravelly very clayey SAND. Gravel is fine to coarse sub-angular tarmac, coal, cinders and brick (MADE GROUND)		
				0.50		Dark brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-angular sandstone and coal		
				(0.50)				
1.00 - 2.00	U	SPT(S)N=6 (1,1/1,1,2,2)		1.00		Soft becoming firm then stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded sandstone	1	
		HVP=100						
		HVP=100						
2.00 - 3.00	U	SPT(S)N=11 (1,1/2,3,3,3)					2	
		HVP=110						
		HVP=110						
		HVP=110						
3.00 - 4.00	U	SPT(S)N=14 (1,3/3,3,4,4)		(4.00)			3	
		HVP=100						
		HVP=100						
		HVP=100						
4.00 - 5.00	U	SPT(S)N=9 (1,2/2,2,2,3)					4	
		HVP=100						
		HVP=90						
		HVP=100						
		SPT(S)N=15 (2,3/3,4,4,4)		5.00			5	
						End of Borehole at 5.00m		

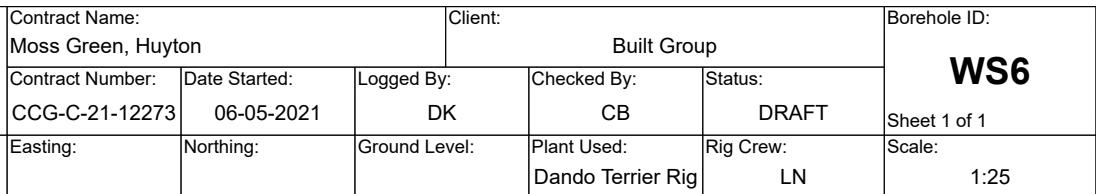
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks: 1 hour hand excavating 1.20mg/l service avoidance pit
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Weather:	Termination:	SPT Hammer: N/R, Energy Ratio: N/R
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[illegible]

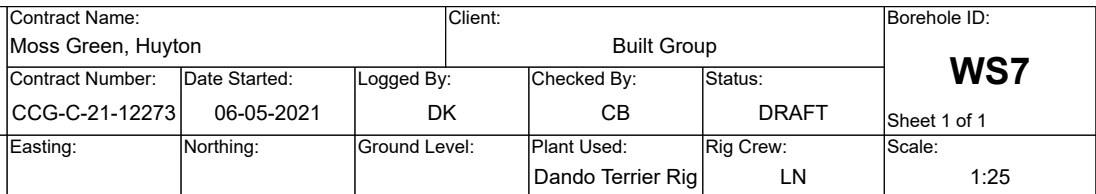
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	1 hour hand excavating 1.20mgl service avoidance pit					
									Water Strikes					
									Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)						
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Samples & In Situ Testing	Strata Details	Groundwater
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Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 1.00	U			0.10		Grassed TOPSOIL		
				(0.40)		Dark brown very gravelly silty SAND. High cobble content. Gravel is fine to coarse sub-angular brick, coal, cinders and sandstone (MADE GROUND)		
				0.50		Dark brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded coal and sandstone		
				(0.50)				
1.00 - 2.00	U	SPT(S)N=7 (1,2/2,1,2,2)		1.00		Firm becoming firm to stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded sandstone	1	
		HVP=100						
		HVP=90						
2.00 - 3.00	U	SPT(S)N=10 (1,1/2,3,2,3)					2	
		HVP=110						
		HVP=110						
		HVP=100						
3.00 - 4.00	U	SPT(S)N=12 (1,2/3,3,3,3)		(4.00)			3	
		HVP=110						
		HVP=110						
		HVP=100						
4.00 - 5.00	U	SPT(S)N=8 (1,2/2,2,2,2)					4	
		HVP=100						
		HVP=100						
		HVP=100						
		SPT(S)N=8 (1,1/1,2,2,3)		5.00			5	
						End of Borehole at 5.00m		

Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks: 1 hour hand excavating 1.20mgl service avoidance pit					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)						
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
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Samples & In Situ Testing	Strata Details	Groundwater
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Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.00 - 1.00	U			(0.30)		Grassed TOPSOIL		
				0.30		Loose dark brown very clayey very gravelly SAND. Gravel is fine to medium sub-angular coal, brick and cinders (MADE GROUND)		
				(0.70)				
1.00 - 2.00	U	SPT(S)N=8 (1,2/2,2,2,2)		1.00		Firm locally firm to stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded sandstone	1	
		HVP=110						
		HVP=110						
2.00 - 3.00	U	SPT(S)N=9 (1,2/2,3,2,2)					2	
		HVP=110						
		HVP=100						
		HVP=100						
3.00 - 4.00	U	SPT(S)N=13 (1,3/3,3,3,4)		(4.00)			3	
		HVP=100						
		HVP=90						
		HVP=90						
4.00 - 5.00	U	SPT(S)N=9 (1,2/2,2,2,3)					4	
		HVP=90						
		HVP=80						
		HVP=90						
		SPT(S)N=9 (1,1/1,2,3,3)		5.00		End of Borehole at 5.00m	5	

Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	1 hour hand excavating 1.20mgl service avoidance pit					
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	0.50	PLAIN							
					0.50	4.50	SLOTTED							
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	Contract Name: Moss Green, Huyton			Client: Built Group			Borehole ID: WS8		
	Contract Number: CCG-C-21-12273	Date Started: 07-05-2021	Logged By: DK	Checked By: CB	Status: DRAFT	Sheet 1 of 1			
Dynamic Sampling Borehole Log	Easting:	Northing:	Ground Level:	Plant Used: Dando Terrier Rig	Rig Crew: LN	Scale: 1:25			
	Weather:		Termination:		SPT Hammer: N/R, Energy Ratio: N/R				
Samples & In Situ Testing			Strata Details					Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation
0.00 - 1.00	U			0.10		Grassed TOPSOIL			
				0.30		 Dark brown very gravelly silty SAND. Gravel is fine to coarse angular to sub-angular concrete, brick, coal and cinders (MADE GROUND)  Firm dark brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded coal and sandstone			
1.00 - 2.00	U	SPT(S)N=9 (1,2/2,3,2,2)		1.00		Firm locally stiff brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-rounded sandstone		1	
2.00 - 3.00	U	SPT(S)N=10 (1,2/2,3,3,3)						2	
3.00 - 4.00	U	SPT(S)N=14 (2,2/3,3,4,4)		(4.00)				3	
4.00 - 5.00	U	SPT(S)N=9 (1,1/1,2,3,3)						4	
				5.00		End of Borehole at 5.00m		5	
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:		
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	1 hour hand excavating 1.20mgl service avoidance pit
					Water Strikes				
Chiselling					Installation				
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)
								Sealed (m)	Time (mins)
								Rose to (m)	Remarks
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APPENDIX E: GAS – GROUNDWATER MONITORING RESULTS

GAS AND WATER MONITORING RESULTS



	Date:	18-May-21											
	Visit Number	1											
	Atmos Press mb	1006											
	Pressure Trend	Steady											
	Air Temp °C	12											
	Cloud cover	High white cloud											
	Wind velocity	Windy											
	Precipitation	Dry											
	State of Ground	Dry											
WS1	CH4 (%):	Nil											
	CO2 (%):	1.6											
	O2 (%):	18.6											
	H2S (ppm):	Nil											
	CO (ppm):	Nil											
	PID (ppm):	0.0											
	Flow (l/hr):	<0.1											
	Water Level (mbgl):	0.67											
WS2	CH ₄ (%):	Nil											
	CO ₂ (%):	0.4											
	O ₂ (%):	19.9											
	H ₂ S (ppm):	Nil											
	CO (ppm):	Nil											
	PID (ppm):	0.0											
	Flow (l/hr):	<0.1											
	Water Level (mbgl):	0.90											
WS7	CH4 (%):	Nil											
	CO2 (%):	<0.1											
	O2 (%):	20.1											
	H2S (ppm):	Nil											
	CO (ppm):	Nil											
	PID (ppm):	0.0											
	Flow (l/hr):	<0.1											
	Water Level (mbgl):	0.97											

CCG-CMS-FO-129

Issue 2

Job No: CCG-C-21-12273

Site: Moss Green Cl, Liverpool

Instrument:

GFM436

TEST DATE AND CONDITIONS			
Date	06/05/2020		
Atmospheric Pressure	1009	mB	
Ambient Temperature	21.8	°C	
EnviroNics Serial No.	5089		

**GFM426 Final Inspection & Calibration
Check Certificate**

GAS DATA LTD

Unit 4, Fairfield Court

Seven Stars Estate

Wheler Rd

Coventry

CV3 4LJ

Tel 02476303311

Fax 02476307711



Customer	Gas Data Ltd
Certificate Number	121741
Order Number	325729

Serial Number	12177
Software Version	G426-00.0027/0010

Recalibration DUE Date
06/05/21

Instrument Checks					
Keyboard	✓		Display Contrast	✓	
Pump Flow In	400	Accept > 200 cc/min	Pump Flow @ -200mB	250	Accept > 200 cc/min
Clock Set / Running	✓		Labels Fitted	✓	

Gas Checks						
Sensor	CH ₄		CO ₂		O ₂	
	Instrument Gas	True Gas Value %	Instrument Gas	True Gas Value %	Instrument Gas	True Gas Value %
	Readings %		Readings %		Readings %	
	60	60	39.5	40	20.9	20.9
	Accept ±3.0		Accept ±3.0		Accept ±0.5	
	5	5	5	5	6	6
Zero Reading 100% N2	0	0	0	0	0	0
	Accept ±0.0		Accept ±0.0		Accept ±0.1	

Optional Gas Checks						
Applied Gas & Range		Concentration Tested @ (ppm)	Instrument Readings (ppm)			
Toxic Gas	Range (ppm)		Zero Reading		Instrument Gas Reading	
H2S	5000	1500	0	Accept ±0.0	1500	Accept ±5.0
CO	2000	1000	0	Accept ±0.0	1000	Accept ±5.0

Cross Gas Effects									
Applied Gas (ppm)		Instrument Readings (ppm)							
Toxic Gas	Concentration	Toxic 1:	H2S	Toxic 2:	CO	Toxic 3:			
H2S	1500	1500		0					
CO	1000	50		1000					

Pressure Checks						
Atmospheric Pressure [AP] (mB)				Static Pressure [SP] (mB)		
Current Atmospheric	Instrument Atmospheric			Applied Pressure (mB)	Instrument Pressure (mB)	
Pressure (mB)	Pressure Reading (mB)					
All Ports	Open Ports	1009	Accept ±2.0	0.0mB	0	Accept ±0.0
AP Port (Internal)	+800 mB	799	Accept ±5.0	+400mB	400	Accept ±2.0
AP Port (Internal)	+1200mb	1200	Accept ±5.0	-400mB	-400	Accept ±2.0

Differential Pressure [DP] (mB)			
Applied Pressure (mB)		Instrument DP Reading(mB)	
All Ports	Open Ports	0	Accept ± 0.02
DP Port	+ 25 mB	25	Accept ± 0.5
DP Port	- 25mB	-25	Accept ± 0.5

Temperature Checks		
Calibration Temperature	Instrument Temperature Reading °C	
Applied Temperature °C		
-10	-10	Accept ± 2.0
0	0	Accept ± 1.0
30	30	Accept ± 1.0
60	60	Accept ± 1.0
100	100	Accept ± 1.0

Technician:
<i>Jack Rutland</i>

Date Tested:
<i>07/05/2020</i>

The instrument identified by the serial number stated above has been tested by Gas Data personnel for calibration accuracy on the date and under the ambient conditions stated. Gas Data Ltd internal BS EN ISO9001:2015 compliant workshop procedures were followed to apply known calibration test gases, gas flow rates, pressures and temperatures of the values stated. The results displayed on the instrument at each stage are recorded above.

TEST DATE AND CONDITIONS

Date	6.5.20
Atmospheric Pressure	1009 mB
Ambient Temp	21.8 °C
Enviroics Serial No.	5 089

GAS DATA LTD

Unit 4, Fairfield Court
Seven Stars Estate
Wheler Rd
Coventry
CV3 4LJ
Tel 02476303311 Fax 02476307711

**GFM426 -1 (MCERTS) OUTWARD INSPECTION & QUALITY CHECK SHEET****INSTRUMENT DETAILS**

SO Number	Instrument Type	Instrument Serial Number & SW Version	Job Number(s)
325729	GFM426	12177 G426-27/10	121741

Calibration Technician

Date ...6.5.20...

Inspection Technician

Date ...7.5.20...

INSTRUMENT CHECKS		Pass (P), Fail (F) or not applicable (NA)	INSTRUMENT PACKING LIST		Tick if included
Function Tests	Dust Caps Fitted	P	Instrument		✓
	Keyboard Test (All Keys)	P	Leather Case		✓
	Backlight	P	Instrument Strap		✓
	Clock Set / Running	P	AC Battery Charger (UK)		✓
	Comms Test	P	AC Battery Charger (EURO)		✓
	Pump Flow Test (In & Out)	n/a	AC Battery Charger (US)		✓
	Battery Charge Test	P	AC Battery Charger (AUS)		✓
	Service Date set to?	6.5.21	Gas Sample Pipe - (new issue)		✓
	Data Logging Enabled?	P	Flow Sample Pipe - (new issue)		✓
Channel Test	Verify CH4/LEL	P	Hard Carry Case		✓
	Verify CO2	P	Allen Key		✓
	Verify O2	P	Spares Pot		✓
	Verify H2S	P	Temperature Probe		✓
	Verify CO	P	Vane Anemometer		✓
	Verify 1st Option Gas	N/A	USB Cable		✓
	Verify LEL	P	USB Memory stick		✓
	Verify SP	P	SiteMan Software	Ver 6.05	✓
	Verify Atmospheric Pressure	P	Internal Filter Pack	Qty	✓
	Verify Differential Pressure	P	External Filter Pack	Qty	✓
	Verify Flow	N/A	Field Guide		✓
	Verify Temperature Probe Input	P	Extra Items:		
	Verify Vane Anemometer Input	P			
	Jobcard(s) completed and signed	P	Comments:		
DataBase Checks	Jobcard(s) booked off database	P			
	Calibration certificate completed	P			
	Complete & print QI record	n/a			
Label Checks	No. of Calibration label fitted	GDC 08873			
	MCERTS Label Displayed	P			
	Warranty label fitted	P			
H2S Range	H2S Range from Sales Order	5000 ppm			
	H2S Range from Cal Cert	5000 ppm			
	Over-range value correct?	P			

APPENDIX F: SOIL CONTAMINATION RESULTS



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Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618

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info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 21-33667

Issue: 1

Date of Issue: 18/05/2021

Contact: Tony Gerrard

Customer Details: CC Geotechnical Ltd
Unit 1 & 2 Deltic Place
Deltic Way
Liverpool
Merseyside L33 7BA

Quotation No: Q14-00045

Order No: Not Supplied

Customer Reference: CCG-C-21-12273

Date Received: 11/05/2021

Date Approved: 18/05/2021

Details: Moss Green Close, Liverpool

Approved by:

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

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Sample Summary

Report No.: 21-33667, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
236874	WS1 0.50	06/05/2021	11/05/2021	Silty loam	
236875	WS2 0.45	06/05/2021	11/05/2021	Silty loam	
236876	WS3 0.50	06/05/2021	11/05/2021	Silty loam	
236877	WS4 0.25	06/05/2021	11/05/2021	Sandy silty loam	
236878	WS5 0.50	06/05/2021	11/05/2021	Silty loam	
236879	WS7 0.50	06/05/2021	11/05/2021	Silty loam	
236880	WS8 0.25	06/05/2021	11/05/2021	Silty loam	



Results Summary

2683

Report No.: 21-33667, issue number 1

ELAB Reference				236874	236875	236876	236877
Customer Reference							
Sample ID							
Sample Type				SOIL	SOIL	SOIL	SOIL
Sample Location				WS1	WS2	WS3	WS4
Sample Depth (m)				0.50	0.45	0.50	0.25
Sampling Date				06/05/2021	06/05/2021	06/05/2021	06/05/2021
Determinand	Codes	Units	LOD				
Soil sample preparation parameters							
Material removed	N	%	0.1	14.8	< 0.1	< 0.1	44.1
Description of Inert material removed	N		0	Stones,brick,clinker	None	None	Stones,brick,clinker
Metals							
Arsenic	M	mg/kg	1	19.4	8.5	21.9	23.7
Cadmium	M	mg/kg	0.5	< 0.5	0.6	< 0.5	1.0
Chromium	M	mg/kg	5	29.6	24.6	31.7	39.6
Copper	M	mg/kg	5	62.5	22.8	76.1	96.5
Lead	M	mg/kg	5	191	49.5	214	223
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	0.8	0.6
Nickel	M	mg/kg	5	31.6	20.9	32.8	57.9
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	144	430	147	191
Anions							
Water Soluble Sulphate	M	g/l	0.02	0.02	0.03	< 0.02	0.03
Inorganics							
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	< 2	< 2
Acid Soluble Sulphate (SO4)	U	%	0.02	0.05	0.04	0.04	0.05
Water Soluble Boron	N	mg/kg	0.5	1.9	0.7	0.9	0.9
Miscellaneous							
pH	M	pH units	0.1	7.9	7.4	7.2	7.8
Soil Organic Matter	U	%	0.1	2.6	2.5	3.8	3.5
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	0.1	0.3	0.7
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.2
Fluoranthene	M	mg/kg	0.1	< 0.1	0.3	0.6	2.4
Pyrene	M	mg/kg	0.1	< 0.1	0.3	0.5	2.3
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	0.1	0.3	1.4
Chrysene	M	mg/kg	0.1	< 0.1	0.2	0.4	1.6
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	0.1	0.3	1.2
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	0.2	0.3	1.9
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	0.2	0.4	1.6
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	0.2	0.3	1.5
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	0.1	0.4
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	0.2	0.3	1.2
Total PAH(16)	M	mg/kg	0.4	< 0.4	1.9	4.1	16.7

Results Summary

2683

Report No.: 21-33667, issue number 1

ELAB Reference	236874	236875	236876	236877
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	WS1	WS2	WS3	WS4
Sample Depth (m)	0.50	0.45	0.50	0.25
Sampling Date	06/05/2021	06/05/2021	06/05/2021	06/05/2021

Determinand	Codes	Units	LOD				
BTEX							
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG							
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	2.1
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	1.9	1.3	2.8
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	1.1	7.8
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	1.3	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	2.1	< 1.0	1.2	12.9
>C35-C40 Aromatic	N	mg/kg	1	1.1	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	3.3	3.3	2.5	25.6



Results Summary

2683

Report No.: 21-33667, issue number 1

ELAB Reference				236878	236879	236880
Customer Reference						
Sample ID						
Sample Type				SOIL	SOIL	SOIL
Sample Location				WS5	WS7	WS8
Sample Depth (m)				0.50	0.50	0.25
Sampling Date				06/05/2021	06/05/2021	06/05/2021
Determinand	Codes	Units	LOD			
Soil sample preparation parameters						
Material removed	N	%	0.1	18.3	44.5	44.8
Description of Inert material removed	N		0	Stones,brick,clinker	Stones,brick,clinker	Stones,brick,clinker
Metals						
Arsenic	M	mg/kg	1	22.9	34.2	53.8
Cadmium	M	mg/kg	0.5	0.9	0.8	1.6
Chromium	M	mg/kg	5	36.7	40.6	35.7
Copper	M	mg/kg	5	73.3	156	184
Lead	M	mg/kg	5	382	236	290
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	37.1	73.1	83.4
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	423	281	397
Anions						
Water Soluble Sulphate	M	g/l	0.02	< 0.02	0.04	0.02
Inorganics						
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	< 2
Acid Soluble Sulphate (SO4)	U	%	0.02	0.09	0.04	0.05
Water Soluble Boron	N	mg/kg	0.5	0.7	0.8	< 0.5
Miscellaneous						
pH	M	pH units	0.1	7.6	7.7	7.9
Soil Organic Matter	U	%	0.1	3.2	3.7	5.9
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	1.9	0.3	3.1
Acenaphthylene	M	mg/kg	0.1	3.5	< 0.1	0.1
Acenaphthene	M	mg/kg	0.1	7.1	2.3	6.9
Fluorene	M	mg/kg	0.1	7.4	1.3	4.2
Phenanthrene	M	mg/kg	0.1	72.8	13.0	41.4
Anthracene	M	mg/kg	0.1	9.9	4.4	12.2
Fluoranthene	M	mg/kg	0.1	67.5	16.2	55.4
Pyrene	M	mg/kg	0.1	57.6	14.2	48.7
Benzo(a)anthracene	M	mg/kg	0.1	26.9	7.6	26.8
Chrysene	M	mg/kg	0.1	30.9	8.5	29.6
Benzo(b)fluoranthene	M	mg/kg	0.1	19.5	5.8	21.5
Benzo(k)fluoranthene	M	mg/kg	0.1	22.9	6.3	23.2
Benzo(a)pyrene	M	mg/kg	0.1	22.9	6.3	24.6
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	16.8	7.9	20.2
Dibenzo(a,h)anthracene	M	mg/kg	0.1	4.0	1.9	4.8
Benzo[g,h,i]perylene	M	mg/kg	0.1	13.7	3.5	16.3
Total PAH(16)	M	mg/kg	0.4	385	99.7	339



Results Summary

2683

Report No.: 21-33667, issue number 1

ELAB Reference	236878	236879	236880
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	WS5	WS7	WS8
Sample Depth (m)	0.50	0.50	0.25
Sampling Date	06/05/2021	06/05/2021	06/05/2021

Determinand	Codes	Units	LOD			
BTEX						
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0
TPH CWG						
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	1.7	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	4.8
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	11.3
>C21-C35 Aliphatic	N	mg/kg	1	1.8	16.9	27.9
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	3.0	1.6
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	3.4
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	33.4
>C16-C21 Aromatic	N	mg/kg	1	4.4	2.2	137
>C21-C35 Aromatic	N	mg/kg	1	22.5	21.0	639
>C35-C40 Aromatic	N	mg/kg	1	1.0	2.0	67.1
Total (>C5-C40) Ali/Aro	N	mg/kg	1	31.4	45.1	926



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Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 21-33667, issue number 1

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos	Gravimetric Analysis Total	Gravimetric Analysis by ACM Type	Free Fibre Analysis	Total Asbestos
236874	0.50	WS1	Brown sandy soil with	No asbestos detected	n/t	n/t	n/t	n/t
236875	0.45	WS2	Brown sandy soil with stones	No asbestos detected	n/t	n/t	n/t	n/t
236876	0.50	WS3	Brown sandy soil with stones	No asbestos detected	n/t	n/t	n/t	n/t
236877	0.25	WS4	Brown sandy soil with	No asbestos detected	n/t	n/t	n/t	n/t
236878	0.50	WS5	Brown sandy soil	No asbestos detected	n/t	n/t	n/t	n/t
236879	0.50	WS7	Brown sandy soil with clinker	No asbestos detected	n/t	n/t	n/t	n/t
236880	0.25	WS8	Black sandy soil with stones,clinker	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 21-33667, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Free cyanide	N	As submitted sample	14/05/2021	107	Colorimetry
Sulphide	N	As submitted sample	14/05/2021	109	Colorimetry
Hexavalent chromium	N	As submitted sample	13/05/2021	110	Colorimetry
pH	M	Air dried sample	18/05/2021	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	17/05/2021	115	Ion Chromatography
PAH (GC-FID)	M	As submitted sample	13/05/2021	133	GC-FID
Water soluble anions	M	Air dried sample	13/05/2021	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	17/05/2021	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	17/05/2021	181	GC-MS
BTEX in solids	M	As submitted sample	17/05/2021	181A	GC-MS
Water soluble boron	N	Air dried sample	14/05/2021	202	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	13/05/2021	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	17/05/2021	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	13/05/2021	214	GC-FID
Asbestos identification	U	Air dried sample	18/05/2021	280	Microscopy
Aqua regia extractable metals	M	Air dried sample	13/05/2021	300	ICPMS
Soil organic matter	U	Air dried sample	18/05/2021	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 21-33667, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

LOD LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.
Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
ELAB are unable to provide an interpretation or opinion on the content of this report.
The results relate only to the sample received.
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request
Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

APPENDIX G: SOIL CONTAMINATION SUMMARY TABLES

SOIL ASSESSMENT CRITERIA FOR RESIDENTIAL LAND USE (WITH HOME GROWN PRODUCE)

Contaminant	Assessment Criteria for Residential at 1% SOM (mg/kg)	Assessment Criteria for Residential at 2.5% SOM (mg/kg)	Assessment Criteria for Residential at 6% SOM (mg/kg)
<u>Metals</u>			
Arsenic	37	37	37
Boron	290	290	290
Cadmium	11	11	11
Chromium III	910	910	910
Chromium VI	6	6	6
Copper	240	240	240
*Lead	200	200	200
Mercury	1.2	1.2	1.2
Nickel	180	180	180
Selenium	250	250	250
Vanadium	410	410	410
Zinc	3700	3700	3700
<u>Non-Metals</u>			
Phenol	280	550	1100
<u>Polyaromatic Hydrocarbons (PAH)</u>			
Acenaphthene	210	510	1100
Acenaphthylene	170	420	920
Anthracene	2400	5400	11000
Benz[a]anthracene	7.2	11	13
Benzo[a]pyrene	2.2	2.7	3.0
Benzo[b]fluoranthene	2.6	3.3	3.7
Benzo[ghi]perylene	320	340	350
Benzo[k]fluoranthene	77	93	100
Chrysene	15	22	27
Dibenz[ah]anthracene	0.24	0.28	0.3
Fluoranthene	280	560	890
Fluorene	170	400	860
Indeno[123-cd]pyrene	27	36	41
Naphthalene	2.3	5.6	13
Phenanthrene	95	220	440
Pyrene	620	1200	2000
Coal Tar [Bap as surrogate marker]	0.79	0.98	1.1
<u>Petroleum Hydrocarbons</u>			
Aliphatic EC 5-6	42	78	160
Aliphatic EC >6-8	100	230	530
Aliphatic EC >8-10	27	65	150
Aliphatic EC >10-12	130	330	760
Aliphatic EC >12-16	1100	2400	4300
Aliphatic EC >16-35	65000	92000	110000
Aliphatic EC >35-44	65000	92000	110000
Aromatic EC 5-7 (Benzene)	70	140	300
Aromatic EC >7-8 (Toluene)	130	290	660
Aromatic EC >8-10	34	83	190
Aromatic EC >10-12	74	180	380
Aromatic EC >12-16	140	330	660
Aromatic EC >16-21	260	540	930
Aromatic EC >21-35	1100	1500	1700
Aromatic EC >35-44	1100	1500	1700
Aliphatic – Aromatic EC >44-70	1600	1800	1900

Copyright: Land Quality Management Limited (LQM)

The above is based on criteria contained in publication LQM/CIEH S4UL's for Human Health Risk Assessment (2015) (CCG Licence No. S4UL3233), applicable to the "Residential" land use (with home grown produce) scenario for soil organic matter (SOM) content of 1% - 6%.

*This document does not provide criteria for Lead, for which the results were compared to the C4SL published by DEFRA SP1010 Development of Category 4 Screening Levels.



METALS DATA SUMMARY AND RISK ASSESSMENT SHEET

Job number: 21-12273

Site name: Moss Green Close, Liverpool

Prepared by: TG

Authorised by: CB

Proposed land use: Residential with plant uptake

SOM % used: 2.5

 = Threshold exceeded

 = Below Limit of detection

 = Not tested

Contaminants			Metals							
			Cadmium	Chromium III	Chromium VI	Copper	Lead	Mercury (elemental)	Nickel	Zinc
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Detection			0.5	5.0	0.8	5.0	5.0	0.5	5.0	5.0
Human Health Risk Assessment (GAC)			11	910	6	2400	200	1.2	180	3700
Sample Location	Sample Depth (m)	Sample type								
WS1	0.50	SOIL	< 0.5	29.6	< 0.8	62.5	191	< 0.5	31.6	144
WS2	0.45	SOIL	0.6	24.6	< 0.8	22.8	49.5	< 0.5	20.9	430
WS3	0.50	SOIL	< 0.5	31.7	< 0.8	76.1	214	0.8	32.8	147
WS4	0.25	SOIL	1	39.6	< 0.8	96.5	223	0.6	57.9	191
WS5	0.50	SOIL	0.9	36.7	< 0.8	73.3	382	< 0.5	37.1	423
WS7	0.50	SOIL	0.8	40.6	< 0.8	156	236	< 0.5	73.1	281
WS8	0.25	SOIL	1.6	35.7	< 0.8	184	290	< 0.5	83.4	397
Human Health Risk Assessment (GAC)			11	910	6	2400	200	1.2	180	3700



SEMI-METALS, NON-METALS, INORGANICS AND OTHER DATA SUMMARY AND RISK ASSESSMENT SHEET

Job number: **21-12273**Site name: **Moss Green Close, Liverpool**Prepared by: **TG**Authorised by: **CB**Proposed land use: **Residential with plant uptake**SOM % used: **2.5**
 = **Threshold exceeded**
 = **Below Limit of detection**
 = **Not tested**

			Semi/non-metals		Inorganics			Other		
Contaminants			Arsenic	Boron	Selenium	Cyanide (free)	Sulphate (water soluble)	Sulphate (water soluble)	pH (units)	Soil Organic Matter %
Units			mg/kg	mg/kg	mg/kg	mg/kg	g/l	mg/l	units	units
Limit of Detection			1.0	0.5	1.0	1.0	0.02	20.0	0.1	0.1
Human Health Risk Assessment (GAC)			37	290	250	22	NA	NA	NA	NA
Sample Location	Sample Depth (m)	Sample type								
WS1	0.50	SOIL	19.4	1.9	< 1.0	< 1.0	0.02	n/t	7.9	2.6
WS2	0.45	SOIL	8.5	0.7	< 1.0	< 1.0	0.03	n/t	7.4	2.5
WS3	0.50	SOIL	21.9	0.9	< 1.0	< 1.0	< 0.02	n/t	7.2	3.8
WS4	0.25	SOIL	23.7	0.9	< 1.0	< 1.0	0.03	n/t	7.8	3.5
WS5	0.50	SOIL	22.9	0.7	< 1.0	< 1.0	< 0.02	n/t	7.6	3.2
WS7	0.50	SOIL	34.2	0.8	< 1.0	< 1.0	0.04	n/t	7.7	3.7
WS8	0.25	SOIL	53.8	< 0.5	< 1.0	< 1.0	0.02	n/t	7.9	5.9
Human Health Risk Assessment (GAC)			37	290	11	22	NA	NA	NA	NA



SPECIATED PAH'S DATA SUMMARY AND RISK ASSESSMENT SHEET

Job number: 21-12273

Site name: Moss Green Close, Liverpool

Prepared by: TG

Authorised by: CB

Proposed land use: Residential with plant uptake

SOM % used: 2.5

 = Threshold exceeded

 = Below Limit of detection

 n/t = Not tested

			PAH's																	
Contaminants			Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[ghi]perylene	Benzo[k]fluoranthene	Chrysene	Dibenzo[ah]anthracene	fluoranthene	fluorene	Indeno[123-cd]pyrene	Napthalene	Pheanthrene	Pyrene	Total PAH's	
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Detection			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
Human Health Risk Assessment (GAC)			510	420	5400	11	2.7	3.3	340	93	22	0.28	560	400	36	5.6	220	1200	NA	
Sample Location	Sample Depth (m)	Sample type																		
WS1	0.50	SOIL	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.4	
WS2	0.45	SOIL	< 0.1	< 0.1	< 0.1	0.1	0.2	0.1	0.2	0.2	0.2	< 0.1	0.3	< 0.1	0.2	< 0.1	0.1	0.3	1.9	
WS3	0.50	SOIL	< 0.1	< 0.1	< 0.1	0.3	0.4	0.3	0.3	0.3	0.4	0.1	0.6	< 0.1	0.3	< 0.1	0.3	0.5	4.1	
WS4	0.25	SOIL	0.1	< 0.1	0.2	1.4	1.6	1.2	1.2	1.9	1.6	0.4	2.4	< 0.1	1.5	0.1	0.7	2.3	16.7	
WS5	0.50	SOIL	7.1	3.5	9.9	26.9	22.9	19.5	13.7	22.9	30.9	4	67.5	7.4	16.8	1.9	72.8	57.6	385	
WS7	0.50	SOIL	2.3	< 0.1	4.4	7.6	6.3	5.8	3.5	6.3	8.5	1.9	16.2	1.3	7.9	0.3	13	14.2	99.7	
WS8	0.25	SOIL	6.9	0.1	12.2	26.8	24.6	21.5	16.3	23.2	29.6	4.8	55.4	4.2	20.2	3.1	41.4	48.7	339	
Human Health Risk Assessment (GAC)			510	420	11	11	2.7	3.3	340	93	22	0.28	560	400	36	5.6	220	1200	NA	



SPECIATED TPH'S DATA SUMMARY AND RISK ASSESSMENT SHEET

Job number: 21-12273

Site name: Moss Green Close, Liverpool

Prepared by: TG

Authorised by: CB

Proposed land use: Residential with plant uptake

SOM % used: 2.5

 = Threshold exceeded

 = Below Limit of detection

 = Not tested

			Speciated TPH's																
			Aromatics							Aliphatics									
Contaminants			EC5-7	EC7-8	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35	EC35-44	EC5-6	EC6-8	EC8-10	EC10-12	EC12-16	EC16-35	EC35-44	TOTAL TPH'S	
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Detection			0.01	0.01	1.0	1.0	1.0	1.0	1.0	1.0	0.01	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Human Health Risk Assessment (GAC)			140	290	83	180	330	540	1500	1500	78	230	65	330	2400	92000	92000	NA	
Sample Location	Sample Depth (m)	Sample type																	
WS1	0.50	SOIL	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	< 1.0	2.1	1.1	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.3	
WS2	0.45	SOIL	< 0.01	< 0.01	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.01	< 0.01	< 1.0	1.9	< 1.0	< 1.0	< 1.0	3.3	
WS3	0.50	SOIL	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 0.01	< 0.01	< 1.0	1.3	< 1.0	1.1	< 1.0	2.5	
WS4	0.25	SOIL	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	< 1.0	12.9	< 1.0	< 0.01	< 0.01	2.1	2.8	< 1.0	7.8	< 1.0	25.6	
WS5	0.50	SOIL	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	4.4	22.5	1	< 0.01	< 0.01	< 1.0	1.7	< 1.0	1.8	< 1.0	31.4	
WS7	0.50	SOIL	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	2.2	21	2	< 0.01	< 0.01	< 1.0	< 1.0	< 1.0	16.9	3	45.1	
WS8	0.25	SOIL	< 0.01	< 0.01	< 1.0	3.4	33.4	137	639	67.1	< 0.01	< 0.01	< 1.0	< 1.0	4.8	39.2	1.6	926	
Human Health Risk Assessment (GAC)			140	290	11	180	330	540	1500	1500	78	230	65	330	2400	92000	92000	NA	



BTEX DATA SUMMARY AND RISK ASSESSMENT SHEET

Job number: **21-12273**

Site name: **Moss Green Close, Liverpool**

Prepared by: **TG**

Authorised by: **CB**

Proposed land use: **Residential with plant uptake**

SOM % used: **2.5**

 = **Threshold exceeded**

 = **Below Limit of detection**

n/t = **Not tested**

			BTEX			
Contaminants			Benzene	Toluene	Ethylbenzene	Total Xylenes
Units			µg/kg	µg/kg	µg/kg	µg/kg
Limit of Detection			10	10	10	10
Human Health Risk Assessment (GAC)			170	290000	110000	130000
Sample Location	Sample Depth (m)	Sample type				
WS1	0.50	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
WS2	0.45	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
WS3	0.50	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
WS4	0.25	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
WS5	0.50	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
WS7	0.50	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
WS8	0.25	SOIL	< 10.0	< 10.0	< 10.0	< 10.0
Human Health Risk Assessment (GAC)			170	11	110000	130000

**ASBESTOS ASSESSMENT SHEET****Job number: 21-12273****Site name: Moss Green Close, Liverpool****Prepared by: TG****Authorised by: CB**

Sample Location	Sample Depth (m)	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)	Assessment
WS1	0.50	No asbestos detected	n/t	n/t	n/t	n/t	No asbestos detected
WS2	0.45	No asbestos detected	n/t	n/t	n/t	n/t	No asbestos detected
WS3	0.50	No asbestos detected	n/t	n/t	n/t	0	No asbestos detected
WS4	0.25	No asbestos detected	n/t	n/t	n/t	n/t	No asbestos detected
WS5	0.50	No asbestos detected	n/t	n/t	n/t	n/t	No asbestos detected
WS7	0.50	No asbestos detected	n/t	n/t	n/t	n/t	No asbestos detected
WS8	0.25	No asbestos detected	n/t	n/t	n/t	n/t	No asbestos detected



Job Number:	21-12273	Site Name:	Moss Green Close, Liverpool
Prepared by:	TG	Approved by:	CB

Sample Location	Sample Depth (m)	Sample type	Sulphate (water soluble) (mg/l)	Sulphate (water soluble) (mg/l)	pH (units)	pH (units)
			Soil	Water	Soil	Water
WS1	0.50	SOIL	20	n/t	7.9	n/t
WS2	0.45	SOIL	30	n/t	7.4	n/t
WS3	0.50	SOIL	20	n/t	7.2	n/t
WS4	0.25	SOIL	30	n/t	7.8	n/t
WS5	0.50	SOIL	20	n/t	7.6	n/t
WS7	0.50	SOIL	40	n/t	7.7	n/t
WS8	0.25	SOIL	20	n/t	7.9	n/t
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Soil Concrete Specification Data Sheet	
Is the site Brownfield or Greenfield?	Brownfield
Is the water table Static or Mobile	Static
Highest water-soluble Sulphate results	40
Lowest pH result	7.2
Design Sulphate Class	DS-1
ACEC Class	AC-1s
Intended Working Life	50 Years
Design Chemical Classification	DC-1

Water Concrete Specification Data Sheet	
Is the site Brownfield or Greenfield?	N/a
Is the water table Static or Mobile	N/a
Highest water-soluble Sulphate results	
Lowest pH result	
Design Sulphate Class	
ACEC Class	
Intended Working Life	N/a
Design Chemical Classification	

Conclusions
Based on the soil data, concrete should be specified to conform to the compositional requirements of DC-1 as defined in BRE Special Digest 1: 2005.
Based on the water data, concrete should be specified to conform to the compositional requirements of as defined in BRE Special Digest 1: 2005.

APPENDIX H: PRELIMINARY WASTE CLASSIFICATION REPORT



Waste Classification Report



VNSQQ-A8NWN-JCN32

Job name

Moss Green CI', Liverpool

Description/Comments

Project

Site

Related Documents

#	Name	Description
None		

Waste Stream Template

CCG SOIL A 2020

Classified by

Name: **Tony Gerrard**
Date: **18 May 2021 15:05 GMT**
Telephone: **0151 545 2750**

Company: **CC Geotechnical Ltd**

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Tony Gerrard
Created date: 18 May 2021 15:05 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS1	0.50	Non Hazardous		2
2	WS2	0.45	Non Hazardous		7
3	WS3	0.50	Non Hazardous		12
4	WS4	0.25	Non Hazardous		17
5	WS5	0.50	Non Hazardous		22
6	WS7	0.50	Non Hazardous		27
7	WS8	0.25	Non Hazardous		32

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	37
Appendix B: Rationale for selection of metal species	41
Appendix C: Version	42



Classification of sample: WS1

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS1	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				19.4 mg/kg	1.32	25.614 mg/kg	0.00256 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				29.6 mg/kg	1.462	43.262 mg/kg	0.00433 %			
		215-160-9	1308-38-9								
4	copper { dicopper oxide; copper (I) oxide }				62.5 mg/kg	1.126	70.368 mg/kg	0.00704 %			
	029-002-00-X	215-270-7	1317-39-1								
5	lead { lead chromate }			1	191 mg/kg	1.56	297.925 mg/kg	0.0191 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
7	nickel { nickel chromate }				31.6 mg/kg	2.976	94.05 mg/kg	0.0094 %			
	028-035-00-7	238-766-5	14721-18-7								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
	034-002-00-8										
9	zinc { zinc oxide }				144 mg/kg	1.245	179.239 mg/kg	0.0179 %			
	030-013-00-7	215-222-5	1314-13-2								
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
12	boron { diboron trioxide; boric oxide }				1.9 mg/kg	3.22	6.118 mg/kg	0.000612 %			
	005-008-00-8	215-125-8	1303-86-2								
13	pH				7.9 pH		7.9 pH	7.9 pH			
			pH								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	phenol				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
15	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
16	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
17	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
18	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
19	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
20	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
21	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
22	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
23	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
24	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
25	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
26	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
27	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
28	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
29	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
30	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
31	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
32	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
33	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
34	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
35	TPH (C6 to C40) petroleum group				3.3 mg/kg		3.3 mg/kg	0.00033 %			
			TPH								
36	confirm TPH has NOT arisen from diesel or petrol				.1		.1				<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
38	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
39	asbestos				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5								



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
40	antimony { antimony trioxide }				<0.1	mg/kg	1.197	<0.12	mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
41	beryllium { beryllium oxide }				<0.1	mg/kg	2.775	<0.278	mg/kg	<0.0000278 %		<LOD
	004-003-00-8	215-133-1	1304-56-9									
42	manganese { manganese sulphate }				<0.1	mg/kg	2.749	<0.275	mg/kg	<0.0000275 %		<LOD
	025-003-00-4	232-089-9	7785-87-7									
43	molybdenum { molybdenum(VI) oxide }				<0.1	mg/kg	1.5	<0.15	mg/kg	<0.000015 %		<LOD
	042-001-00-9	215-204-7	1313-27-5									
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3									
45	tetrachloroethylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-028-00-4	204-825-9	127-18-4									
46	carbon tetrachloride; tetrachloromethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-008-00-5	200-262-8	56-23-5									
47	trichloroethylene; trichloroethene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-027-00-9	201-167-4	79-01-6									
48	vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-023-00-7	200-831-0	75-01-4									
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-045-00-7	200-024-3	50-29-3									
50	chlordane (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-047-00-8	200-349-0	57-74-9									
51	hexachlorocyclohexanes, including lindane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1									
52	dieldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-049-00-9	200-484-5	60-57-1									
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-051-00-X	200-775-7	72-20-8									
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-046-00-2	200-962-3	76-44-8									
55	hexachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-065-00-6	204-273-9	118-74-1									
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	606-019-00-6	205-601-3	143-50-0									
57	aldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-048-00-3	206-215-8	309-00-2									
58	pentachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-074-00-5	210-172-0	608-93-5									
59	dodecachloropentacyclo[5.2.1.02.6.03.9.05,8]decane; mirex				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-077-00-1	219-196-6	2385-85-5									
60	camphechlor (ISO); toxaphene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-044-00-1	232-283-3	8001-35-2									
61	hexabromobiphenyl				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		252-994-2	36355-01-8									
62	2,3,7,8-TeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
		217-122-7	1746-01-6									
63	1,2,3,7,8-PeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
			40321-76-4									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5; 68476-34-6; 94114-59-7; 1159170-26-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened		232-366-4; 265-184-9; 294-799-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0624 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00033%)



Classification of sample: WS2

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS2	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.45 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	8.5 mg/kg	1.32	11.223 mg/kg	0.00112 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		24.6 mg/kg	1.462	35.954 mg/kg	0.0036 %		
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	22.8 mg/kg	1.126	25.67 mg/kg	0.00257 %		
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	49.5 mg/kg	1.56	77.211 mg/kg	0.00495 %		
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	20.9 mg/kg	2.976	62.204 mg/kg	0.00622 %		
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2	430 mg/kg	1.245	535.227 mg/kg	0.0535 %		
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %		<LOD
12	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
13	pH		PH		7.4 pH		7.4 pH	7.4 pH		



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	phenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
15	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
16	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
17	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
18	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
19	phenanthrene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		201-581-5	85-01-8									
20	anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		204-371-1	120-12-7									
21	fluoranthene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
		205-912-4	206-44-0									
22	pyrene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
		204-927-3	129-00-0									
23	benzo[a]anthracene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
	601-033-00-9	200-280-6	56-55-3									
24	chrysene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
	601-048-00-0	205-923-4	218-01-9									
25	benzo[b]fluoranthene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
	601-034-00-4	205-911-9	205-99-2									
26	benzo[k]fluoranthene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
	601-036-00-5	205-916-6	207-08-9									
27	benzo[a]pyrene; benzo[def]chrysene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
	601-032-00-3	200-028-5	50-32-8									
28	indeno[123-cd]pyrene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		205-893-2	193-39-5									
29	dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
30	benzo[ghi]perylene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		205-883-8	191-24-2									
31	benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
32	toluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
33	ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
34	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35	TPH (C6 to C40) petroleum group				3.3	mg/kg		3.3	mg/kg	0.00033 %		
			TPH									
36	confirm TPH has NOT arisen from diesel or petrol				.1			.1				<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
38	polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3									
39	asbestos				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
40	antimony { antimony trioxide }				<0.1 mg/kg	1.197	<0.12 mg/kg	<0.000012 %			<LOD
	051-005-00-X	215-175-0	1309-64-4								
41	beryllium { beryllium oxide }				<0.1 mg/kg	2.775	<0.278 mg/kg	<0.0000278 %			<LOD
	004-003-00-8	215-133-1	1304-56-9								
42	manganese { manganese sulphate }				<0.1 mg/kg	2.749	<0.275 mg/kg	<0.0000275 %			<LOD
	025-003-00-4	232-089-9	7785-87-7								
43	molybdenum { molybdenum(VI) oxide }				<0.1 mg/kg	1.5	<0.15 mg/kg	<0.000015 %			<LOD
	042-001-00-9	215-204-7	1313-27-5								
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3								
45	tetrachloroethylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-028-00-4	204-825-9	127-18-4								
46	carbon tetrachloride; tetrachloromethane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-008-00-5	200-262-8	56-23-5								
47	trichloroethylene; trichloroethene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	602-027-00-9	201-167-4	79-01-6								
48	vinyl chloride; chloroethylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-023-00-7	200-831-0	75-01-4								
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-045-00-7	200-024-3	50-29-3								
50	chlordane (ISO); 1,2,4,5,6,7,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-047-00-8	200-349-0	57-74-9								
51	hexachlorocyclohexanes, including lindane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1								
52	dieldrin (ISO)				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-049-00-9	200-484-5	60-57-1								
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-051-00-X	200-775-7	72-20-8								
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-046-00-2	200-962-3	76-44-8								
55	hexachlorobenzene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-065-00-6	204-273-9	118-74-1								
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	606-019-00-6	205-601-3	143-50-0								
57	aldrin (ISO)				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-048-00-3	206-215-8	309-00-2								
58	pentachlorobenzene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-074-00-5	210-172-0	608-93-5								
59	dodecachloropentacyclo[5.2.1.02,6.03,9.05,8]decane; mirex				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-077-00-1	219-196-6	2385-85-5								
60	camphechlor (ISO); toxaphene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-044-00-1	232-283-3	8001-35-2								
61	hexabromobiphenyl				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		252-994-2	36355-01-8								
62	2,3,7,8-TeCDD				<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %			<LOD
		217-122-7	1746-01-6								
63	1,2,3,7,8-PeCDD				<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %			<LOD
			40321-76-4								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5, 68476-34-6, 94114-59-7, 1159170-26-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened	232-366-4; 265-184-9; 294-799-5	8008-20-6; 64742-81-0; 91770-15-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0737 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00033%)



Classification of sample: WS3

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS3	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				21.9 mg/kg	1.32	28.915 mg/kg	0.00289 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				31.7 mg/kg	1.462	46.331 mg/kg	0.00463 %			
		215-160-9	1308-38-9								
4	copper { dicopper oxide; copper (I) oxide }				76.1 mg/kg	1.126	85.68 mg/kg	0.00857 %			
	029-002-00-X	215-270-7	1317-39-1								
5	lead { lead chromate }			1	214 mg/kg	1.56	333.8 mg/kg	0.0214 %			
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury dichloride }				0.8 mg/kg	1.353	1.083 mg/kg	0.000108 %			
	080-010-00-X	231-299-8	7487-94-7								
7	nickel { nickel chromate }				32.8 mg/kg	2.976	97.621 mg/kg	0.00976 %			
	028-035-00-7	238-766-5	14721-18-7								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
	034-002-00-8										
9	zinc { zinc oxide }				147 mg/kg	1.245	182.973 mg/kg	0.0183 %			
	030-013-00-7	215-222-5	1314-13-2								
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
12	boron { diboron trioxide; boric oxide }				0.9 mg/kg	3.22	2.898 mg/kg	0.00029 %			
	005-008-00-8	215-125-8	1303-86-2								
13	pH				7.2 pH		7.2 pH	7.2 pH			
			pH								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	phenol				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
15	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
16	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
17	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
18	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
19	phenanthrene				0.3 mg/kg		0.3 mg/kg	0.00003 %			
		201-581-5	85-01-8								
20	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
21	fluoranthene				0.6 mg/kg		0.6 mg/kg	0.00006 %			
		205-912-4	206-44-0								
22	pyrene				0.5 mg/kg		0.5 mg/kg	0.00005 %			
		204-927-3	129-00-0								
23	benzo[a]anthracene				0.3 mg/kg		0.3 mg/kg	0.00003 %			
	601-033-00-9	200-280-6	56-55-3								
24	chrysene				0.4 mg/kg		0.4 mg/kg	0.00004 %			
	601-048-00-0	205-923-4	218-01-9								
25	benzo[b]fluoranthene				0.3 mg/kg		0.3 mg/kg	0.00003 %			
	601-034-00-4	205-911-9	205-99-2								
26	benzo[k]fluoranthene				0.3 mg/kg		0.3 mg/kg	0.00003 %			
	601-036-00-5	205-916-6	207-08-9								
27	benzo[a]pyrene; benzo[def]chrysene				0.4 mg/kg		0.4 mg/kg	0.00004 %			
	601-032-00-3	200-028-5	50-32-8								
28	indeno[123-cd]pyrene				0.3 mg/kg		0.3 mg/kg	0.00003 %			
		205-893-2	193-39-5								
29	dibenz[a,h]anthracene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
	601-041-00-2	200-181-8	53-70-3								
30	benzo[ghi]perylene				0.3 mg/kg		0.3 mg/kg	0.00003 %			
		205-883-8	191-24-2								
31	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
32	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
33	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
34	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
35	TPH (C6 to C40) petroleum group				2.5 mg/kg		2.5 mg/kg	0.00025 %			
			TPH								
36	confirm TPH has NOT arisen from diesel or petrol				.1		.1				<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
38	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
39	asbestos				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5								



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
40	antimony { antimony trioxide }				<0.1	mg/kg	1.197	<0.12	mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
41	beryllium { beryllium oxide }				<0.1	mg/kg	2.775	<0.278	mg/kg	<0.0000278 %		<LOD
	004-003-00-8	215-133-1	1304-56-9									
42	manganese { manganese sulphate }				<0.1	mg/kg	2.749	<0.275	mg/kg	<0.0000275 %		<LOD
	025-003-00-4	232-089-9	7785-87-7									
43	molybdenum { molybdenum(VI) oxide }				<0.1	mg/kg	1.5	<0.15	mg/kg	<0.000015 %		<LOD
	042-001-00-9	215-204-7	1313-27-5									
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3									
45	tetrachloroethylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-028-00-4	204-825-9	127-18-4									
46	carbon tetrachloride; tetrachloromethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-008-00-5	200-262-8	56-23-5									
47	trichloroethylene; trichloroethene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-027-00-9	201-167-4	79-01-6									
48	vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-023-00-7	200-831-0	75-01-4									
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-045-00-7	200-024-3	50-29-3									
50	chlordane (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-047-00-8	200-349-0	57-74-9									
51	hexachlorocyclohexanes, including lindane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1									
52	dieldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-049-00-9	200-484-5	60-57-1									
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-051-00-X	200-775-7	72-20-8									
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-046-00-2	200-962-3	76-44-8									
55	hexachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-065-00-6	204-273-9	118-74-1									
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	606-019-00-6	205-601-3	143-50-0									
57	aldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-048-00-3	206-215-8	309-00-2									
58	pentachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-074-00-5	210-172-0	608-93-5									
59	dodecachloropentacyclo[5.2.1.02.6.03.9.05,8]decane; mirex				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-077-00-1	219-196-6	2385-85-5									
60	camphechlor (ISO); toxaphene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-044-00-1	232-283-3	8001-35-2									
61	hexabromobiphenyl				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		252-994-2	36355-01-8									
62	2,3,7,8-TeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
		217-122-7	1746-01-6									
63	1,2,3,7,8-PeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
			40321-76-4									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5; 68476-34-6; 94114-59-7; 1159170-26-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened		232-366-4; 265-184-9; 294-799-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.0675 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00025%)



Classification of sample: WS4

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS4	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.25 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	23.7 mg/kg	1.32	31.292 mg/kg	0.00313 %			
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	1 mg/kg	1.142	1.142 mg/kg	0.000114 %			
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		39.6 mg/kg	1.462	57.878 mg/kg	0.00579 %			
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	96.5 mg/kg	1.126	108.648 mg/kg	0.0109 %			
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	223 mg/kg	1.56	347.839 mg/kg	0.0223 %			
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	0.6 mg/kg	1.353	0.812 mg/kg	0.0000812 %			
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	57.9 mg/kg	2.976	172.326 mg/kg	0.0172 %			
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2	191 mg/kg	1.245	237.74 mg/kg	0.0238 %			
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %			<LOD
12	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	0.9 mg/kg	3.22	2.898 mg/kg	0.00029 %			
13	pH		PH		7.8 pH		7.8 pH	7.8 pH			



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	phenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
15	naphthalene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
	601-052-00-2	202-049-5	91-20-3									
16	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
17	acenaphthene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		201-469-6	83-32-9									
18	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
19	phenanthrene				0.7	mg/kg		0.7	mg/kg	0.00007 %		
		201-581-5	85-01-8									
20	anthracene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		204-371-1	120-12-7									
21	fluoranthene				2.4	mg/kg		2.4	mg/kg	0.00024 %		
		205-912-4	206-44-0									
22	pyrene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
		204-927-3	129-00-0									
23	benzo[a]anthracene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
	601-033-00-9	200-280-6	56-55-3									
24	chrysene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
	601-048-00-0	205-923-4	218-01-9									
25	benzo[b]fluoranthene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
	601-034-00-4	205-911-9	205-99-2									
26	benzo[k]fluoranthene				1.9	mg/kg		1.9	mg/kg	0.00019 %		
	601-036-00-5	205-916-6	207-08-9									
27	benzo[a]pyrene; benzo[def]chrysene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
	601-032-00-3	200-028-5	50-32-8									
28	indeno[123-cd]pyrene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
		205-893-2	193-39-5									
29	dibenz[a,h]anthracene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
	601-041-00-2	200-181-8	53-70-3									
30	benzo[ghi]perylene				1.2	mg/kg		1.2	mg/kg	0.00012 %		
		205-883-8	191-24-2									
31	benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
32	toluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
33	ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
34	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35	TPH (C6 to C40) petroleum group				25.6	mg/kg		25.6	mg/kg	0.00256 %		
			TPH									
36	confirm TPH has NOT arisen from diesel or petrol				.1			.1				<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
38	polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3									
39	asbestos				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
40	antimony { antimony trioxide }				<0.1 mg/kg	1.197	<0.12 mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4							
41	beryllium { beryllium oxide }				<0.1 mg/kg	2.775	<0.278 mg/kg	<0.0000278 %		<LOD
	004-003-00-8	215-133-1	1304-56-9							
42	manganese { manganese sulphate }				<0.1 mg/kg	2.749	<0.275 mg/kg	<0.0000275 %		<LOD
	025-003-00-4	232-089-9	7785-87-7							
43	molybdenum { molybdenum(VI) oxide }				<0.1 mg/kg	1.5	<0.15 mg/kg	<0.000015 %		<LOD
	042-001-00-9	215-204-7	1313-27-5							
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3							
45	tetrachloroethylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-028-00-4	204-825-9	127-18-4							
46	carbon tetrachloride; tetrachloromethane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-008-00-5	200-262-8	56-23-5							
47	trichloroethylene; trichloroethene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-027-00-9	201-167-4	79-01-6							
48	vinyl chloride; chloroethylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-023-00-7	200-831-0	75-01-4							
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-045-00-7	200-024-3	50-29-3							
50	chlordane (ISO); 1,2,4,5,6,7,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-047-00-8	200-349-0	57-74-9							
51	hexachlorocyclohexanes, including lindane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1							
52	dieldrin (ISO)				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-049-00-9	200-484-5	60-57-1							
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-051-00-X	200-775-7	72-20-8							
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-046-00-2	200-962-3	76-44-8							
55	hexachlorobenzene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-065-00-6	204-273-9	118-74-1							
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	606-019-00-6	205-601-3	143-50-0							
57	aldrin (ISO)				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-048-00-3	206-215-8	309-00-2							
58	pentachlorobenzene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-074-00-5	210-172-0	608-93-5							
59	dodecachloropentacyclo[5.2.1.02,6.03,9.05,8]decane; mirex				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-077-00-1	219-196-6	2385-85-5							
60	camphechlor (ISO); toxaphene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-044-00-1	232-283-3	8001-35-2							
61	hexabromobiphenyl				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		252-994-2	36355-01-8							
62	2,3,7,8-TeCDD				<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
		217-122-7	1746-01-6							
63	1,2,3,7,8-PeCDD				<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
			40321-76-4							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5, 68476-34-6, 94114-59-7, 1159170-26-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened	232-366-4; 265-184-9; 294-799-5	8008-20-6; 64742-81-0; 91770-15-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
Total:										0.0886 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00256%)



Classification of sample: WS5

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS5	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	22.9 mg/kg	1.32	30.235 mg/kg	0.00302 %			
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	0.9 mg/kg	1.142	1.028 mg/kg	0.000103 %			
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		36.7 mg/kg	1.462	53.639 mg/kg	0.00536 %			
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	73.3 mg/kg	1.126	82.528 mg/kg	0.00825 %			
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	382 mg/kg	1.56	595.849 mg/kg	0.0382 %			
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %			<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	37.1 mg/kg	2.976	110.419 mg/kg	0.011 %			
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2	423 mg/kg	1.245	526.514 mg/kg	0.0527 %			
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %			<LOD
12	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %			
13	pH				7.6 pH		7.6 pH	7.6 pH			



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	phenol				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
15	naphthalene				1.9 mg/kg		1.9 mg/kg	0.00019 %		
	601-052-00-2	202-049-5	91-20-3							
16	acenaphthylene				3.5 mg/kg		3.5 mg/kg	0.00035 %		
		205-917-1	208-96-8							
17	acenaphthene				7.1 mg/kg		7.1 mg/kg	0.00071 %		
		201-469-6	83-32-9							
18	fluorene				7.4 mg/kg		7.4 mg/kg	0.00074 %		
		201-695-5	86-73-7							
19	phenanthrene				72.8 mg/kg		72.8 mg/kg	0.00728 %		
		201-581-5	85-01-8							
20	anthracene				9.9 mg/kg		9.9 mg/kg	0.00099 %		
		204-371-1	120-12-7							
21	fluoranthene				67.5 mg/kg		67.5 mg/kg	0.00675 %		
		205-912-4	206-44-0							
22	pyrene				57.6 mg/kg		57.6 mg/kg	0.00576 %		
		204-927-3	129-00-0							
23	benzo[a]anthracene				26.9 mg/kg		26.9 mg/kg	0.00269 %		
	601-033-00-9	200-280-6	56-55-3							
24	chrysene				30.9 mg/kg		30.9 mg/kg	0.00309 %		
	601-048-00-0	205-923-4	218-01-9							
25	benzo[b]fluoranthene				19.5 mg/kg		19.5 mg/kg	0.00195 %		
	601-034-00-4	205-911-9	205-99-2							
26	benzo[k]fluoranthene				22.9 mg/kg		22.9 mg/kg	0.00229 %		
	601-036-00-5	205-916-6	207-08-9							
27	benzo[a]pyrene; benzo[def]chrysene				22.9 mg/kg		22.9 mg/kg	0.00229 %		
	601-032-00-3	200-028-5	50-32-8							
28	indeno[123-cd]pyrene				16.8 mg/kg		16.8 mg/kg	0.00168 %		
		205-893-2	193-39-5							
29	dibenz[a,h]anthracene				4 mg/kg		4 mg/kg	0.0004 %		
	601-041-00-2	200-181-8	53-70-3							
30	benzo[ghi]perylene				13.7 mg/kg		13.7 mg/kg	0.00137 %		
		205-883-8	191-24-2							
31	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
32	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
33	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
34	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
35	TPH (C6 to C40) petroleum group				31.4 mg/kg		31.4 mg/kg	0.00314 %		
			TPH							
36	confirm TPH has NOT arisen from diesel or petrol				.1		.1			<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
38	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
39	asbestos				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
40	antimony { antimony trioxide }				<0.1	mg/kg	1.197	<0.12	mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
41	beryllium { beryllium oxide }				<0.1	mg/kg	2.775	<0.278	mg/kg	<0.0000278 %		<LOD
	004-003-00-8	215-133-1	1304-56-9									
42	manganese { manganese sulphate }				<0.1	mg/kg	2.749	<0.275	mg/kg	<0.0000275 %		<LOD
	025-003-00-4	232-089-9	7785-87-7									
43	molybdenum { molybdenum(VI) oxide }				<0.1	mg/kg	1.5	<0.15	mg/kg	<0.000015 %		<LOD
	042-001-00-9	215-204-7	1313-27-5									
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3									
45	tetrachloroethylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-028-00-4	204-825-9	127-18-4									
46	carbon tetrachloride; tetrachloromethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-008-00-5	200-262-8	56-23-5									
47	trichloroethylene; trichloroethene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-027-00-9	201-167-4	79-01-6									
48	vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-023-00-7	200-831-0	75-01-4									
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-045-00-7	200-024-3	50-29-3									
50	chlordane (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-047-00-8	200-349-0	57-74-9									
51	hexachlorocyclohexanes, including lindane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1									
52	dieldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-049-00-9	200-484-5	60-57-1									
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-051-00-X	200-775-7	72-20-8									
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-046-00-2	200-962-3	76-44-8									
55	hexachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-065-00-6	204-273-9	118-74-1									
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	606-019-00-6	205-601-3	143-50-0									
57	aldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-048-00-3	206-215-8	309-00-2									
58	pentachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-074-00-5	210-172-0	608-93-5									
59	dodecachloropentacyclo[5.2.1.02,6.03,9.05,8]decane; mirex				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-077-00-1	219-196-6	2385-85-5									
60	camphechlor (ISO); toxaphene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-044-00-1	232-283-3	8001-35-2									
61	hexabromobiphenyl				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		252-994-2	36355-01-8									
62	2,3,7,8-TeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
		217-122-7	1746-01-6									
63	1,2,3,7,8-PeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
			40321-76-4									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5; 68476-34-6; 94114-59-7; 1159170-26-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened	232-366-4; 265-184-9; 294-799-5	8008-20-6; 64742-81-0; 91770-15-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.161 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00314%)



Classification of sample: WS7

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	WS7	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.50 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
		Entry:	

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	34.2 mg/kg	1.32	45.155 mg/kg	0.00452 %		
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		40.6 mg/kg	1.462	59.339 mg/kg	0.00593 %		
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	156 mg/kg	1.126	175.639 mg/kg	0.0176 %		
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	236 mg/kg	1.56	368.116 mg/kg	0.0236 %		
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	73.1 mg/kg	2.976	217.565 mg/kg	0.0218 %		
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2	281 mg/kg	1.245	349.765 mg/kg	0.035 %		
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %		<LOD
12	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
13	pH		PH		7.7 pH		7.7 pH	7.7 pH		



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
14	phenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
15	naphthalene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
	601-052-00-2	202-049-5	91-20-3									
16	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
17	acenaphthene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
		201-469-6	83-32-9									
18	fluorene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
		201-695-5	86-73-7									
19	phenanthrene				13	mg/kg		13	mg/kg	0.0013 %		
		201-581-5	85-01-8									
20	anthracene				4.4	mg/kg		4.4	mg/kg	0.00044 %		
		204-371-1	120-12-7									
21	fluoranthene				16.2	mg/kg		16.2	mg/kg	0.00162 %		
		205-912-4	206-44-0									
22	pyrene				14.2	mg/kg		14.2	mg/kg	0.00142 %		
		204-927-3	129-00-0									
23	benzo[a]anthracene				7.6	mg/kg		7.6	mg/kg	0.00076 %		
	601-033-00-9	200-280-6	56-55-3									
24	chrysene				8.5	mg/kg		8.5	mg/kg	0.00085 %		
	601-048-00-0	205-923-4	218-01-9									
25	benzo[b]fluoranthene				5.8	mg/kg		5.8	mg/kg	0.00058 %		
	601-034-00-4	205-911-9	205-99-2									
26	benzo[k]fluoranthene				6.3	mg/kg		6.3	mg/kg	0.00063 %		
	601-036-00-5	205-916-6	207-08-9									
27	benzo[a]pyrene; benzo[def]chrysene				6.3	mg/kg		6.3	mg/kg	0.00063 %		
	601-032-00-3	200-028-5	50-32-8									
28	indeno[123-cd]pyrene				7.9	mg/kg		7.9	mg/kg	0.00079 %		
		205-893-2	193-39-5									
29	dibenz[a,h]anthracene				1.9	mg/kg		1.9	mg/kg	0.00019 %		
	601-041-00-2	200-181-8	53-70-3									
30	benzo[ghi]perylene				3.5	mg/kg		3.5	mg/kg	0.00035 %		
		205-883-8	191-24-2									
31	benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
32	toluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
33	ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
34	xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35	TPH (C6 to C40) petroleum group				45.1	mg/kg		45.1	mg/kg	0.00451 %		
			TPH									
36	confirm TPH has NOT arisen from diesel or petrol				.1			.1				<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
38	polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3									
39	asbestos				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
40	antimony { antimony trioxide }				<0.1 mg/kg	1.197	<0.12 mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4							
41	beryllium { beryllium oxide }				<0.1 mg/kg	2.775	<0.278 mg/kg	<0.0000278 %		<LOD
	004-003-00-8	215-133-1	1304-56-9							
42	manganese { manganese sulphate }				<0.1 mg/kg	2.749	<0.275 mg/kg	<0.0000275 %		<LOD
	025-003-00-4	232-089-9	7785-87-7							
43	molybdenum { molybdenum(VI) oxide }				<0.1 mg/kg	1.5	<0.15 mg/kg	<0.000015 %		<LOD
	042-001-00-9	215-204-7	1313-27-5							
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3							
45	tetrachloroethylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-028-00-4	204-825-9	127-18-4							
46	carbon tetrachloride; tetrachloromethane				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-008-00-5	200-262-8	56-23-5							
47	trichloroethylene; trichloroethene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
	602-027-00-9	201-167-4	79-01-6							
48	vinyl chloride; chloroethylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-023-00-7	200-831-0	75-01-4							
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-045-00-7	200-024-3	50-29-3							
50	chlordane (ISO); 1,2,4,5,6,7,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-047-00-8	200-349-0	57-74-9							
51	hexachlorocyclohexanes, including lindane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1							
52	dieldrin (ISO)				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-049-00-9	200-484-5	60-57-1							
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-051-00-X	200-775-7	72-20-8							
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-046-00-2	200-962-3	76-44-8							
55	hexachlorobenzene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-065-00-6	204-273-9	118-74-1							
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	606-019-00-6	205-601-3	143-50-0							
57	aldrin (ISO)				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-048-00-3	206-215-8	309-00-2							
58	pentachlorobenzene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-074-00-5	210-172-0	608-93-5							
59	dodecachloropentacyclo[5.2.1.02,6.03,9.05,8]decane; mirex				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-077-00-1	219-196-6	2385-85-5							
60	camphechlor (ISO); toxaphene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-044-00-1	232-283-3	8001-35-2							
61	hexabromobiphenyl				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		252-994-2	36355-01-8							
62	2,3,7,8-TeCDD				<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
		217-122-7	1746-01-6							
63	1,2,3,7,8-PeCDD				<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
			40321-76-4							



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5, 68476-34-6, 94114-59-7, 1159170-26-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened	232-366-4; 265-184-9; 294-799-5	8008-20-6; 64742-81-0; 91770-15-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
Total:										0.124 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00451%)



Classification of sample: WS8

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS8	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.25 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	53.8 mg/kg	1.32	71.034 mg/kg	0.0071 %			
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0	1.6 mg/kg	1.142	1.828 mg/kg	0.000183 %			
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		35.7 mg/kg	1.462	52.178 mg/kg	0.00522 %			
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	184 mg/kg	1.126	207.163 mg/kg	0.0207 %			
5	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	290 mg/kg	1.56	452.346 mg/kg	0.029 %			
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %			<LOD
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	83.4 mg/kg	2.976	248.22 mg/kg	0.0248 %			
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %			<LOD
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2	397 mg/kg	1.245	494.151 mg/kg	0.0494 %			
10	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5			<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.8 mg/kg	1.923	<1.538 mg/kg	<0.000154 %			<LOD
12	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2	<0.5 mg/kg	3.22	<1.61 mg/kg	<0.000161 %			<LOD
13	pH				7.9 pH		7.9 pH	7.9 pH			



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
14	phenol				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
15	naphthalene				3.1 mg/kg		3.1 mg/kg	0.00031 %			
	601-052-00-2	202-049-5	91-20-3								
16	acenaphthylene				0.1 mg/kg		0.1 mg/kg	0.00001 %			
		205-917-1	208-96-8								
17	acenaphthene				6.9 mg/kg		6.9 mg/kg	0.00069 %			
		201-469-6	83-32-9								
18	fluorene				4.2 mg/kg		4.2 mg/kg	0.00042 %			
		201-695-5	86-73-7								
19	phenanthrene				41.4 mg/kg		41.4 mg/kg	0.00414 %			
		201-581-5	85-01-8								
20	anthracene				12.2 mg/kg		12.2 mg/kg	0.00122 %			
		204-371-1	120-12-7								
21	fluoranthene				55.4 mg/kg		55.4 mg/kg	0.00554 %			
		205-912-4	206-44-0								
22	pyrene				48.7 mg/kg		48.7 mg/kg	0.00487 %			
		204-927-3	129-00-0								
23	benzo[a]anthracene				26.8 mg/kg		26.8 mg/kg	0.00268 %			
	601-033-00-9	200-280-6	56-55-3								
24	chrysene				29.6 mg/kg		29.6 mg/kg	0.00296 %			
	601-048-00-0	205-923-4	218-01-9								
25	benzo[b]fluoranthene				21.5 mg/kg		21.5 mg/kg	0.00215 %			
	601-034-00-4	205-911-9	205-99-2								
26	benzo[k]fluoranthene				23.2 mg/kg		23.2 mg/kg	0.00232 %			
	601-036-00-5	205-916-6	207-08-9								
27	benzo[a]pyrene; benzo[def]chrysene				24.6 mg/kg		24.6 mg/kg	0.00246 %			
	601-032-00-3	200-028-5	50-32-8								
28	indeno[123-cd]pyrene				20.2 mg/kg		20.2 mg/kg	0.00202 %			
		205-893-2	193-39-5								
29	dibenz[a,h]anthracene				4.8 mg/kg		4.8 mg/kg	0.00048 %			
	601-041-00-2	200-181-8	53-70-3								
30	benzo[ghi]perylene				16.3 mg/kg		16.3 mg/kg	0.00163 %			
		205-883-8	191-24-2								
31	benzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-020-00-8	200-753-7	71-43-2								
32	toluene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-021-00-3	203-625-9	108-88-3								
33	ethylbenzene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
34	xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
35	TPH (C6 to C40) petroleum group				926 mg/kg		926 mg/kg	0.0926 %			
			TPH								
36	confirm TPH has NOT arisen from diesel or petrol				.1		.1				<LOD
37	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	603-181-00-X	216-653-1	1634-04-4								
38	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
39	asbestos				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5								



#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
40	antimony { antimony trioxide }				<0.1	mg/kg	1.197	<0.12	mg/kg	<0.000012 %		<LOD
	051-005-00-X	215-175-0	1309-64-4									
41	beryllium { beryllium oxide }				<0.1	mg/kg	2.775	<0.278	mg/kg	<0.0000278 %		<LOD
	004-003-00-8	215-133-1	1304-56-9									
42	manganese { manganese sulphate }				<0.1	mg/kg	2.749	<0.275	mg/kg	<0.0000275 %		<LOD
	025-003-00-4	232-089-9	7785-87-7									
43	molybdenum { molybdenum(VI) oxide }				<0.1	mg/kg	1.5	<0.15	mg/kg	<0.000015 %		<LOD
	042-001-00-9	215-204-7	1313-27-5									
44	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		203-458-1, 200-863-5	107-06-2, 75-34-3									
45	tetrachloroethylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-028-00-4	204-825-9	127-18-4									
46	carbon tetrachloride; tetrachloromethane				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-008-00-5	200-262-8	56-23-5									
47	trichloroethylene; trichloroethene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
	602-027-00-9	201-167-4	79-01-6									
48	vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-023-00-7	200-831-0	75-01-4									
49	DDT (ISO); clofenotane (INN); dicophane; 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane; dichlorodiphenyltrichloroethane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-045-00-7	200-024-3	50-29-3									
50	chlordane (ISO); 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-047-00-8	200-349-0	57-74-9									
51	hexachlorocyclohexanes, including lindane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-043-00-6	210-168-9, 200-401-2, 206-270-8, 206-271-3	58-89-9, 319-84-6, 319-85-7, 608-73-1									
52	dieldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-049-00-9	200-484-5	60-57-1									
53	endrin (ISO); 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4:5,8-dimethanonaphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-051-00-X	200-775-7	72-20-8									
54	heptachlor (ISO); 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-046-00-2	200-962-3	76-44-8									
55	hexachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-065-00-6	204-273-9	118-74-1									
56	chlordecone (ISO); perchloropentacyclo[5,3,0,02,6,03,9,04,8]decan-5-one; decachloropentacyclo[5,2,1,02,6,03,9,05,8]decan-4-one				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	606-019-00-6	205-601-3	143-50-0									
57	aldrin (ISO)				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-048-00-3	206-215-8	309-00-2									
58	pentachlorobenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-074-00-5	210-172-0	608-93-5									
59	dodecachloropentacyclo[5.2.1.02.6.03.9.05,8]decane; mirex				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-077-00-1	219-196-6	2385-85-5									
60	camphechlor (ISO); toxaphene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	602-044-00-1	232-283-3	8001-35-2									
61	hexabromobiphenyl				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		252-994-2	36355-01-8									
62	2,3,7,8-TeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
		217-122-7	1746-01-6									
63	1,2,3,7,8-PeCDD				<0.1	ng/kg		<1.0e-07	mg/kg	<1.0e-11 %		<LOD
			40321-76-4									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
64	1,2,3,4,7,8-HxCDD		39227-28-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
65	1,2,3,6,7,8-HxCDD		57653-85-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
66	1,2,3,7,8,9-HxCDD		19408-74-3		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
67	1,2,3,4,6,7,8-HpCDD		35822-46-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
68	OCDD		3268-87-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
69	2,3,7,8-TeCDF		51207-31-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
70	1,2,3,7,8-PeCDF		57117-41-6		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
71	2,3,4,7,8-PeCDF		57117-31-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
72	1,2,3,4,7,8-HxCDF		70648-26-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
73	1,2,3,6,7,8-HxCDF		57117-44-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
74	1,2,3,7,8,9-HxCDF		72918-21-9		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
75	2,3,4,6,7,8-HxCDF		60851-34-5		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
76	1,2,3,4,6,7,8-HpCDF		67562-39-4		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
77	1,2,3,4,7,8,9-HpCDF		55673-89-7		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
78	OCDF		39001-02-0		<0.1 ng/kg		<1.0e-07 mg/kg	<1.0e-11 %		<LOD
79	petrol (gasoline) petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
80	diesel petroleum group		68334-30-5; 68476-34-6; 94114-59-7; 1159170-26-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
81	heavy/residual fuel oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
82	crude oils petroleum group				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
83	kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened		232-366-4; 265-184-9; 294-799-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
Total:								0.264 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- ND** Not detected
- CLP: Note 1 Only the metal concentration has been used for classification



Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because .

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0926%)



Appendix A: Classifier defined and non CLP determinands

■ **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

■ **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

■ **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

■ **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

■ **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

■ **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

■ **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410



• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

• **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

• **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

• **confirm TPH has NOT arisen from diesel or petrol**

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

• **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

• **1,1-dichloroethane and 1,2-dichloroethane (combined)** (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2 H225 , Acute Tox. 4 H302 , Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 1B H350 , Aquatic Chronic 3 H412

• **hexabromobiphenyl** (EC Number: 252-994-2, CAS Number: 36355-01-8)

Description/Comments:
Data source: POP specific threshold from ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004).
Data source date: 01 Jul 2013
Hazard Statements: POP >= 0.005 %



▪ **2,3,7,8-TeCDD** (EC Number: 217-122-7, CAS Number: 1746-01-6)

Description/Comments: 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=1)

▪ **1,2,3,7,8-PeCDD** (CAS Number: 40321-76-4)

Description/Comments: 1,2,3,7,8-pentachlorodibenzo-p-dioxin
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=1)

▪ **1,2,3,4,7,8-HxCDD** (CAS Number: 39227-28-6)

Description/Comments: 1,2,3,4,7,8-hexachlorodibenzo-p-dioxin
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

▪ **1,2,3,6,7,8-HxCDD** (CAS Number: 57653-85-7)

Description/Comments: 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

▪ **1,2,3,7,8,9-HxCDD** (CAS Number: 19408-74-3)

Description/Comments: 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

▪ **1,2,3,4,6,7,8-HpCDD** (CAS Number: 35822-46-9)

Description/Comments: 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.01)

▪ **OCDD** (CAS Number: 3268-87-9)

Description/Comments: octachlorodibenzo-p-dioxin
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.0003)

▪ **2,3,7,8-TeCDF** (CAS Number: 51207-31-9)

Description/Comments: 2,3,7,8-tetrachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

▪ **1,2,3,7,8-PeCDF** (CAS Number: 57117-41-6)

Description/Comments: 1,2,3,7,8-pentachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.03)

▪ **2,3,4,7,8-PeCDF** (CAS Number: 57117-31-4)

Description/Comments: 2,3,4,7,8-pentachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.3)

▪ **1,2,3,4,7,8-HxCDF** (CAS Number: 70648-26-9)

Description/Comments: 1,2,3,4,7,8-hexachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)



■ **1,2,3,6,7,8-HxCDF** (CAS Number: 57117-44-9)

Description/Comments: 1,2,3,6,7,8-hexachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

■ **1,2,3,7,8,9-HxCDF** (CAS Number: 72918-21-9)

Description/Comments: 1,2,3,7,8,9-hexachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

■ **2,3,4,6,7,8-HxCDF** (CAS Number: 60851-34-5)

Description/Comments: 2,3,4,6,7,8-hexachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.1)

■ **1,2,3,4,6,7,8-HpCDF** (CAS Number: 67562-39-4)

Description/Comments: 1,2,3,4,6,7,8-heptachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.01)

■ **1,2,3,4,7,8,9-HpCDF** (CAS Number: 55673-89-7)

Description/Comments: 1,2,3,4,7,8,9-heptachlorodibenzofuran
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.01)

■ **OCDF** (CAS Number: 39001-02-0)

Description/Comments: octachlorodibenzo[b,d]furan
Data source: ATP1 (Regulation (EU) 756/2010) to POPs Regulation (Regulation (EC) 850/2004)
Data source date: 24 Aug 2010
Hazard Statements: PCDD/PCDF (TEF=0.0003)

■ **petrol (gasoline) petroleum group**

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 1 H224 , Skin Irrit. 2 H315 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , STOT SE 3 H336 , Asp. Tox. 1 H304 , Aquatic Chronic 2 H411

■ **diesel petroleum group** (CAS Number: 68334-30-5, 68476-34-6, 94114-59-7, 1159170-26-9)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3 H226 , Skin Irrit. 2 H315 , Acute Tox. 4 H332 , Carc. 2 H351 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Aquatic Chronic 2 H411

■ **heavy/residual fuel oils petroleum group**

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Muta. 1B H340 , Carc. 1B H350 , Acute Tox. 4 H332 , Repr. 2 H361d , STOT RE 2 H373 , Aquatic Chronic 2 H411

■ **crude oils petroleum group**

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 2 H225 , Carc. 1B H350 , Eye Irrit. 2 H319 , Asp. Tox. 1 H304 , STOT RE 2 H373 , STOT SE 3 H336 , Aquatic Chronic 2 H411



▪ **kerosine petroleum group including kerosine (petroleum); kerosine (petroleum) hydrosulphurised; kerosine (petroleum) sweetened** (EC Number: 232-366-4; 265-184-9; 294-799-5, CAS Number: 8008-20-6; 64742-81-0; 91770-15-9)

Description/Comments: Review of ECHA Registered Substances database; Concawe report: hazard classification and labelling of petroleum substances in the European Economic Area - 2012; REACH compliant SDS from Total, Petrobras; Petrochem; Shell; ESS Data source: <http://echa.europa.eu/information-on-chemicals/registered-substances>; Hazard classification and labelling of petroleum substances in the European Economic Area - 2012 (CONCAWE); SDS: company websites

Data source date: 21 Jan 2014

Hazard Statements: Flam. Liq. 3 H226 , Skin Irrit. 2 H315 , Asp. Tox. 1 H304 , Aquatic Chronic 2 H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worst case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

zinc {zinc oxide}

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (edit as required)

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings (edit as required)

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics (edit as required)

manganese {manganese sulphate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)



molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.1, May 2018**

HazWasteOnline Classification Engine Version: 2021.130.4774.9115 (10 May 2021)

HazWasteOnline Database: 2021.130.4774.9115 (10 May 2021)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2019 - UK: 2019 No. 720 of 27th March 2019

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

APPENDIX I: SOIL CLASSIFICATION TEST REPORT

APPENDIX J: ENVIRONMENTAL DATA REPORT



Site Details:

Moss Green Close, Huyton,
Liverpool, L36 3RG

Client Ref: 4165
Report Ref: CMAPS-AAG-951883-4165-060421HIS
Grid Ref: 342889, 391933

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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Groundsure Insights
www.groundsure.com



Supplied by:
www.centremapslive.com
groundsure@centremaps.com

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Production date: 06 April 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Moss Green Close, Huyton, Liverpool, L36 3RG

Order Details

Date: 06/04/2021
Your ref: 4165
Our Ref: CMAPS-AAG-951883-4165-060421EDRGEO
Client: CENTREMAPS

Site Details

Location: 342889 391932
Area: 0.3 ha
Authority: [Knowsley Metropolitan Borough Council](#)



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Summary of findings

p. 2 **Aerial image**

p. 8

OS MasterMap site plan

p.13 groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	<u>Historical industrial land uses</u>	0	0	13	7	-
15	1.2	Historical tanks	0	0	0	0	-
16	1.3	<u>Historical energy features</u>	0	1	8	19	-
17	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	<u>Historical garages</u>	0	0	3	0	-
18	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
19	2.1	<u>Historical industrial land uses</u>	0	0	16	7	-
20	2.2	Historical tanks	0	0	0	0	-
21	2.3	<u>Historical energy features</u>	0	6	15	42	-
23	2.4	Historical petrol stations	0	0	0	0	-
23	2.5	<u>Historical garages</u>	0	0	6	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
25	3.1	Active or recent landfill	0	0	0	0	-
25	3.2	Historical landfill (BGS records)	0	0	0	0	-
26	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
26	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
26	3.5	Historical waste sites	0	0	0	0	-
26	3.6	Licensed waste sites	0	0	0	0	-
26	3.7	<u>Waste exemptions</u>	0	0	10	1	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
28	4.1	<u>Recent industrial land uses</u>	0	3	10	-	-
29	4.2	<u>Current or recent petrol stations</u>	0	0	1	0	-
30	4.3	Electricity cables	0	0	0	0	-
30	4.4	Gas pipelines	0	0	0	0	-
30	4.5	Sites determined as Contaminated Land	0	0	0	0	-



30	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
30	4.7	Regulated explosive sites	0	0	0	0	-
31	4.8	Hazardous substance storage/usage	0	0	0	0	-
31	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
31	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
31	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
31	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
32	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
32	4.15	Pollutant release to public sewer	0	0	0	0	-
32	4.16	List 1 Dangerous Substances	0	0	0	0	-
32	4.17	List 2 Dangerous Substances	0	0	0	0	-
33	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
33	4.19	Pollution inventory substances	0	0	0	0	-
33	4.20	Pollution inventory waste transfers	0	0	0	0	-
33	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
34	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
35	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
36	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
37	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
37	5.5	Groundwater vulnerability- local information	None (within 0m)				
38	5.6	<u>Groundwater abstractions</u>	0	0	0	0	3
39	5.7	Surface water abstractions	0	0	0	0	0
40	5.8	Potable abstractions	0	0	0	0	0
40	5.9	<u>Source Protection Zones</u>	1	0	0	0	-
40	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
41	6.1	Water Network (OS MasterMap)	0	0	0	-	-

41	6.2	Surface water features	0	0	0	-	-
42	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
42	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
43	6.5	<u>WFD Groundwater bodies</u>	2	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
44	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
44	7.2	Historical Flood Events	0	0	0	-	-
44	7.3	Flood Defences	0	0	0	-	-
44	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
45	7.5	Flood Storage Areas	0	0	0	-	-
46	7.6	Flood Zone 2	None (within 50m)				
46	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
47	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
49	9.1	<u>Groundwater flooding</u>	Moderate-High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
50	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
51	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
51	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
51	10.4	Special Protection Areas (SPA)	0	0	0	0	0
51	10.5	National Nature Reserves (NNR)	0	0	0	0	0
52	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
52	10.7	Designated Ancient Woodland	0	0	0	0	0
52	10.8	Biosphere Reserves	0	0	0	0	0
52	10.9	Forest Parks	0	0	0	0	0
53	10.10	Marine Conservation Zones	0	0	0	0	0
53	10.11	<u>Green Belt</u>	0	0	0	0	2
53	10.12	Proposed Ramsar sites	0	0	0	0	0



53	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
54	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
54	10.15	Nitrate Sensitive Areas	0	0	0	0	0
54	10.16	<u>Nitrate Vulnerable Zones</u>	1	0	0	0	3
55	10.17	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
56	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
57	11.1	World Heritage Sites	0	0	0	-	-
57	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
57	11.3	National Parks	0	0	0	-	-
57	11.4	Listed Buildings	0	0	0	-	-
58	11.5	Conservation Areas	0	0	0	-	-
58	11.6	Scheduled Ancient Monuments	0	0	0	-	-
58	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
59	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
60	12.2	Open Access Land	0	0	0	-	-
60	12.3	Tree Felling Licences	0	0	0	-	-
60	12.4	Environmental Stewardship Schemes	0	0	0	-	-
60	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
61	13.1	Priority Habitat Inventory	0	0	0	-	-
61	13.2	Habitat Networks	0	0	0	-	-
61	13.3	Open Mosaic Habitat	0	0	0	-	-
61	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
62	14.1	<u>10k Availability</u>	Identified (within 500m)				
63	14.2	Artificial and made ground (10k)	0	0	0	0	-
64	14.3	Superficial geology (10k)	0	0	0	0	-

64	14.4	Landslip (10k)	0	0	0	0	-
65	14.5	Bedrock geology (10k)	0	0	0	0	-
65	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
66	15.1	<u>50k Availability</u>	Identified (within 500m)				
67	15.2	Artificial and made ground (50k)	0	0	0	0	-
67	15.3	Artificial ground permeability (50k)	0	0	-	-	-
68	15.4	<u>Superficial geology (50k)</u>	1	0	0	0	-
69	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
69	15.6	Landslip (50k)	0	0	0	0	-
69	15.7	Landslip permeability (50k)	None (within 50m)				
70	15.8	<u>Bedrock geology (50k)</u>	1	0	0	0	-
71	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
71	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
72	16.1	<u>BGS Boreholes</u>	0	0	6	-	-
Page	Section	Natural ground subsidence					
74	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
75	17.2	<u>Running sands</u>	Very low (within 50m)				
76	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
77	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
78	17.5	<u>Landslides</u>	Very low (within 50m)				
79	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
80	18.1	Natural cavities	0	0	0	0	-
81	18.2	<u>BritPits</u>	0	0	0	1	-
81	18.3	<u>Surface ground workings</u>	0	0	3	-	-
81	18.4	Underground workings	0	0	0	0	0
82	18.5	Historical Mineral Planning Areas	0	0	0	0	-



82	18.6	Non-coal mining	0	0	0	0	0
82	18.7	Mining cavities	0	0	0	0	0
82	18.8	JPB mining areas	None (within 0m)				
82	18.9	Coal mining	None (within 0m)				
83	18.10	Brine areas	None (within 0m)				
83	18.11	Gypsum areas	None (within 0m)				
83	18.12	Tin mining	None (within 0m)				
83	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
84	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
85	20.1	<u>BGS Estimated Background Soil Chemistry</u>	1	2	-	-	-
85	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
85	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
86	21.1	Underground railways (London)	0	0	0	-	-
86	21.2	Underground railways (Non-London)	0	0	0	-	-
87	21.3	Railway tunnels	0	0	0	-	-
87	21.4	<u>Historical railway and tunnel features</u>	0	1	3	-	-
87	21.5	Royal Mail tunnels	0	0	0	-	-
88	21.6	Historical railways	0	0	0	-	-
88	21.7	Railways	0	0	0	-	-
88	21.8	Crossrail 1	0	0	0	0	-
88	21.9	Crossrail 2	0	0	0	0	-
88	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 0.3ha



Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.3ha



Recent site history - 2005 aerial photograph



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Capture Date: 02/09/2005

Site Area: 0.3ha



Recent site history - 2001 aerial photograph



Capture Date: 01/05/2001

Site Area: 0.3ha



Recent site history - 2000 aerial photograph

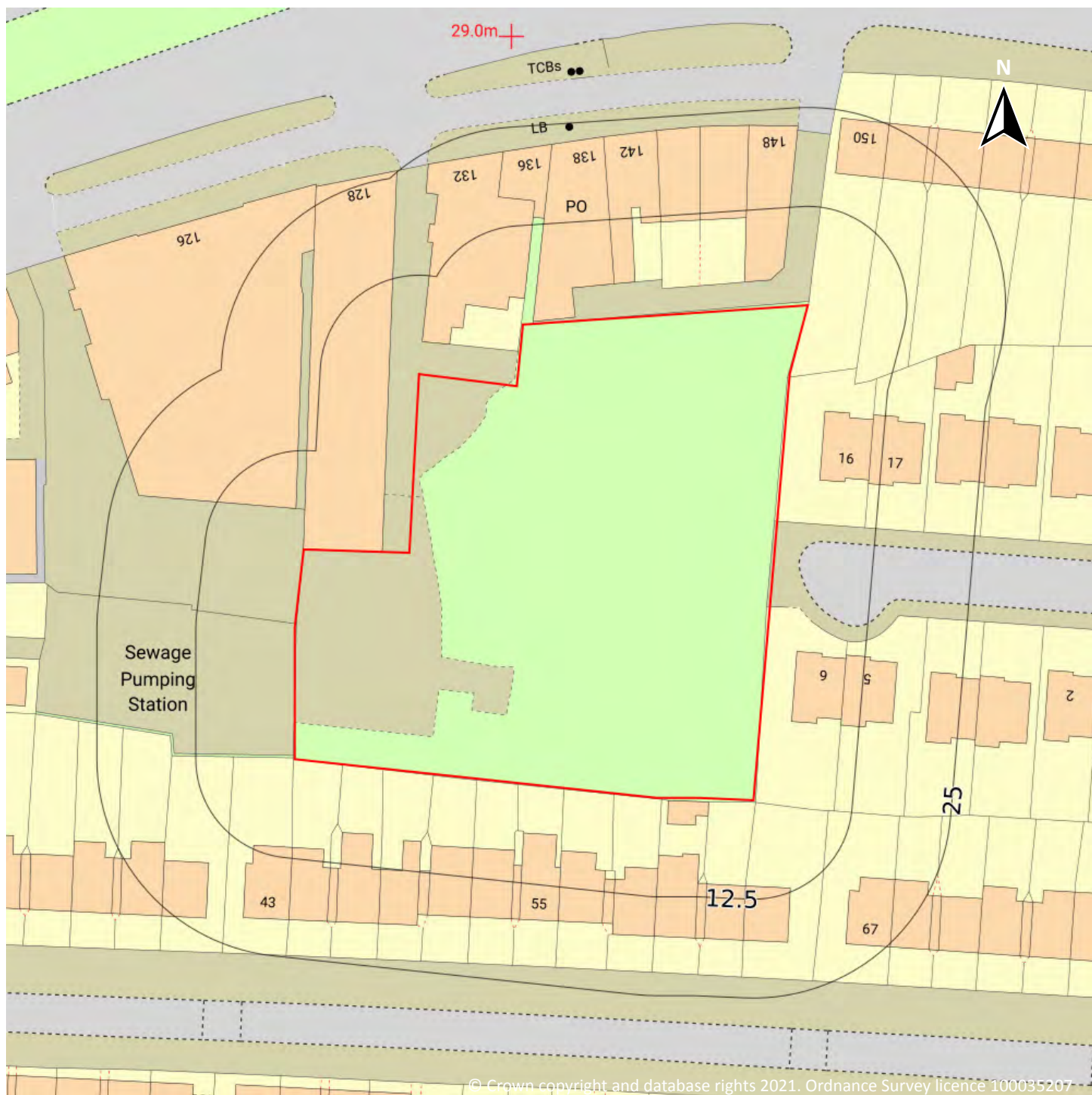


Capture Date: 21/07/2000

Site Area: 0.3ha



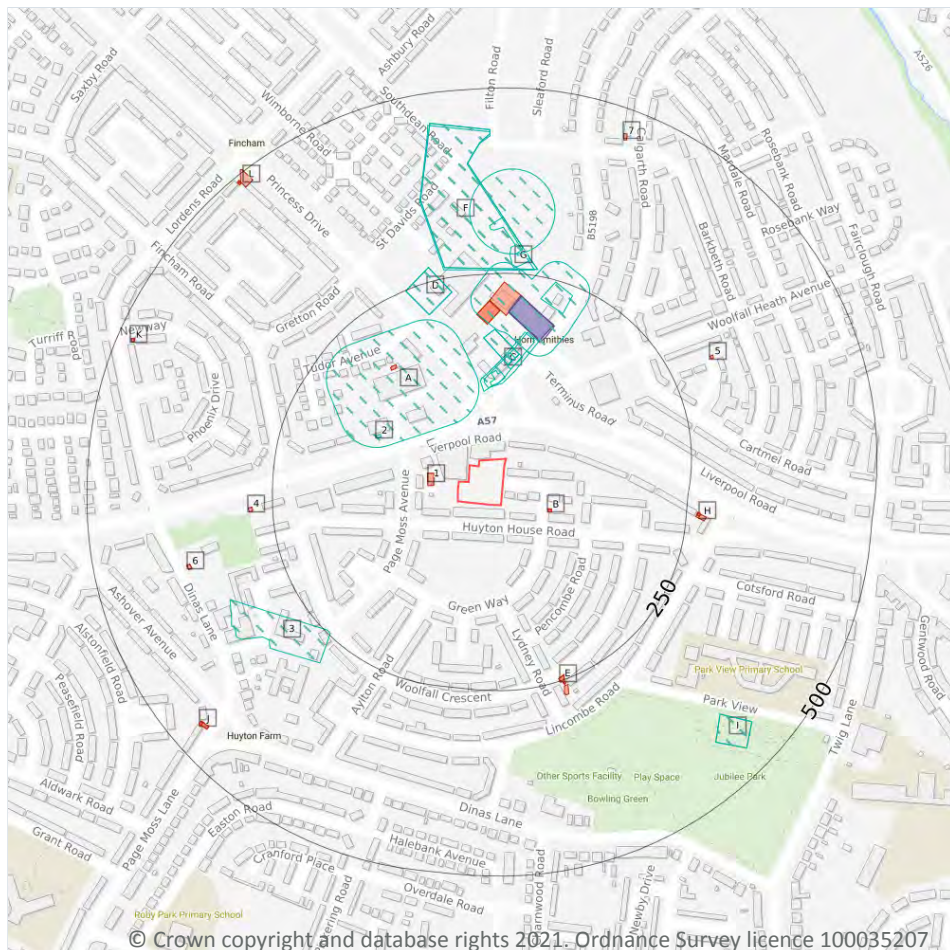
OS MasterMap site plan



Site Area: 0.3ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m

20

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	59m NW	Smithies	1965	832451



ID	Location	Land use	Dates present	Group ID
C	93m N	Smithies	1891 - 1925	988641
C	97m N	Smithies	1938	947559
C	99m N	Smithies	1925	968649
2	121m NW	Weighing Machine	1851	810042
C	121m N	Smithies	1925	940458
C	127m N	Police Station	1955	867849
C	127m N	Police Station	1965 - 1976	932844
C	145m N	Smithies	1955	966907
D	208m N	Nursery	1965	857963
D	208m N	Nursery	1955	903972
C	210m N	Smithies	1989	952431
3	247m SW	Nursery	1955	831797
F	254m N	Brick Works	1925	957295
F	256m N	Brick Works	1925	948202
F	256m N	Brick Works	1906	949032
G	258m N	Unspecified Ground Workings	1906	799858
G	276m N	Smithies	1976	832452
I	408m SE	Nursery	1955	953674
I	408m SE	Nursery	1965	990787

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

0

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m

28

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
1	33m W	Electricity Substation	1951 - 1993	70908
B	64m E	Electricity Substation	1983 - 1986	78583
B	64m E	Electricity Substation	1993	84373
A	164m NW	Electricity Substation	1987 - 1997	84151
C	183m N	Electricity Substation	1997	73771
C	184m N	Electricity Substation	1987 - 1991	75064
C	193m N	Electricity Substation	1950 - 1968	68885
E	244m S	Electricity Substation	1993	71156
E	244m S	Electricity Substation	1983	78141
E	251m S	Electricity Substation	1973 - 1974	74892
E	253m S	Electricity Substation	1986	78689
E	258m S	Electricity Substation	1993	61524
H	263m E	Electricity Substation	1993	74416
H	264m E	Electricity Substation	1984	79436
H	265m E	Electricity Substation	1974	67670
4	277m W	Electricity Substation	1973 - 1993	65564
5	308m NE	Electricity Substation	1991	61519
6	370m W	Electricity Substation	1973 - 1996	71491
J	452m SW	Electricity Substation	1983	71582
J	453m SW	Electricity Substation	1993	83147
J	455m SW	Electricity Substation	1986	72583



ID	Location	Land use	Dates present	Group ID
J	455m SW	Electricity Substation	1973	83897
7	458m N	Electricity Substation	1986 - 1991	66822
K	476m NW	Electricity Substation	1976	78863
K	477m NW	Electricity Substation	1981 - 1999	74047
L	481m NW	Electricity Substation	1968	81354
L	489m NW	Electricity Substation	1997	82904
L	490m NW	Electricity Substation	1978 - 1991	81869

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

3

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
C	164m N	Garage	1968 - 1997	27735
C	165m N	Garage	1978 - 1991	24450
C	167m N	Garage	1968	21293

This data is sourced from Ordnance Survey / Groundsure.



1.6 Historical military land

Records within 500m

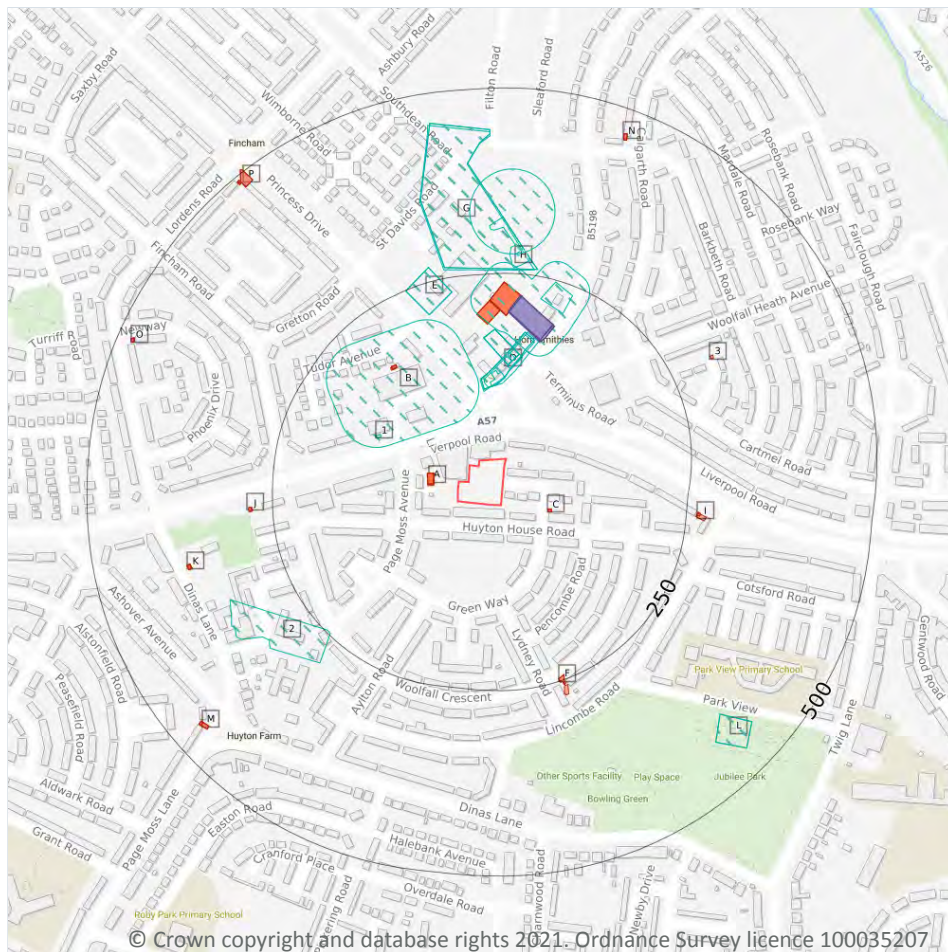
0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical energy features
- Historical garages

2.1 Historical industrial land uses

Records within 500m

23

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
B	59m NW	Smithies	1965	832451
D	93m N	Smithies	1891	988641
D	95m N	Smithies	1925	988641



ID	Location	Land Use	Date	Group ID
D	95m N	Smithies	1906	988641
D	97m N	Smithies	1938	947559
D	99m N	Smithies	1925	968649
1	121m NW	Weighing Machine	1851	810042
D	121m N	Smithies	1925	940458
D	127m N	Police Station	1955	867849
D	127m N	Police Station	1965	932844
D	127m N	Police Station	1976	932844
D	145m N	Smithies	1955	966907
E	208m N	Nursery	1955	903972
E	208m N	Nursery	1965	857963
D	210m N	Smithies	1989	952431
2	247m SW	Nursery	1955	831797
G	254m N	Brick Works	1925	957295
G	256m N	Brick Works	1925	948202
G	256m N	Brick Works	1906	949032
H	258m N	Unspecified Ground Workings	1906	799858
H	276m N	Smithies	1976	832452
L	408m SE	Nursery	1955	953674
L	408m SE	Nursery	1965	990787

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

0

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



2.3 Historical energy features

Records within 500m

63

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
A	33m W	Electricity Substation	1993	70908
A	33m W	Electricity Substation	1967	70908
A	33m W	Electricity Substation	1951	70908
A	34m W	Electricity Substation	1951	70908
A	34m W	Electricity Substation	1973	70908
A	34m W	Electricity Substation	1986	70908
C	64m E	Electricity Substation	1983	78583
C	64m E	Electricity Substation	1986	78583
C	64m E	Electricity Substation	1993	84373
B	164m NW	Electricity Substation	1997	84151
B	164m NW	Electricity Substation	1987	84151
B	164m NW	Electricity Substation	1991	84151
D	183m N	Electricity Substation	1997	73771
D	184m N	Electricity Substation	1987	75064
D	184m N	Electricity Substation	1991	75064
D	193m N	Electricity Substation	1968	68885
D	193m N	Electricity Substation	1950	68885
D	193m N	Electricity Substation	1950	68885
D	193m N	Electricity Substation	1968	68885
F	244m S	Electricity Substation	1993	71156
F	244m S	Electricity Substation	1983	78141
F	251m S	Electricity Substation	1974	74892
F	253m S	Electricity Substation	1973	74892



ID	Location	Land Use	Date	Group ID
F	253m S	Electricity Substation	1986	78689
F	258m S	Electricity Substation	1993	61524
I	263m E	Electricity Substation	1993	74416
I	264m E	Electricity Substation	1984	79436
I	265m E	Electricity Substation	1974	67670
J	277m W	Electricity Substation	1983	65564
J	278m W	Electricity Substation	1993	65564
J	278m W	Electricity Substation	1973	65564
J	278m W	Electricity Substation	1986	65564
3	308m NE	Electricity Substation	1991	61519
K	370m W	Electricity Substation	1995	71491
K	370m W	Electricity Substation	1996	71491
K	370m W	Electricity Substation	1993	71491
K	370m W	Electricity Substation	1993	71491
K	370m W	Electricity Substation	1994	71491
K	370m W	Electricity Substation	1993	71491
K	370m W	Electricity Substation	1983	71491
K	370m W	Electricity Substation	1992	71491
K	371m W	Electricity Substation	1973	71491
M	452m SW	Electricity Substation	1983	71582
M	453m SW	Electricity Substation	1993	83147
M	455m SW	Electricity Substation	1973	83897
M	455m SW	Electricity Substation	1986	72583
N	458m N	Electricity Substation	1986	66822
N	458m N	Electricity Substation	1988	66822
N	458m N	Electricity Substation	1991	66822
O	476m NW	Electricity Substation	1976	78863
O	477m NW	Electricity Substation	1995	74047



ID	Location	Land Use	Date	Group ID
O	477m NW	Electricity Substation	1997	74047
O	477m NW	Electricity Substation	1997	74047
O	477m NW	Electricity Substation	1998	74047
O	477m NW	Electricity Substation	1996	74047
O	477m NW	Electricity Substation	1999	74047
O	477m NW	Electricity Substation	1981	74047
P	481m NW	Electricity Substation	1968	81354
P	482m NW	Electricity Substation	1968	81354
P	489m NW	Electricity Substation	1997	82904
P	490m NW	Electricity Substation	1978	81869
P	490m NW	Electricity Substation	1987	81869
P	490m NW	Electricity Substation	1991	81869

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

6

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
D	164m N	Garage	1997	27735

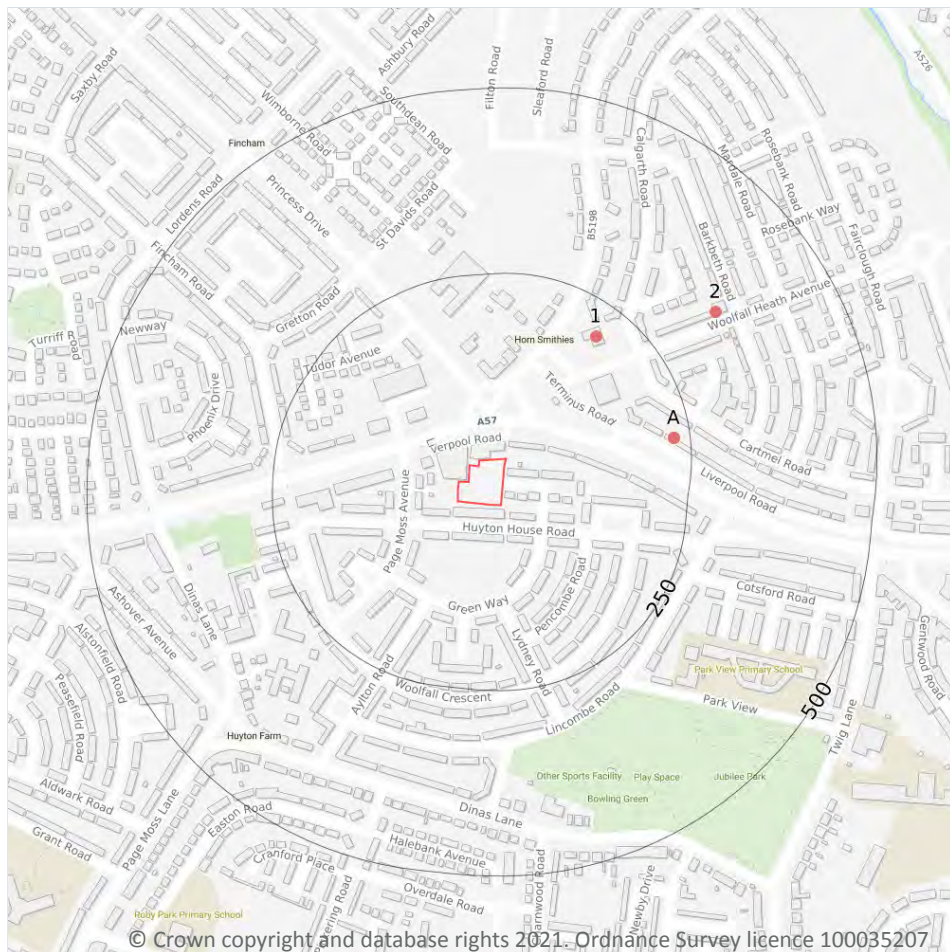


ID	Location	Land Use	Date	Group ID
D	165m N	Garage	1978	24450
D	165m N	Garage	1987	24450
D	165m N	Garage	1991	24450
D	167m N	Garage	1968	21293
D	167m N	Garage	1968	27735

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m

0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m

11

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 25**

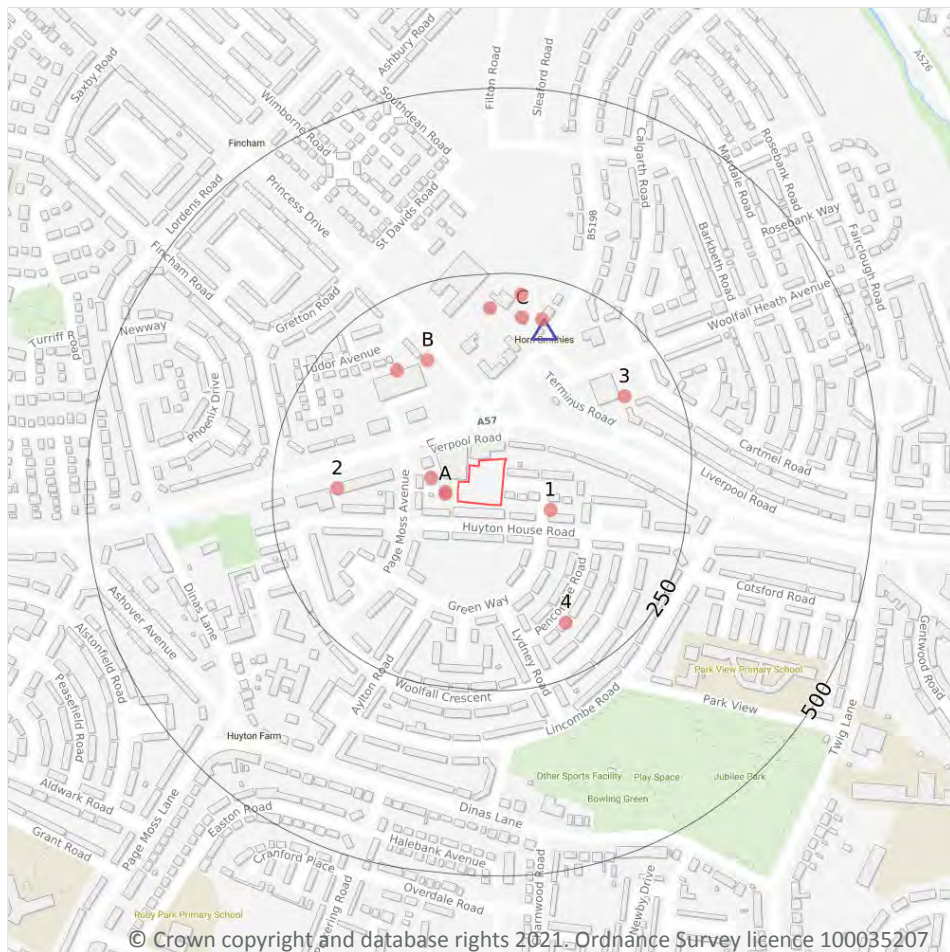
ID	Location	Site	Reference	Category	Sub-Category	Description
1	204m NE	WOOLFALL HEATH AVENUE, LIVERPOOL, L36 3YD	WEX234701	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

ID	Location	Site	Reference	Category	Sub-Category	Description
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Storing waste exemption	On a farm	Storage of waste in a secure place
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Storing waste exemption	On a farm	Storage of sludge
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Using waste exemption	On a farm	Use of waste in construction
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Using waste exemption	On a farm	Spreading waste on non-agricultural land to confer benefit
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Using waste exemption	On a farm	Use of mulch
A	227m E	Wood Farm, Gorsey Lane, Hightown, Formby, L36 3RB	WEX102098	Using waste exemption	On a farm	Spreading of plant matter to confer benefit
2	344m NE	27 Woolfall Heath Avenue LIVERPOOL L36 3TH	EPR/YF0302FY /A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- ▲ Current or recent petrol stations

4.1 Recent industrial land uses

Records within 250m

13

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	Activity	Category
A	17m W	Pumping Station	Merseyside, L36	Water Pumping Stations	Industrial Features
A	17m W	Sewage Pumping	Merseyside, L36	Waste Storage, Processing and Disposal	Infrastructure and Facilities
A	38m W	Electricity Sub Station	Merseyside, L36	Electrical Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
1	67m E	Electricity Sub Station	Merseyside, L36	Electrical Features	Infrastructure and Facilities
B	152m NW	Electricity Sub Station	Merseyside, L14	Electrical Features	Infrastructure and Facilities
B	160m NW	Mast (Telecommunication)	Merseyside, L36	Telecommunications Features	Infrastructure and Facilities
2	163m W	A1 Auto Repair Center	66, Liverpool Road, Liverpool, Merseyside, L36 3YD	Vehicle Repair, Testing and Servicing	Repair and Servicing
3	180m NE	Electricity Sub Station	Merseyside, L36	Electrical Features	Infrastructure and Facilities
4	181m SE	A & A Travel	14, Pencombe Road, Liverpool, Merseyside, L36 2NH	Vehicle Hire and Rental	Hire Services
C	191m N	Panda Tyres	Stockbridge Lane, Liverpool, Merseyside, L36 3SA	Vehicle Parts and Accessories	Motoring
C	194m N	F R Foster Ltd	Stockbridge Lane, Liverpool, Merseyside, L36 3SA	Vehicle Parts and Accessories	Motoring
C	204m N	Electricity Sub Station	Merseyside, L36	Electrical Features	Infrastructure and Facilities
C	222m N	Mast (Telecommunication)	Merseyside, L36	Telecommunications Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m

1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	LPG	Status
C	181m N	SPOT	Stocksbridge Lane, Fincham, Liverpool, Merseyside, L36 3SA	Not Applicable	Obsolete

This data is sourced from Experian.



4.3 Electricity cables

Records within 500m**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.



4.8 Hazardous substance storage/usage

Records within 500m

0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m**0**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m**0**

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m**0**

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m**0**

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

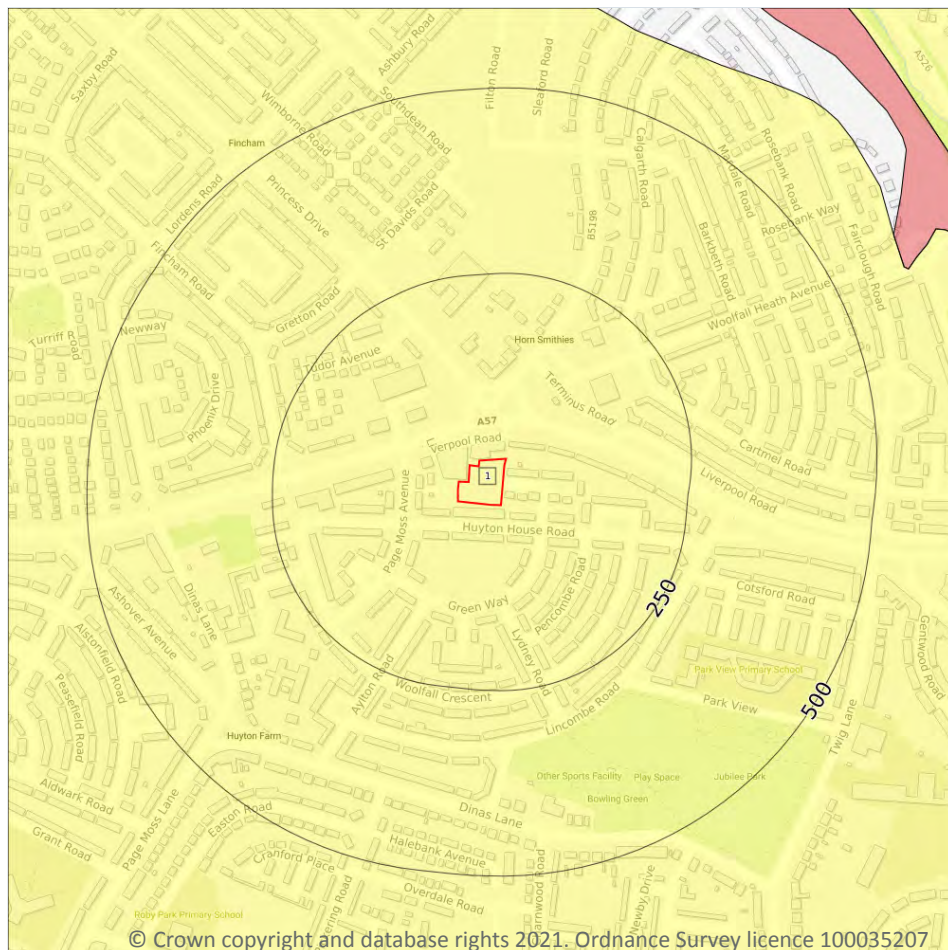
4.21 Pollution inventory radioactive waste

Records within 500m**0**

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

1

Aquifer status of groundwater held within superficial geology.

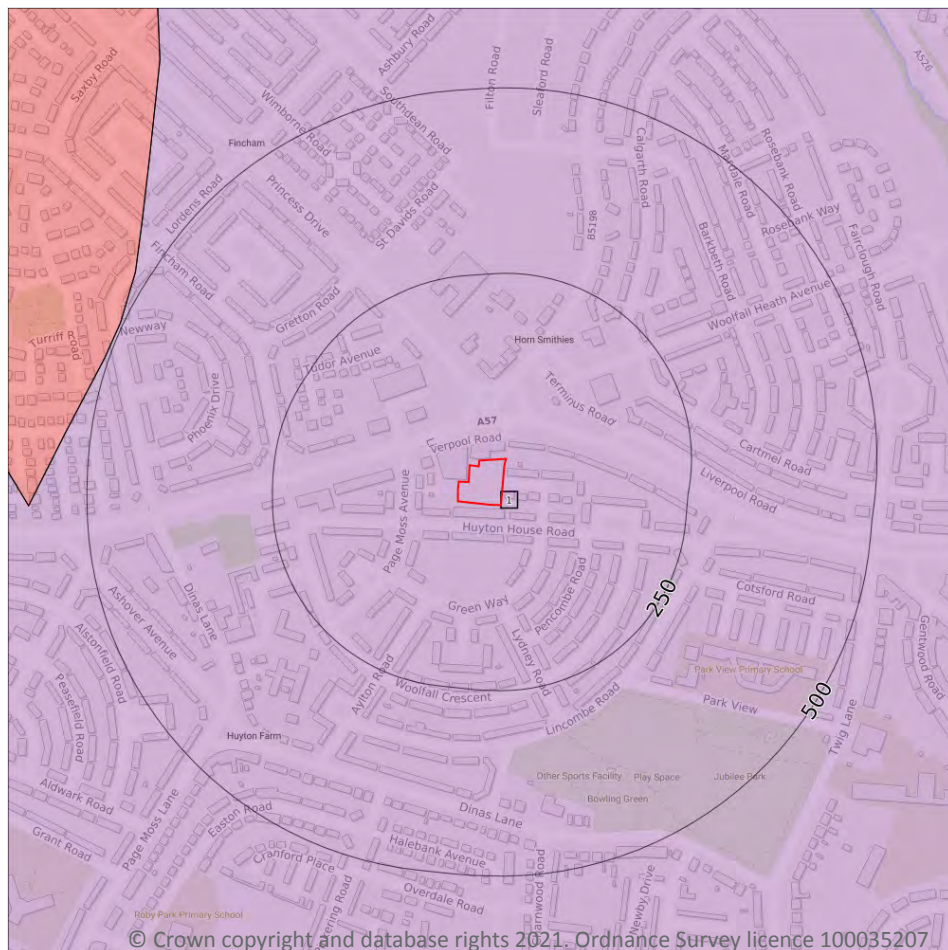
Features are displayed on the Hydrogeology map on **page 34**

ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

1

Aquifer status of groundwater held within bedrock geology.

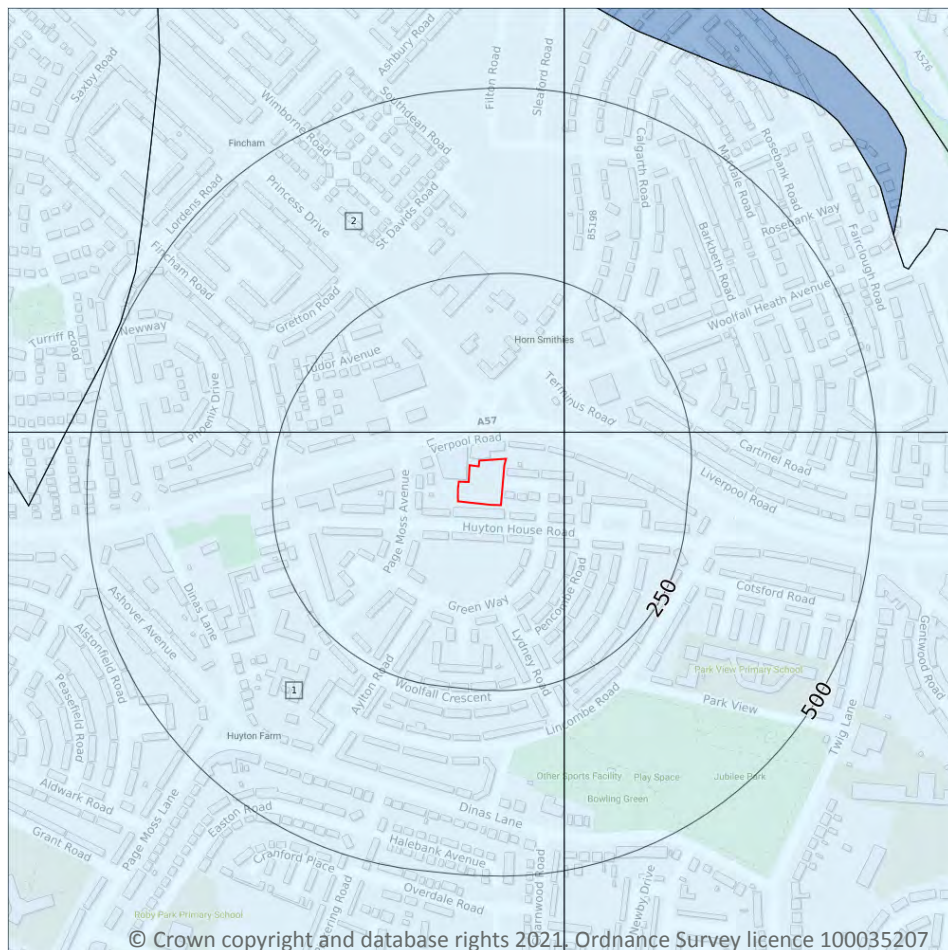
Features are displayed on the Bedrock aquifer map on **page 35**

ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



— Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m

2

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 36**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
2	35m N	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0
------------------------	----------

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

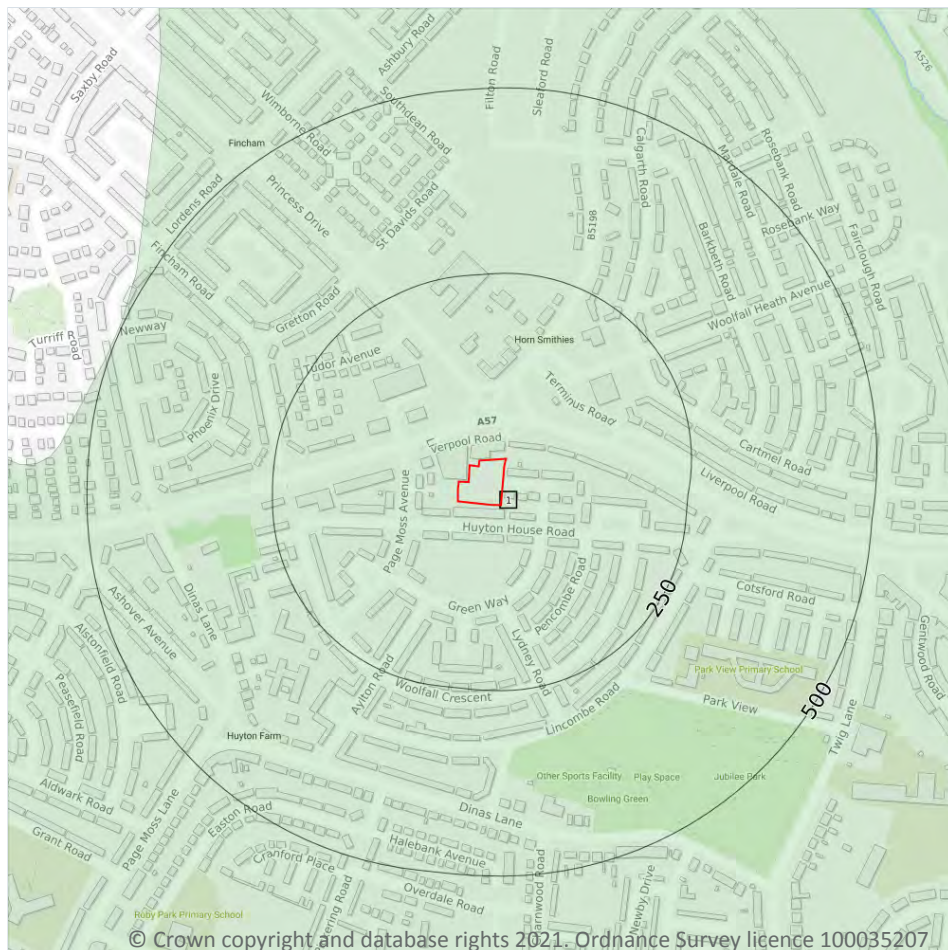
5.5 Groundwater vulnerability- local information

Records on site	0
------------------------	----------

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

3

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 38**



ID	Location	Details	
-	1876m NW	Status: Historical Licence No: 2569031130 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE AT WEST DERBY GOLF CLUB, WEST DERBY" Data Type: Point Name: THE TRUSTEES OF WEST DERBY GOLF CLUB Easting: 341250 Northing: 392900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/12/1998 Version End Date: -
-	1876m NW	Status: Active Licence No: 2569031130 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT WEST DERBY GOLF CLUB, WEST DERBY Data Type: Point Name: THE TRUSTEES OF WEST DERBY GOLF CLUB Easting: 341250 Northing: 392900	Annual Volume (m ³): 13,090.90 Max Daily Volume (m ³): 109.10 Original Application No: - Original Start Date: 23/12/1998 Expiry Date: - Issue No: 101 Version Start Date: 26/11/2018 Version End Date: -
-	1876m NW	Status: Active Licence No: 2569031130 Details: Make-Up Or Top Up Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT WEST DERBY GOLF CLUB, WEST DERBY Data Type: Point Name: THE TRUSTEES OF WEST DERBY GOLF CLUB Easting: 341250 Northing: 392900	Annual Volume (m ³): 13,090.90 Max Daily Volume (m ³): 109.10 Original Application No: - Original Start Date: 23/12/1998 Expiry Date: - Issue No: 101 Version Start Date: 26/11/2018 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m

0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.



5.8 Potable abstractions

Records within 2000m

0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m

1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 38**

ID	Location	Type	Description
1	On site	3	Total catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

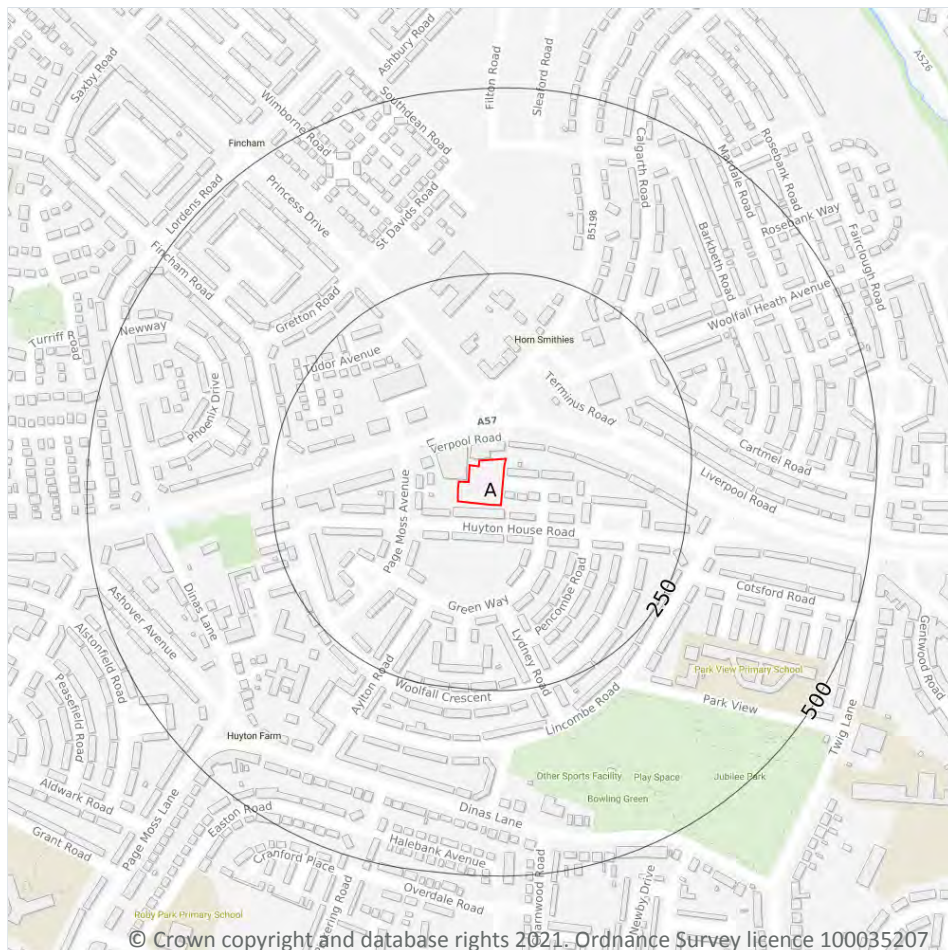
Records within 500m

0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

0

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

0

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 41**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River WB catchment	Alt	GB112069060580	Alt	Alt and Crossens

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 41**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	734m E	River	Alt	GB112069060580	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.



6.5 WFD Groundwater bodies

Records on site

2

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 41**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	<u>GB41201G101700</u>	Poor	Poor	Poor	2015
A	On site	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	<u>GB41201G101700</u>	Poor	Poor	Poor	2016

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m**0**

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m**0**

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m**0**

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0
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Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

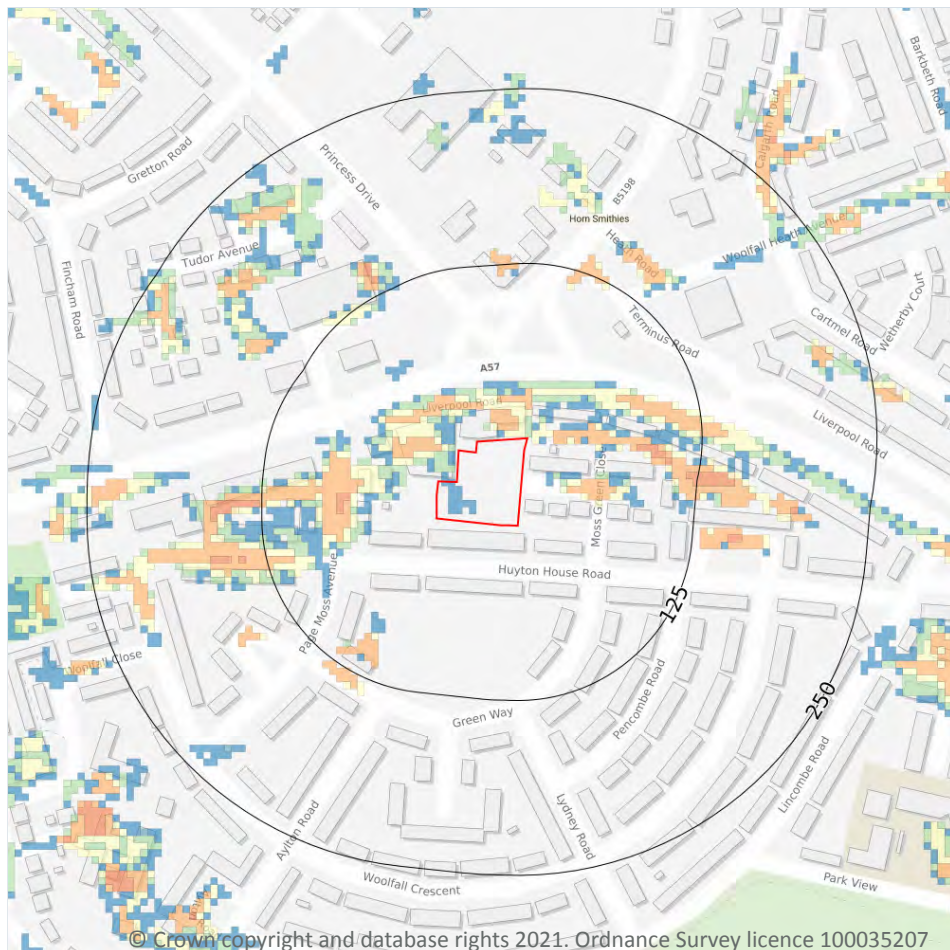
7.7 Flood Zone 3

Records within 50m	0
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Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 1000 year, 0.1m - 0.3m

Highest risk within 50m

1 in 30 year, 0.1m - 0.3m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 47**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

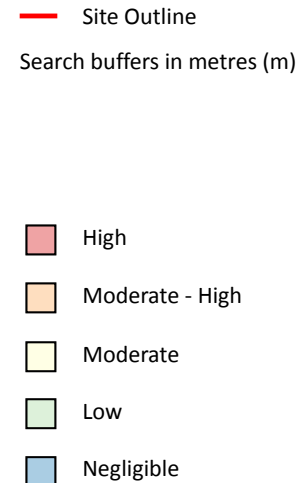
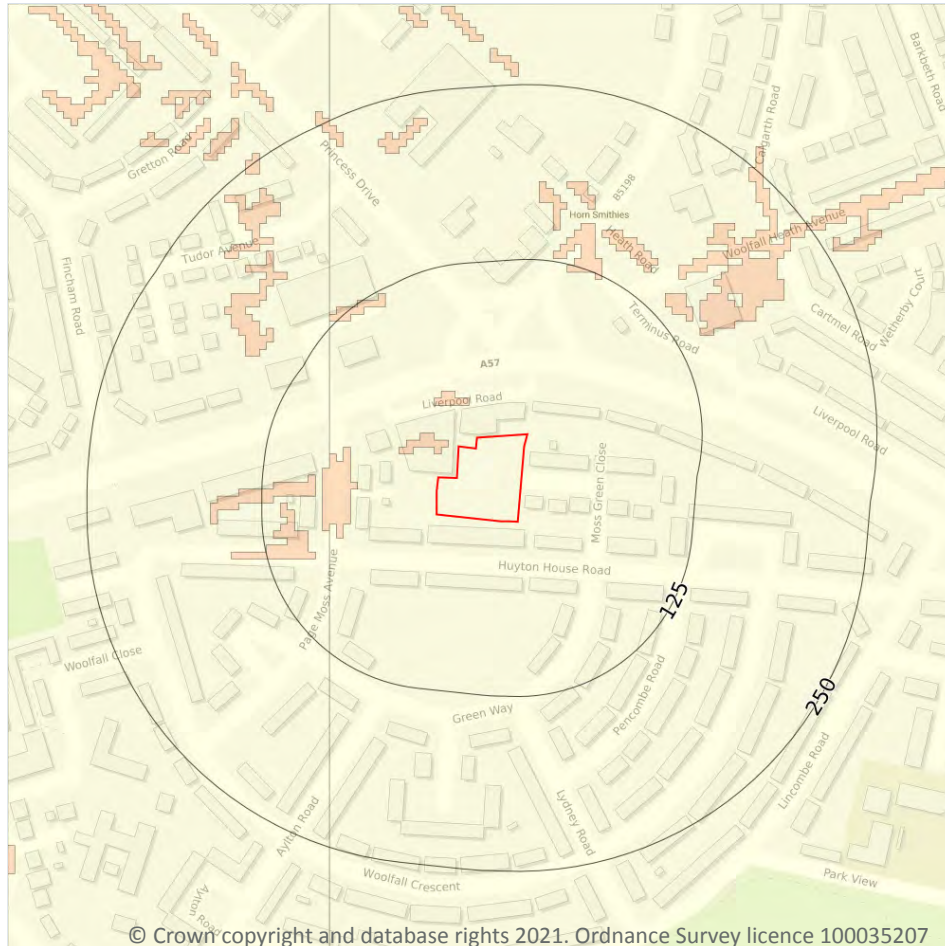
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site	Moderate
Highest risk within 50m	Moderate-High

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 49**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m**0**

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m**0**

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m**0**

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m**0**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m**2**

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 50**

ID	Location	Name	Local Authority name
-	1328m S	Merseyside and Greater Manchester	Knowsley
2	1384m NE	Merseyside and Greater Manchester	Knowsley

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m**0**

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m**0**

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.



10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

4

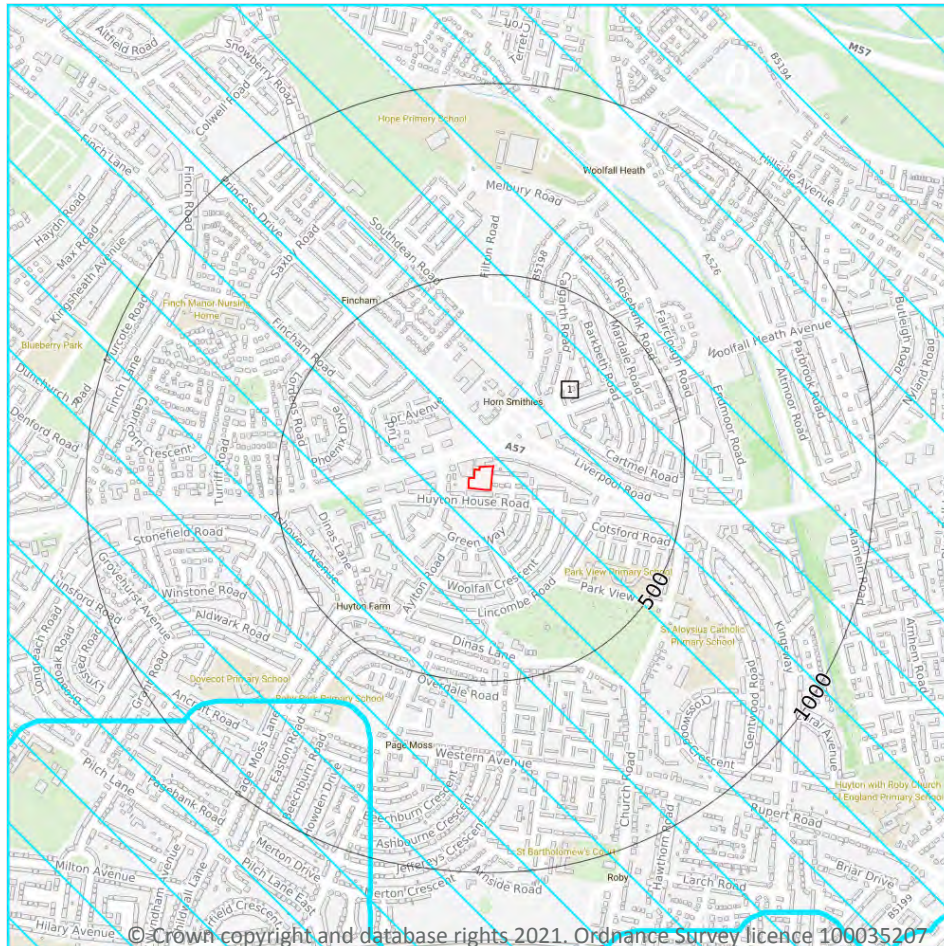
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	ALT NVZ	Surface Water	S642	Existing
804m S	Dittton Brook (Halewood to Mersey Estuary) NVZ	Surface Water	S640	Existing
1170m NE	ALT NVZ	Surface Water	S642	Existing
1755m SE	Dittton Brook (Halewood to Mersey Estuary) NVZ	Surface Water	S640	Existing

This data is sourced from Natural England and Natural Resources Wales.



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 55**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
-----------------------------	----------

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

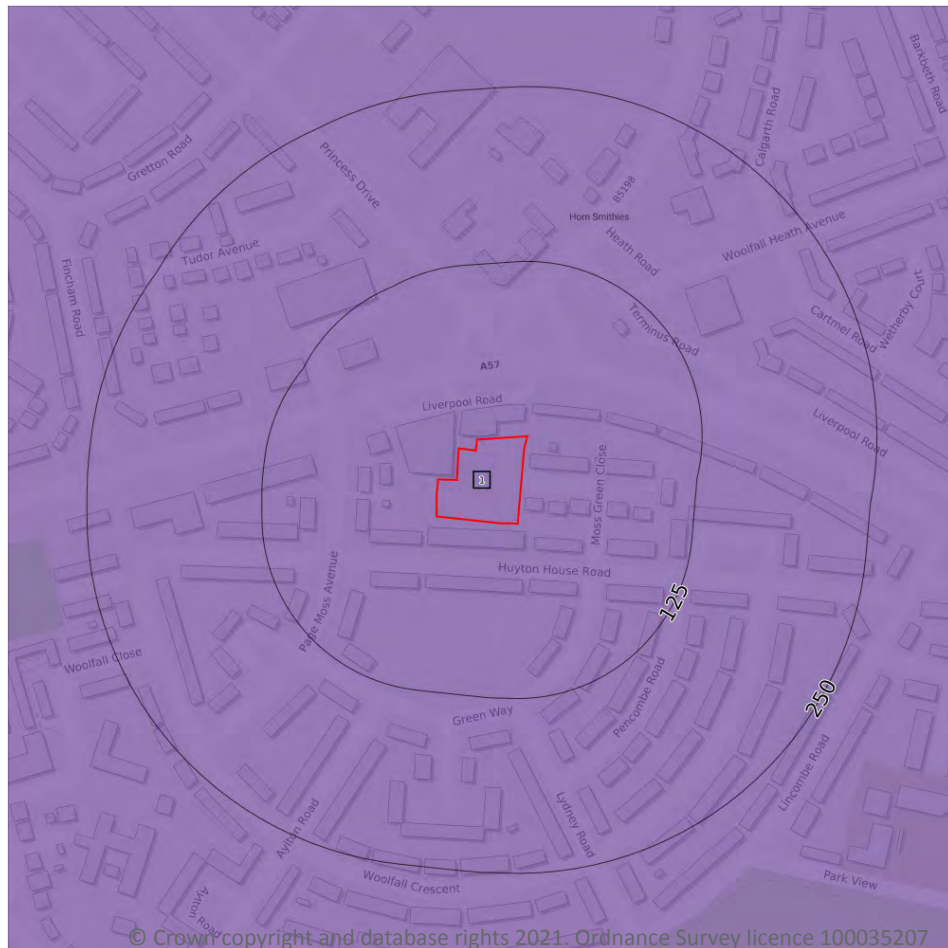
Records within 250m

0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 59**

ID	Location	Classification	Description
1	On site	Urban	-

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m**0**

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m**0**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m**0**

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

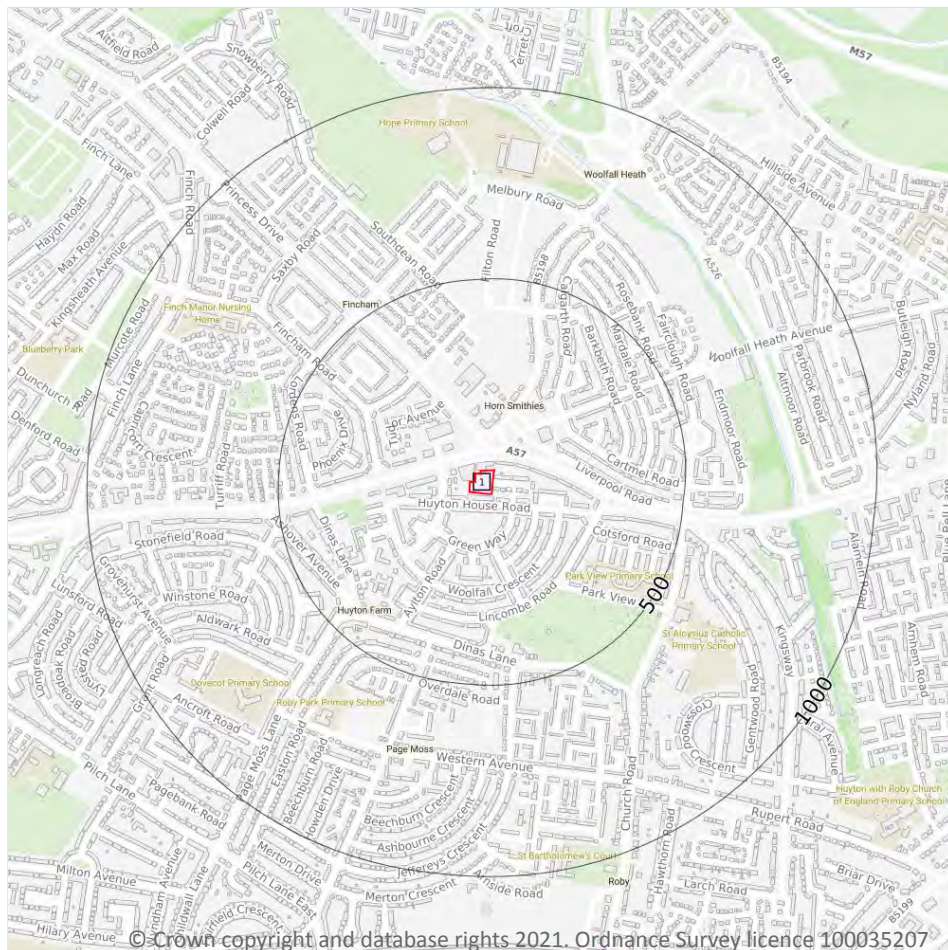
Records within 250m**0**

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 62**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground

14.2 Artificial and made ground (10k)

Records within 500m

0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m

0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m

0

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

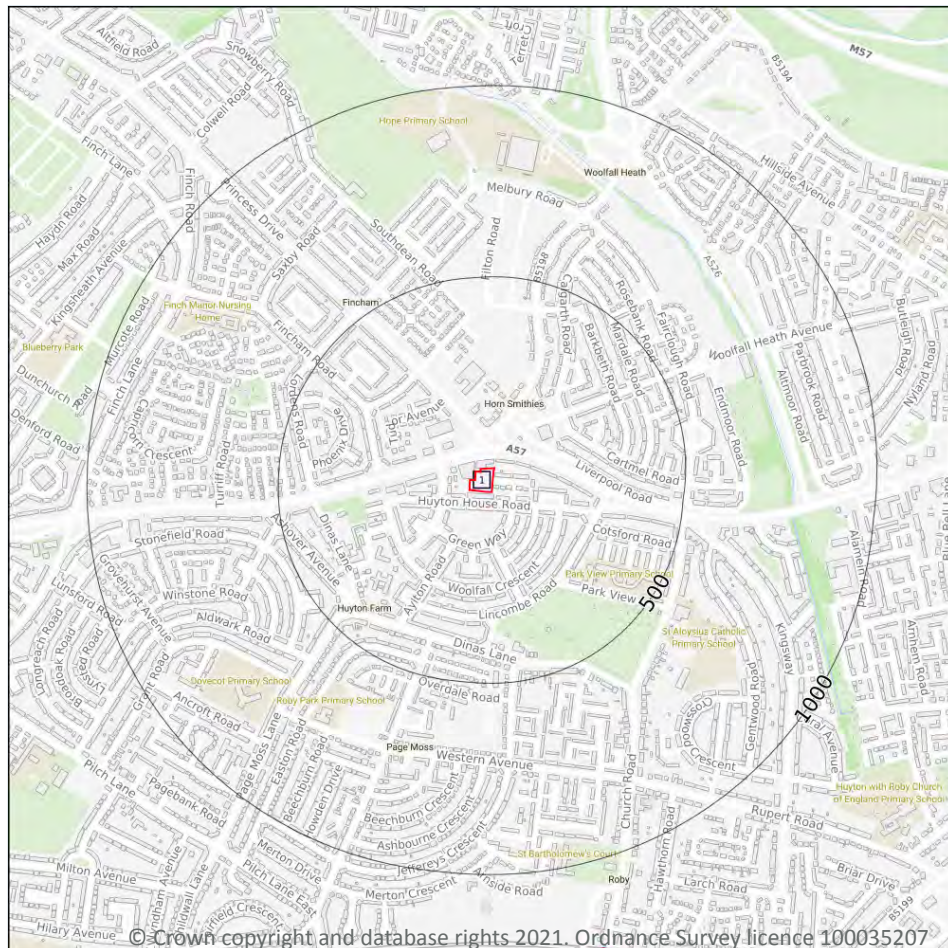
0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline
Search buffers in metres (m)

☐ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 66**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW097_runcorn_v4

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m

0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

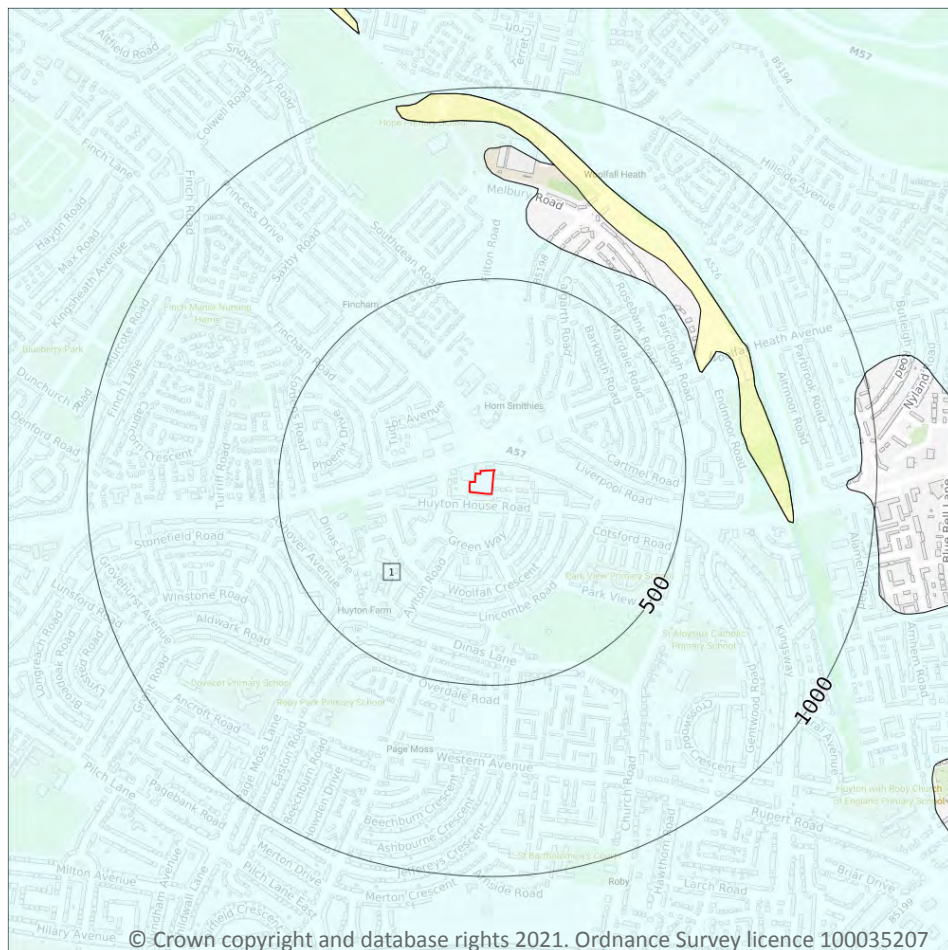
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

1

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 68**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m

1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

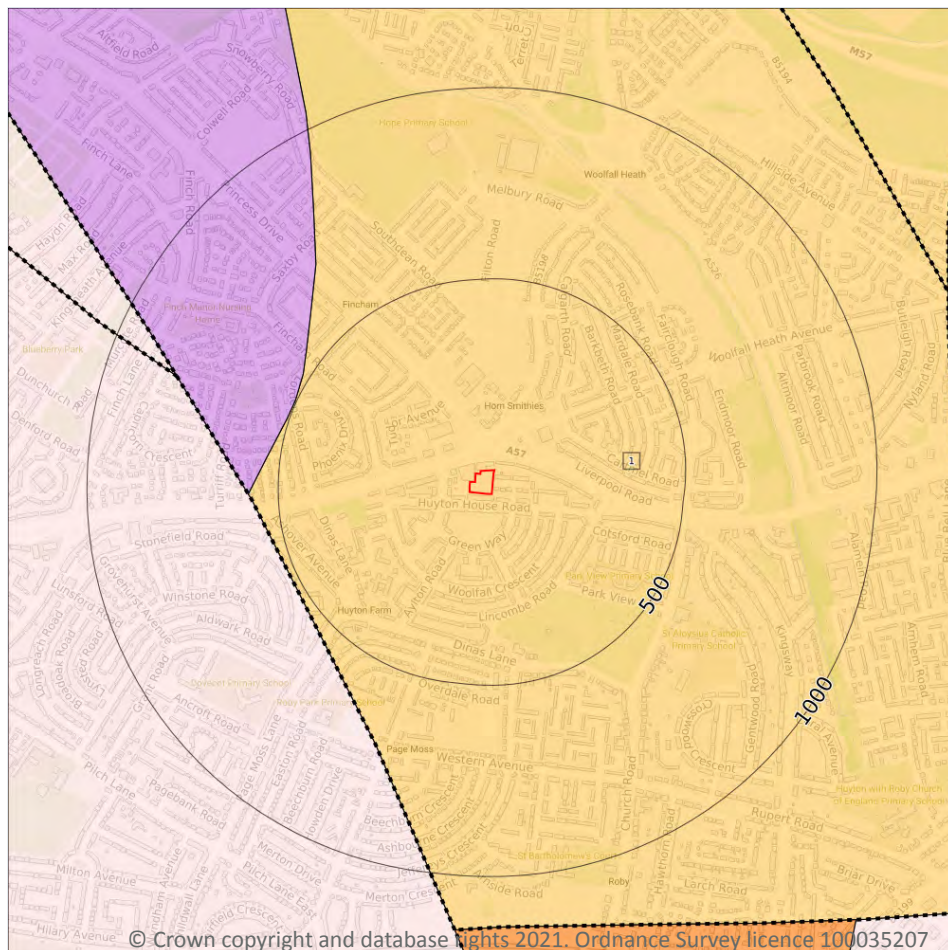
Records within 50m

0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

..... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 70**

ID	Location	LEX Code	Description	Rock age
1	On site	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	High

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

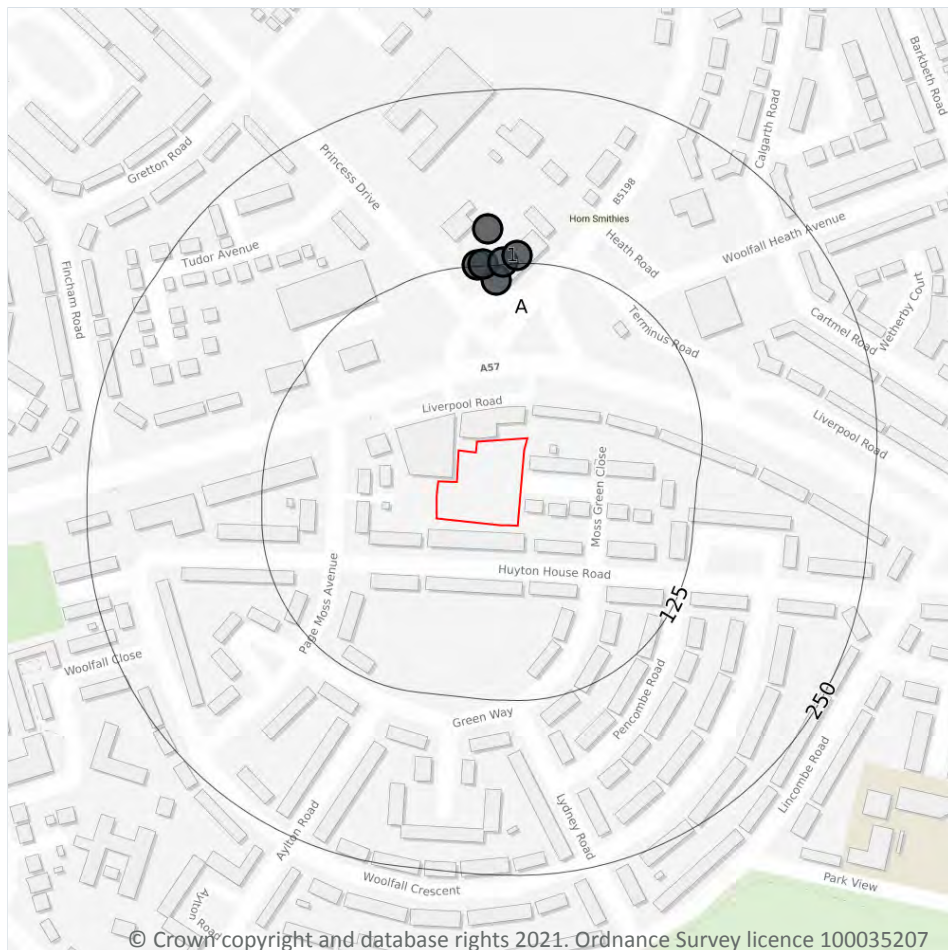
Records within 500m

0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

6

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 72**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	114m N	342899 392077	PAGE MOSS ONE STOP SHOP TP 2	-	Y	N/A
A	126m N	342886 392088	PAGE MOSS ONE STOP SHOP TP 4	-	Y	N/A
A	127m N	342890 392089	PAGE MOSS ONE STOP SHOP 1	-	Y	N/A

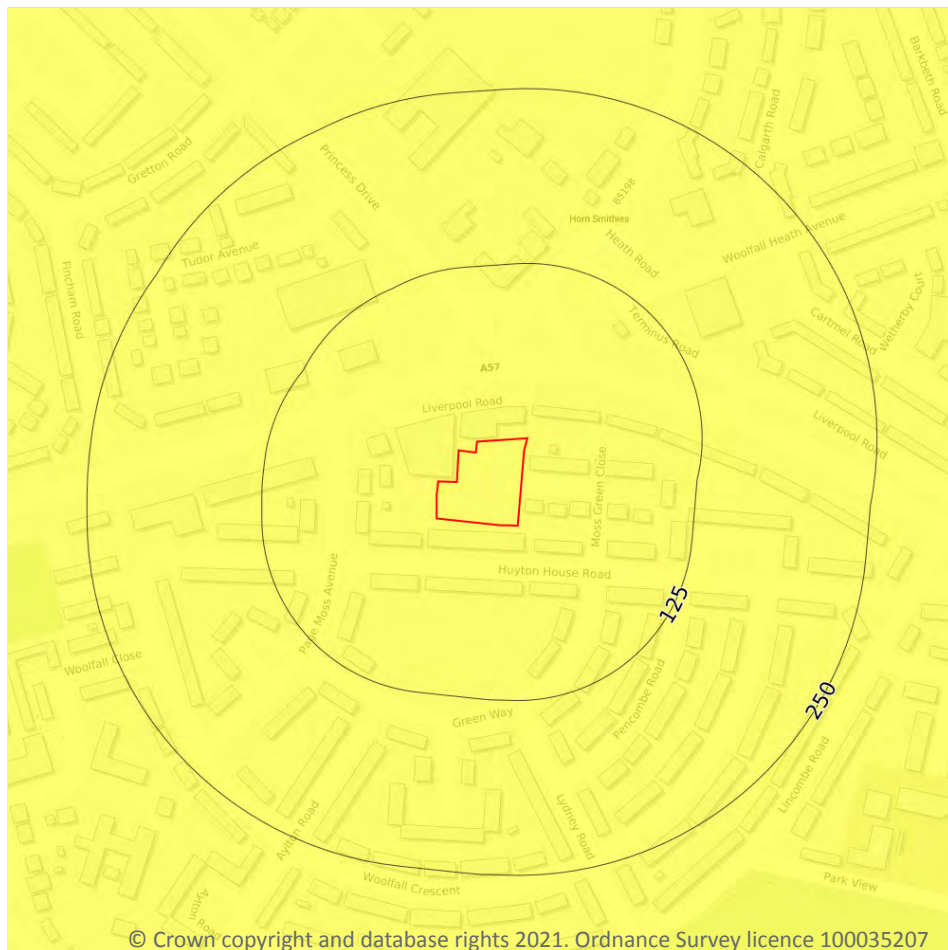


ID	Location	Grid reference	Name	Length	Confidential	Web link
A	127m N	342904 392090	PAGE MOSS ONE STOP SHOP TP 1	-	Y	N/A
A	131m N	342914 392095	PAGE MOSS ONE STOP SHOP 2	-	Y	N/A
1	151m N	342893 392114	PAGE MOSS ONE STOP SHOP TP 3	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

1

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

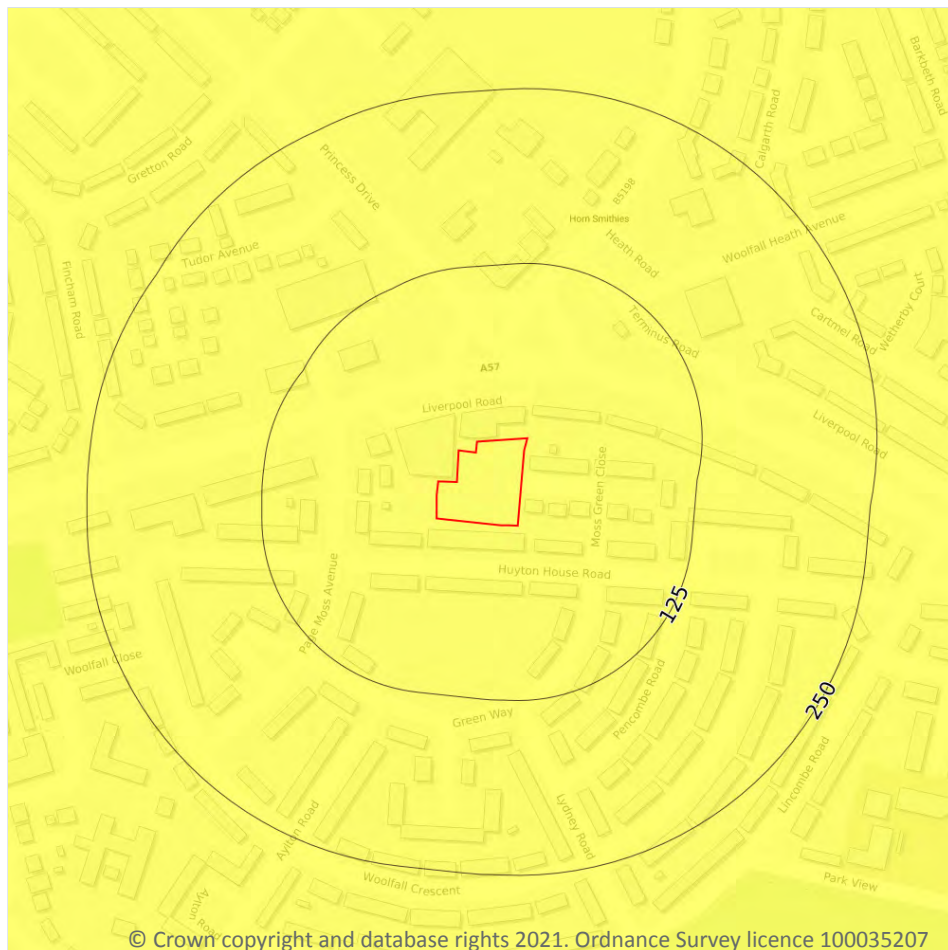
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 74**

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



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- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

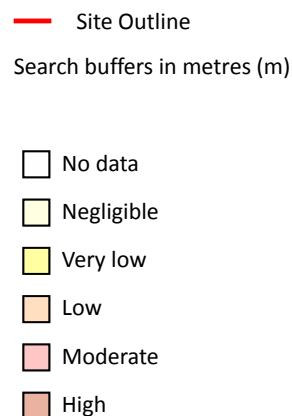
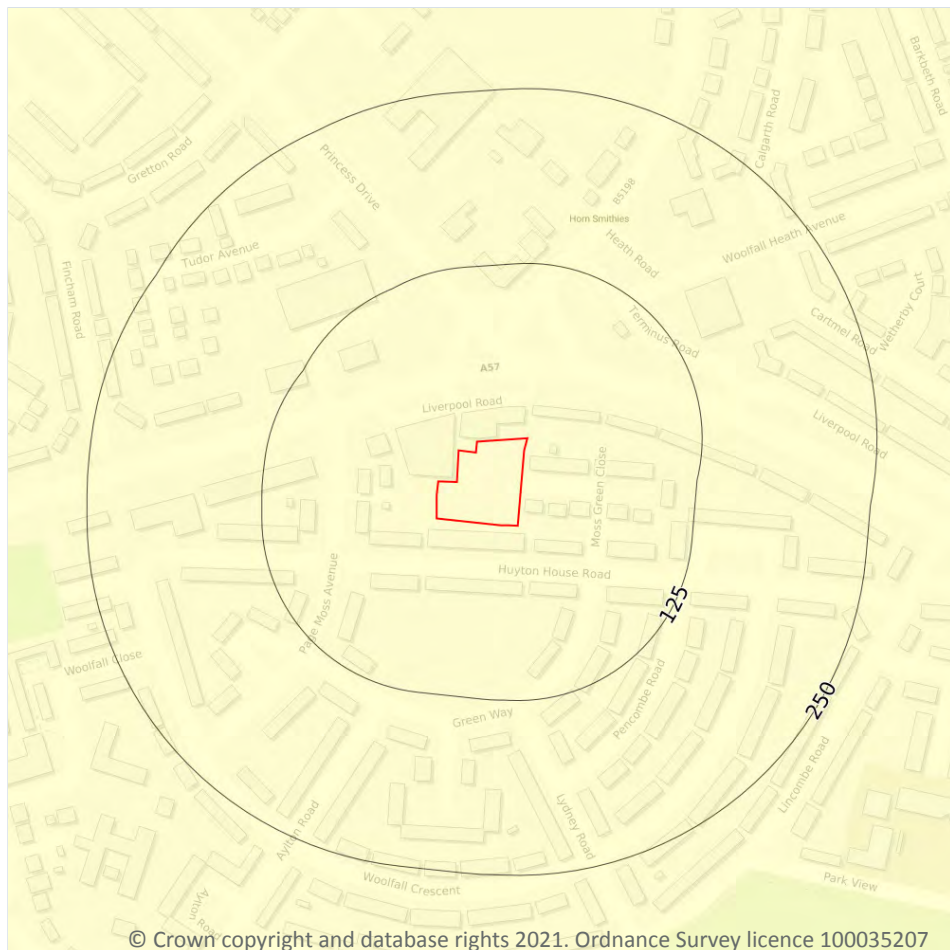
Features are displayed on the Natural ground subsidence - Running sands map on **page 75**

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

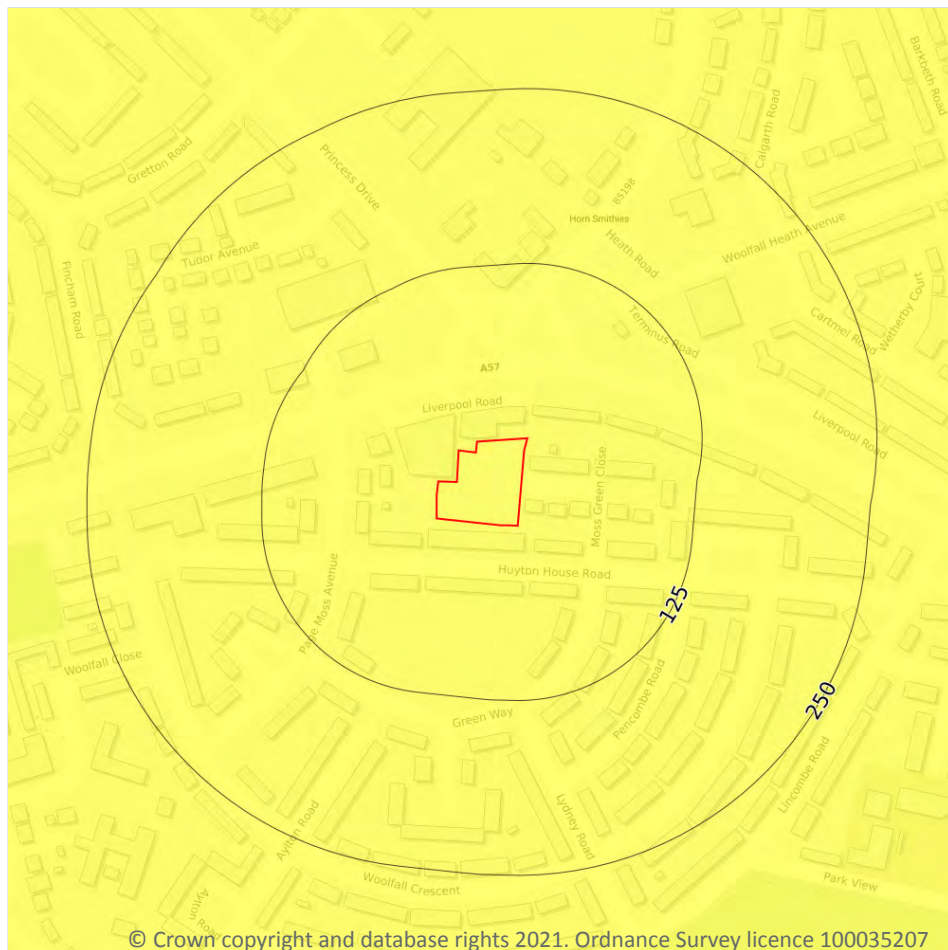
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 76**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



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- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

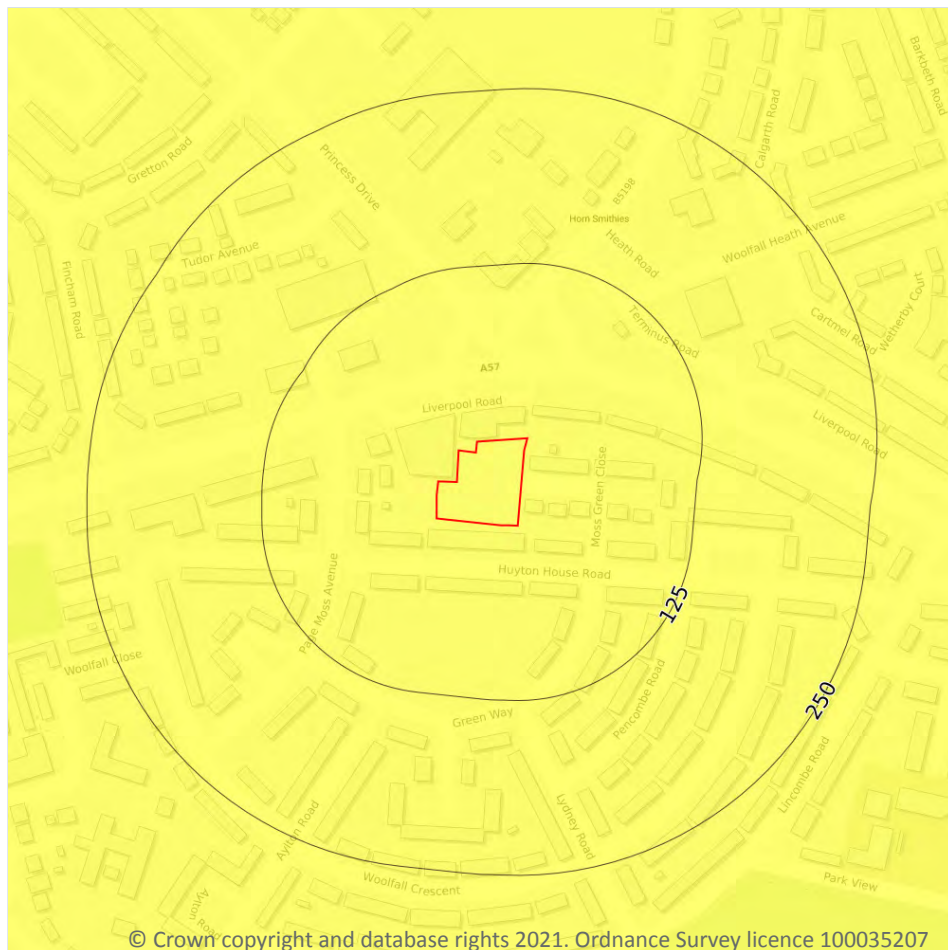
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 77**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



— Site Outline
Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

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17.5 Landslides

Records within 50m

1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

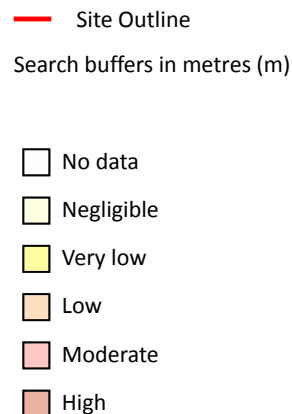
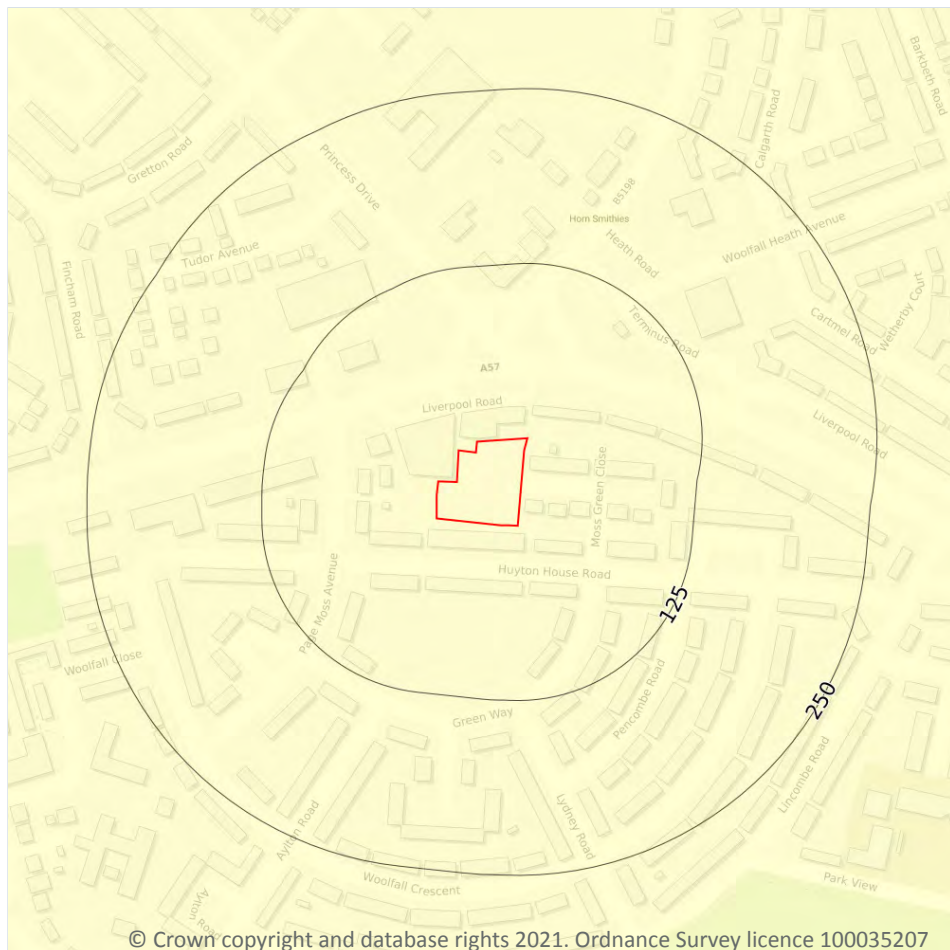
Features are displayed on the Natural ground subsidence - Landslides map on **page 78**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

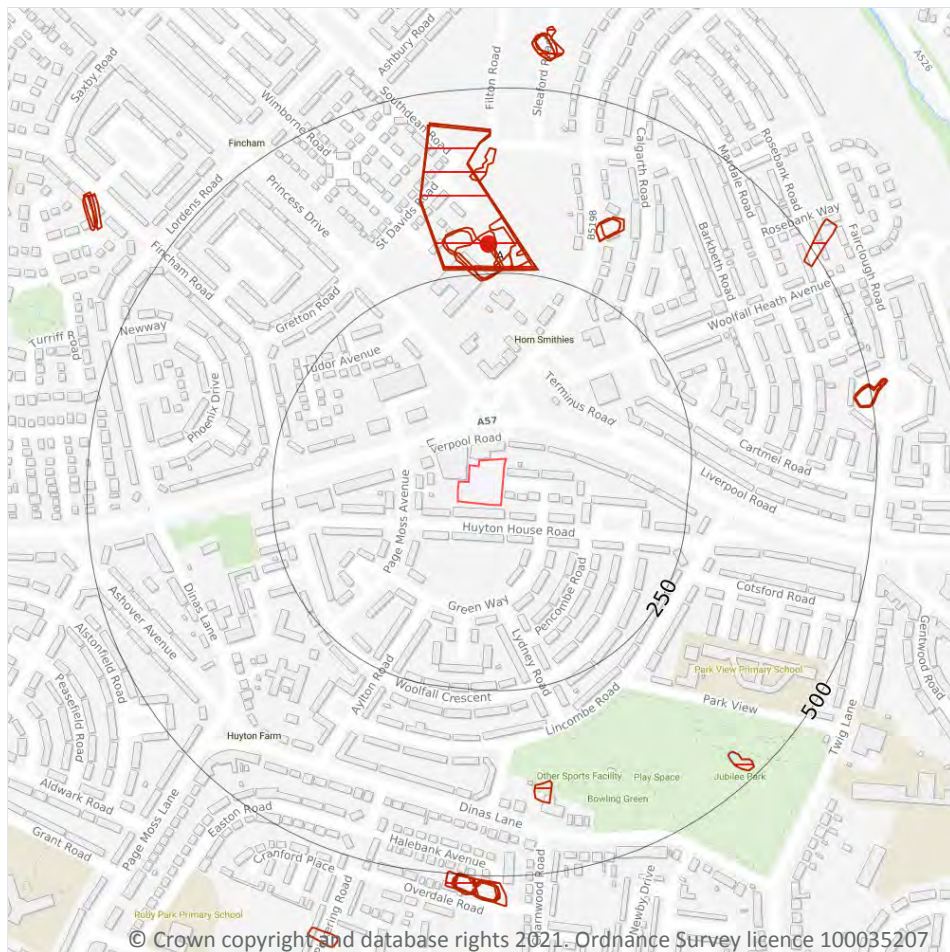
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 79**

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 80**

ID	Location	Details	Description
A	290m N	Name: Woolfell Heath Brick Works Address: HUYTON-WITH-ROBY, Merseyside Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

3

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 80**

ID	Location	Land Use	Year of mapping	Mapping scale
A	242m N	Pond	1906	1:10560
A	243m N	Pond	1925	1:10560
A	245m N	Pond	1925	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.



18.5 Historical Mineral Planning Areas

Records within 500m

0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site

0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site

0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.



18.10 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

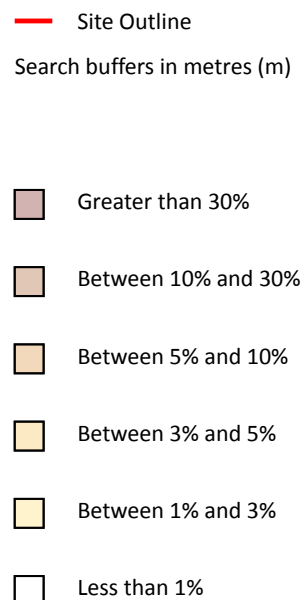
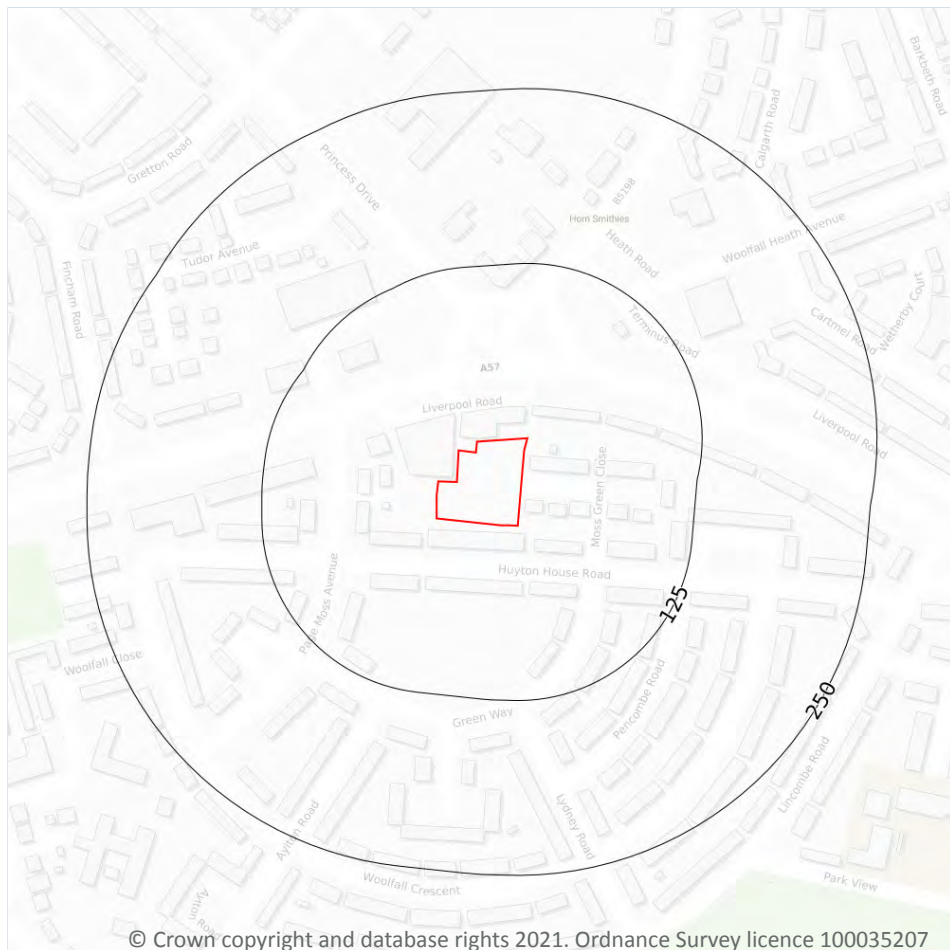
18.13 Clay mining

Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 84**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

3

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
36m NW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
36m NW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

4

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 86**

Location	Land Use	Year of mapping	Mapping scale
45m N	Tramway Sidings	1950	2500
87m NE	Tramway Sidings	1950	2500
101m NE	Railway Sidings	1950	1250
102m NE	Railway Sidings	1950	2500

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.



21.6 Historical railways

Records within 250m**0**

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m**0**

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m**0**

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



APPENDIX K: CURRENT GUIDANCE & LEGISLATIONS

CURRENT CONTAMINATED LAND LEGISLATION / GUIDANCE & ENVIRONMENTAL RISK ASSESSMENT METHODOLOGY

LEGISLATION OVERVIEW

This report includes hazard identification and risk assessment in line with the risk-based methods referred to in relevant UK legislation and guidance. Government environmental policy is based upon a "suitable for use approach". When considering the current use of land, Part IIA of the Environment Protection Act 1990 (EPA 1990) provides the regulatory regime, which was introduced by Section 57 of the Environment Act 1995, which came into force in England on 1 April 2000. The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment given the current use and circumstances of the land.

Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

"any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:

- (a) Significant harm is being caused or there is a significant possibility of such harm being caused;
- or
- (b) Pollution of controlled waters is being, or is likely to be, caused."

Part IIA provides a statutory definition of the pollution of controlled waters under Section 78A(9) as:

"the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter".

In order to assist in establishing if there is a "significant possibility of significant harm" there must be a "significant pollutant linkage" for potential harm to exist. That means there must be a source(s) of contamination, sensitive receptors present and a connection or pathway between the two. This combination of source-pathway-receptor is termed a "pollutant linkage or SPR linkage."

Part IIA of The Environmental Protection Act 1990 is supported by a substantial quantity of guidance and other Regulations, especially DEFRA Circular 01/2006 Contaminated Land (this replaces DETR Circular 02/2000). Part IIA defines the duties of Local Authorities in dealing with it. With the exception of situations of very high pollution risk, Part IIA places contaminated land responsibility on the planning and redevelopment process. In situations where there is very high pollution risk direct action from the Local Authority is usually necessary. Planning Policy Statement 23 (PPS23) provides guidance on the planning process and requires that sites which have been developed shall not be capable of being determined "contaminated land" under Part IIA.

The criteria for assessing levels of pollutants and hence determining whether a site represents a hazard are based on a range of techniques, models and guidance. Within this context it is relevant to note that Government objectives are:

- (a) to identify and remove unacceptable risks to human health and the environment;
- (b) to seek to bring damaged land back into beneficial use;
- (c) to seek to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable.

These three objectives underlie the "suitable for use" approach to remediation of contaminated land. The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore should be assessed on a site-by-site basis.

The "suitable for use" approach then consists of three elements:

- (a) ensuring that land is suitable for its current use - in other words, identifying any land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise; the contaminated land regime provides the regulatory mechanisms to achieve this;
- (b) ensuring that land is made suitable for any new use, as planning permission is given for that new use - in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risks to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes; and
- (c) limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought - in other words, recognising that the risks from contaminated land can be satisfactorily assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby running the risk of distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

The mere presence of pollutants does not therefore necessarily warrant action, and consideration must be given to the scale of risk involved for the current and proposed end use of the site.

RISK ASSESSMENT METHODOLOGY

Current practice recommends that the determination of potential liabilities that could arise from land contamination be carried out using the process of risk assessment, whereby "risk" is defined as:

- "(a) The probability, or frequency, or occurrence of a defined hazard; and
- (b) The magnitude (including the seriousness) of the consequences."

The UK's approach to the assessment of environmental risk is set out in by the Department of the Environment (2000) publication "A Guide to Risk Assessment and Risk Management for Environmental Protection." This established an iterative, systematic staged process which comprises:

- (a) Hazard identification
- (b) Hazard assessment
- (c) Risk estimation
- (d) Risk evaluation
- (e) Risk Assessment

At each stage during the investigation process the above steps are repeated as more detailed information becomes available for the site.

CLR11- 'Model Procedures for the Management of Land Contamination', a document published by the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (EA) outlines a tiered approach to the assessment of risks posed by contaminated land, as summarised hereunder:

Tier 1: Preliminary Risk Assessment

A Preliminary Risk Assessment is usually undertaken as part of a desk study, outlines potential risks posed by potential contamination to all receptors by defining plausible "pollution linkages" and developing a preliminary conceptual model (PCM). The purpose of this model is to define all possible complete pollution linkages, where the requisite source – pathway – target elements are present, and these elements being defined as:

- a contaminant (source) is a hazardous substance or agent, present at levels that have the potential to cause harm or damage a receptor
- a pathway is the means by or through which a contaminant comes into contact with, or otherwise affects, the receptor
- a receptor (target) is an entity (human being, aquatic environment, flora and fauna etc) that is vulnerable to the adverse effects of the contaminant

This relationship is termed a "pollution linkage". It should be recognised that for a health or environmental risk to exist, all three elements of the relationship or linkage must be present, i.e.

- if there is no contaminant, or contaminant present at levels below those considered to be harmful or damaging to a receptor, then there can be no adverse effect on a receptor
- if there is no receptor present that can be adversely affected by a contaminant, no harm or damage can arise
- even where both a contaminant and a receptor are present, no harm or damage will occur if there is no pathway by or through which a linkage between the two can be established

The absence of one or more of each component (source, pathway, receptor) would prevent a pollutant linkage being established and there would be no significant environmental risk.

The PCM is subject to continual refinement as additional data becomes available. As part of a Phase I Investigation (Desk Study and site walk over) a PCM is formed. Based on the PCM, potential pollutant linkages can be assessed. If the PCM and hazard assessment indicate that a pollution linkage is not of significance then no further assessment or action is required due to this linkage. For each significant and possible linkage a risk assessment is carried out. The linkages which potentially pose significant risks may require a variety of responses ranging from immediate remedial action or risk management or, more commonly, further investigation and risk assessment. This next stage is usually termed a Phase II Main Site Investigation and should provide additional data to allow refinement of the PCM and assess the level of risk from each pollutant linkage. Risk assessment will usually include Tier 2 Generic Quantitative Risk Assessment and / or, if necessary, a Tier 3 Detailed Quantitative Risk Assessment.

Tier 2: Generic Quantitative Risk Assessment (GQRA)

GQRA requires an intrusive investigation in order to characterise the site assisting in the re-assessment of the source-pathway receptor linkage. The conceptual model should be refined accordingly.

Upon completion of an intrusive investigation a it must be decided whether Generic Assessment Criteria (GAC) are suitable for assessing the risk posed by potential contamination at the site. If GAC are deemed unacceptable for risk assessment purposes or cannot be developed a Tier 3 Detailed Quantitative Risk Assessment (DQRA) is required.

If GQRA reveals that unacceptable risks are not present then no further action is required. If GQRA identifies a possibility of risk, a decision must be made whether further work is required or necessary for the purposes of risk assessment. If further risk assessment is deemed not suitable not required an Options Appraisal should be undertaken. If further risk assessment is required, the scope nature of further risk assessment must be decided – it is possible that a Tier 3 DQRA will be undertaken in this scenario.

Where the Environment Agency have published an SGV for a contaminant, this will be used in lieu, if the SGV is suitable for the subject site, of the GAC derived by CC GEOTECHNICAL LTD. For contaminants where an SGV has not been published

and a GAC has been published by LQM, then this GAC will be used. In house derived GAC's will only be used for contaminants where there is no SGV or LQM GAC.

Tier 3: Detailed Quantitative Risk Assessment (DQRA)

DQRA is used when pollutant linkages require further assessment. DQRA is often undertaken for pollutant linkages where GAC are unavailable or inappropriate for or more conservative than the actual circumstances of the site. Site specific data is used to create Site Specific Assessment Criteria (SSAC) and enable a more accurate assessment of the risks. Further investigation may or may not be required to formulate SSAC depending on the site specific conditions and information already obtained.

If DQRA reveals that unacceptable risks are not present then no further action is required. If DQRA identifies a possibility of risk, a decision must be made whether further work is required or necessary for the purposes of risk assessment. If further risk assessment is deemed not suitable not required an Options Appraisal should be undertaken. If further risk assessment is required, the scope and nature of further risk assessment must be decided at this point.

NOTE: A Tier 1 Preliminary Risk Assessment is undertaken as part of a Desk Study Report and a Preliminary Conceptual Model is developed for all pollutant linkages. However, the methodologies for assessing the risks to human health, risks to controlled waters and risk posed by ground gas using quantitative techniques vary considerably, therefore GQRA and DQRA for human health, controlled waters and ground gas must be undertaken separately. The risk assessment methodologies where quantitative assessment is used for risks to human health, risks to controlled waters and risks posed by ground gas, if relevant, are described hereunder.

BACKGROUND INFORMATION, CURRENT GUIDANCE AND RISK ASSESSMENT METHODOLOGY FOR RISKS POSED TO HUMAN HEALTH

Background

In March 2002, the Department for Environment, Food and Rural Affairs (DEFRA) and the EA published the Contaminated Land Exposure Assessment (CLEA) Model and a series of related reports. These were designed to provide a scientifically based framework for the assessment of chronic risks to human health from contaminated land. These reports (CLR7-10) together with associated "SGV" documents have since been withdrawn (August 2008) and the following documents have been published as revised guidance to the CLEA assessment:

- Environment Agency : 2008: Updated Technical Background to the CLEA model Science Report SC050021/SR3
- Environment Agency : 2008: Human Health Toxicological Assessment of Contaminants in Soil SC050021/SR2

Additional guidance on statistical assessment replacing CLR 7 is provided in:

- CL:AIRE :2008 Guidance on Comparing Data With a Critical Concentration

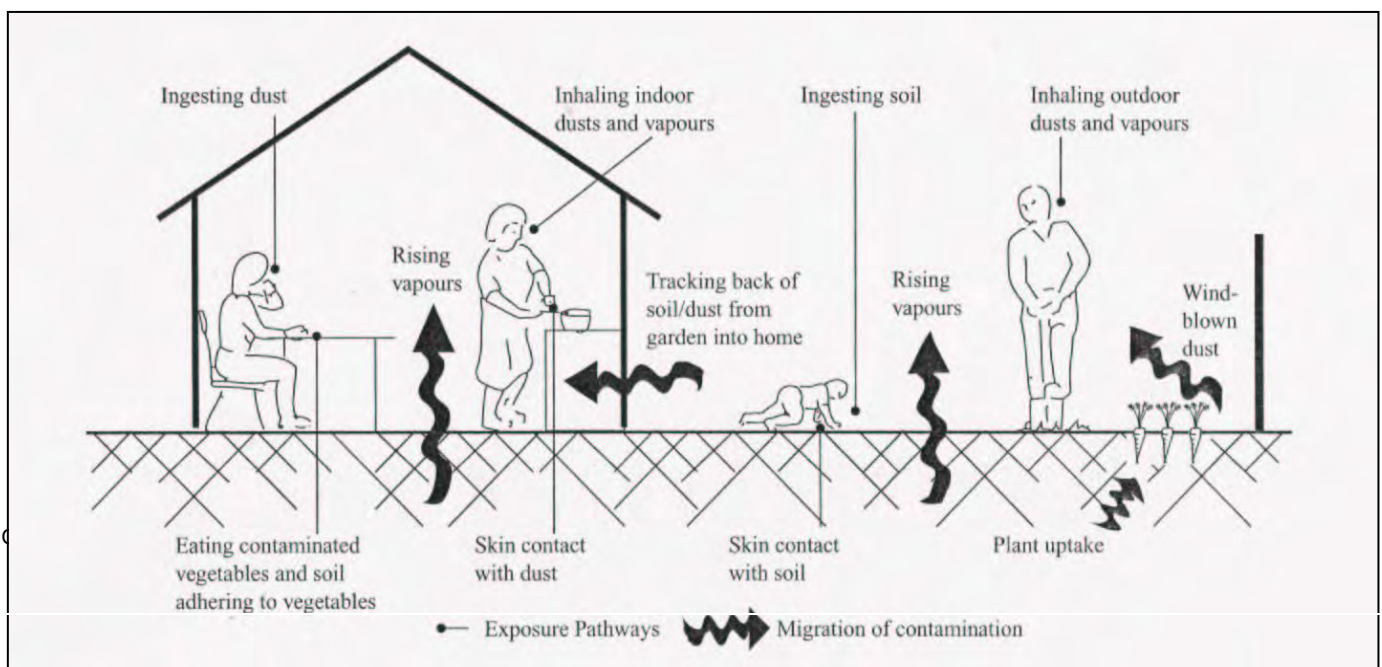
Other guidance/software used in spatial / statistical assessment is provided in:

- USEPA 2006: Data Quality Assessment: Statistical Methods for Practitioners
- Spatial Analysis and Decision Assistance (SADA) – The University of Tennessee

A different approach to the statistical appraisal of data is required depending on whether the assessment of risk is to assess whether land is Contaminated Land in accordance with regulations, or whether the assessment is to determine whether the site is suitable for new development in according with Planning guidance. This is discussed further in CL:AIRE :2008 "Guidance on Comparing Data With a Critical Concentration".

A program for the derivation of GAC's based on the above guidance is provided by the Environment Agency and is entitled "CLEA Software Version 1.06".

The CLEA model has been developed to calculate an estimated tolerable daily soil intake (TDSI) for site users given a set 'default' exposure pathways. Ten human exposure pathways are covered in the CLEA model as presented below:



Ingestion

- ingestion of outdoor soil
- ingestion of indoor dust
- ingestion of home grown produce
- ingestion of soil attached to home grown produce

Dermal Contact

- dermal contact with outdoor soil
- dermal contact with indoor dust

Inhalation

- inhalation of outdoor dust
- inhalation of indoor dust
- inhalation of outdoor soil vapour
- inhalation of indoor soil vapour

It should be noted that there are other potential exposure pathways on some sites not included in the CLEA model e.g. certain organic compounds can pass through plastic water pipes into drinking water supply.

Where contaminated water is present at a depth less than 2.00mbgl and there is a potential risk of inhalation of vapours (only when volatile compounds are present) the risk from inhalation of vapours from soil water will be assessed using a UK compliant version of BP Risc v4.02.

The presence and/or significance of each of the above exposure pathways are dependent on the type of land use being considered and the nature of the contaminant under scrutiny. Accordingly, the CLEA model considers for principle 'default' land use types and makes a series of 'default' assumptions with regard to human exposure frequency, duration and critical human target groups for each land use considered:

- residential
- allotments
- commercial / industrial land use

The above land use categories defined in the CLEA are detailed below:

Residential: This generic scenario assumes a typical residential property consisting of a two-storey house built on a ground-bearing slab with a private garden consisting of lawn, flowerbeds, and a small fruit and vegetable patch. The occupants are assumed to be parents with young children, who make regular use of the garden area.

Allotments: This generic scenario assumes a plot of open space (about 250 m²), commonly made available by the local authority to tenants to grow fruit and vegetables for their own consumption. There are usually several plots to a site and the overall site area may cover more than a hectare. The tenants are assumed to be parents or grandparents and that young children make occasional accompanied visits to the plot.

Commercial/Industrial: There are many different kinds of workplace and work-related activities. This generic scenario assumes a typical commercial or light industrial property consisting of a threestorey building at which employees spend most time indoors and are involved in officebased or relatively light physical work.

Human Health Risk Assessment Methodolgy

Assessment of risk for the protection of human health is undertaken using the methodology as outlined previously, and summarised hereunder:

- Tier 1 Preliminary Risk Assessment
- Tier 2 Generic Quantitative Risk Assessment
- Tier 3 Detailed Quantitative Risk Assessment

The Tier 1 Preliminary Risk Assessment is undertaken as part of the desk study report and includes the development of a Preliminary Conceptual Model. Tier 2 and Tier 3 Quantitative Risk Assessments are undertaken in order to develop and refine the Preliminary Conceptual Model aiding a more detailed assessment of the risk posed by contaminants revealed by site investigation and soil / soil water chemical analyses.

The methods used by *CC GEOTECHNICAL LTD* to derive assessment criteria, to statistically analyse chemical data and to compare chemical data to the derived assessment criteria are discussed herunder.

Derivation of Generic Assessment Criteria (GAC) and Site Specific Assessment Criteria (SSAC)

GAC's are derived on the basis of the proposed land use and the associated applicable exposure pathways. It should be noted that there are difficulties in establishing soil concentrations of contaminants beyond which risks from exposure to these contaminants would be 'unacceptable' and the GAC value does not necessarily equate to the level for "significant possibility of significant harm" as defined in Part IIA of The Environmental Protection Act (1990) to determine whether land is "contaminated." This ultimately requires detailed 'toxicological' information of the health effects of individual contaminants and also a scientific judgement on what constitutes an 'unacceptable' risk. The primary purpose of the CLEA derived GAC's are as 'minimal risk thresholds' for the assessment of human health risks in relation to land use.

Minimal risk thresholds calculated using generic input parameters for each of the above land uses are termed Generic Assessment Criteria (GAC) and are used for Generic Quantitative Risk Assessment (GQRA). However, further assessment may be required taking into consideration site specific factors such as the way the land is used, the soil type, the building

characteristics and the exact nature of the receptor, to determine whether there is a significant possibility of risk to human health to site users. Such an assessment is known as a Detailed Quantitative Risk Assessment (DQRA) and the resultant threshold concentrations are known as Site Specific Assessment Criteria (SSAC). Such assessments should be conducted with the agreement of the local authority (or the Environment Agency) since it is the authority that determines whether land is Contaminated Land or whether Planning Permission for a new development may be granted.

For the purposes of this report, assessment criteria have been derived in accordance with current guidance based on the conceptual model for the proposed land use using the CLEA v1.06 software. These criteria are not intended to indicate whether the site may be contaminated land nor do they replace any published soil guideline values. However, the values are intended to provide guidance for the local authority on whether the site may be considered uncontaminated. If, based on the site's proposed future use, the site would be considered by the local authority to be uncontaminated and therefore, on the basis of soil concentrations, fit for purpose, then no further risk assessment based on soil concentrations and the risk to human health would be necessary. However, should these criteria be exceeded or the conceptual site model vary from the model used in the risk assessment to derive these values then the risk assessment should be updated accordingly.

For contaminants routinely analysed where inhalation is a significant pathway (naphthalene, phenanthrene, Aromatic EC5-EC7, Aromatic EC7-EC8, Aromatic EC8-EC10, Aromatic EC10-EC12, Aromatic EC12-EC16, Aliphatic EC5-EC6, Aliphatic EC8-EC10, Aliphatic EC10-EC12, Aliphatic EC12-EC16), plots of the GAC as a function of Soil Organic Matter (SOM) are used to determine if they pose a potential risk to human health, which are presented hereunder. Where there is an exceedance further assessment may be undertaken.

Statistical Assessment of Soil Contamination Data & Comparison of Contamination Data to Threshold Values

In any site investigation only a small fraction of the soil on the site is analysed. Therefore the mean derived from the contamination data for a contaminant may not be the same as the true mean for the contaminant distribution on the site. To improve the reliability of any assessment a statistical analysis is undertaken in line with the CL:AIRE document "Guidance on Comparing Soil Contamination Data with a Critical Concentration".

Statistical assessment of soil data is undertaken using programs based on the guidance in the CL:AIRE document or the USEPA software ProUCL v4.0.

Where the number of results in a dataset is less than four, a statistical assessment is not undertaken, and the assessment is performed by comparison of the maximum value(s) with a Health Criteria Value (HCV), such as Generic Assessment Criteria value(s).

For the Planning situation, the regulator needs to check whether the concentration of contaminants is low compared to the HCV. This decision is based on whether there is at least a 95% confidence level that the true mean of the dataset is lower than the HCV.

For the Part IIA scenario the regulator needs to determine whether the concentration of contaminants is greater than the HCV. This decision is based on whether there is at least a 95% confidence level that the true mean of the dataset is higher than the HCV. However, the regulator may proceed with determination if there is just a 51% probability, "on the balance of probabilities".

The Outlier Test used in the statistical assessment may not be able to identify separate populations if numerous populations are present. In order to ensure that this is not the case a spatial assessment of the data will be undertaken using SADA.

If the screening levels are exceeded then more sophisticated quantitative risk assessment or remedial action may be undertaken. The benefits of undertaking a quantitative risk assessment must be weighed against the likelihood that it will bring about cost savings in the proposed remediation.

BACKGROUND INFORMATION, CURRENT GUIDANCE AND RISK ASSESSMENT METHODOLOGY FOR RISKS POSED TO CONTROLLED WATER

Definition of Controlled Waters

The term 'controlled waters' is defined in Section 104 of the Water Resources Act 1991 as:

"Territorial Waters...which extend seawards for three miles..., coastal waters..., inland freshwaters, waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and ground waters, that is to say, any waters contained in underground strata."

Note that the definition of groundwater under the Water Resources Act 1991 includes all water within underground strata (including soil / pore water in the unsaturated zone). The definition of groundwater under the Groundwater Directive however is limited to water in the saturated zone. For the purposes of Part IIA of the Environmental Protection Act 1990, the Environment Agency recommends that the groundwater within the saturated zone only is considered as the receptor (rather than soil / pore water).

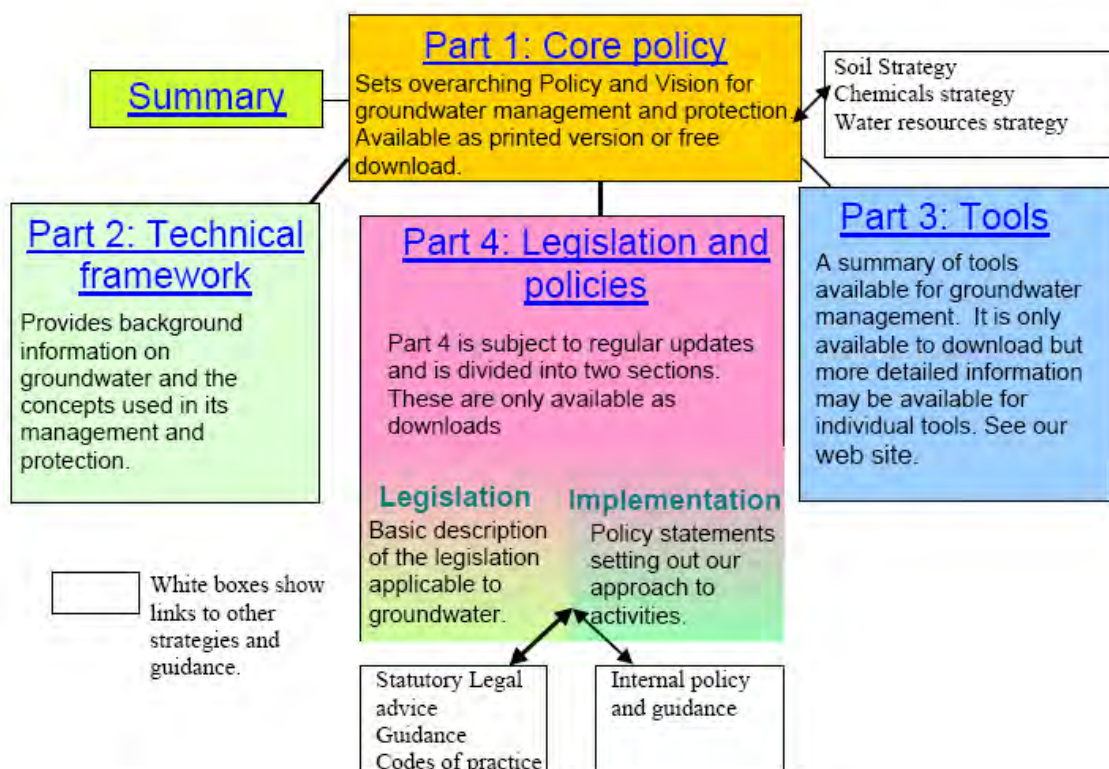
Environment Agency Guidance

Legislation and guidance surrounding the protection of controlled waters in the UK is abundant and can be complex. The Environment Agency's overall position on groundwater is *"To protect and manage groundwater resources for present and future generation in ways that are appropriate for the risks that we identify"* (Groundwater Protection : Policy and Practice GP3, 2006). In brief, the core objectives of the existing legislation serve to enforce this position.

In 1992, the National Rivers Authority published their Policy and Practice for the Protection of Groundwater (PPPG), this document was influential as it provided a focus for key developments such as Source Protection Zones (SPZs) and

Groundwater Vulnerability Maps. The Policy was then revised in 1998, since which there have been substantial changes in legislation, driven by Europe. Key European Directives relating to groundwater include the Groundwater Directive (80/68/EEC) and the Water Framework Directive (2000/60/EC). Aspects of these directives are controlled by primary UK legislation such as the Water Resources Act 1991. Further to legislative changes, gaps identified in the 1998 PPPG required addressing. These changes are reflected in the forthcoming Environment Agency Policy document entitled *Groundwater Protection : Policy and Practice (GP3)*, a draft version of which was available for public consultation (Parts 1 to 3) ending July 2006 with Part 4 issued in March 2008. Part 4 includes a section on key groundwater legislation and the Environment Agency's interpretation of it.

The following gives a breakdown of the structure of the document (taken from the Environment Agency GP3 draft consultation document, 2006)



Controlled Water Risk Assessment Methodology

The risk posed to controlled water is assessed by *CC GEOTECHNICAL* in accordance with current guidance as outlined hereunder.

In order for a developer of a potentially contaminated site to fulfil their obligations under the legislation, a site assessment would be required to be undertaken in order to identify any potential risks to controlled waters and to derive suitable clean-up criteria if necessary to ensure the protection of controlled waters. The general approach for Groundwater Protection is detailed further in Part 3 of GP3.

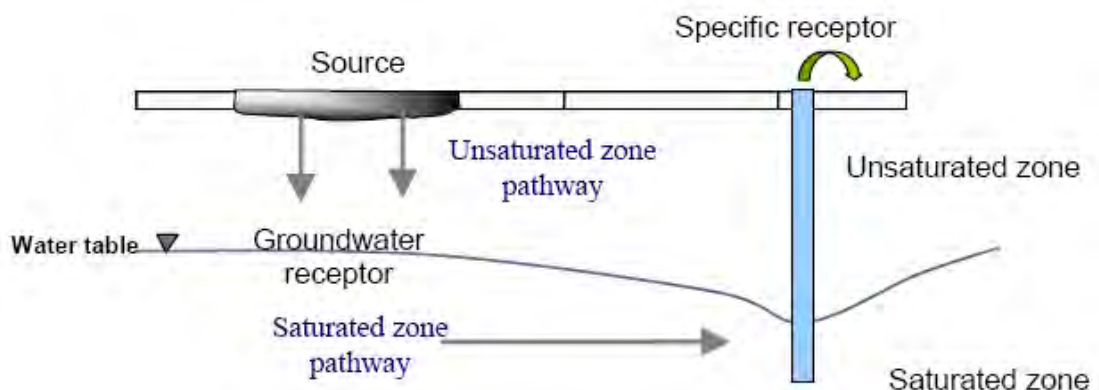
When assessing groundwater impact the Environment Agency advocate the application of their framework methodology "Remedial Targets Methodology – Hydrogeological Risk Assessment for Land Contamination" Environment Agency (2006). The methodology has four levels of assessment as described below:

- Level 1 considers whether contaminant concentrations in "pore water" in contaminated soil are sufficient to impact on the receptor, ignoring dilution, dispersion and attenuation along the pathway. The "pore water" concentration is determined from:
 - i) measured "pore water" concentrations or perched water quality
 - ii) soil leaching tests
 - iii) theoretical calculations based on soil/water partitioning equations
- Level 2 considers dilution by the receiving groundwater or surface water body and whether this is sufficient to reduce contaminant concentrations to acceptable levels. The remedial target is defined as the target concentration multiplied by a dilution factor (DF).
- Levels 3 and 4 consider whether natural attenuation (including dispersion, retardation and degradation) of the contaminant as it moves through the unsaturated and saturated zones to the receptor are sufficient to reduce contaminant concentrations to acceptable levels. The remedial target is defined as target concentration multiplied by a dilution factor (DF) and attenuation factor (AF). In Level 3 simple analytical models are used to calculate the significance of attenuation. The Environment Agency has released a "Remedial targets worksheet v3.1" to carry out basic calculations using a conservative approach up to Level 3 using basic principles assuming a simple migration of contaminants from the

source zone into the aquifer receptor. Level 4 assessment uses more sophisticated numerical models, and allows for the introduction of additional geological horizons and is used mainly to determine whether soil contaminants will reach their target within a specified timeframe. Use of such software should only be used once agreement has been obtained from the Environment Agency.

Three main stages apply to any risk assessment of controlled waters, these are:

1. Risk Screening (Tier 1 Preliminary Risk Assessment): The understanding of the Conceptual Site Model (CSM) is the key to assessing any site. Using a robust CSM, potential pathways or receptors may be screened out from any further assessment at an early stage. For example if the pathway through the unsaturated zone is blocked by the presence of a significant thickness of low permeability clay. A greater understanding of the CSM is achieved with each tier of risk assessment. An example of a basic CSM is given below (taken from the Environment Agency GP3 draft consultation document, 2006):



2. Generic Hydrogeological Risk Assessment (EA Remedial Targets Methodology Level 1): When undertaking the Generic Hydrogeological Risk Assessment (EA Remedial Targets Methodology Tier 1), comparison of chemical analytical results is made with screening criteria. Published values of screening criteria with which chemical test results can be compared are published in the following guidance:

- Water Supply (Water Quality) Regulations 2000
- The Private Water Supplies Regulations 1991
- Environmental Quality Standards for surface waters based on The EC Dangerous Substances Directive (76/464/EEC and Daughter Directives)
- The Surface Waters (Abstraction for Drinking Water Classification) Regulations 1996
- World Health Organisation Drinking Water Standards 2004

Should the Level 1 assessment indicate threshold levels to be exceeded, then there are three alternative ways in which to proceed:

- To devise suitable remedial solutions
 - To carry out more investigation, sampling and analysis
 - To conduct a site specific Detailed Quantitative Risk Assessment (DQRA) to determine if the materials are suitable for their proposed use, or devise site specific clean-up level
3. Detailed Quantitative Risk Assessment (EA Remedial Targets Methodology Levels 2 to 4): The decision to carry out a DQRA will be dependant on the extent and implications of the initial qualitative and generic assessment. The scope of any such assessment will be accurately defined by the outcomes of the previous levels of assessment. The conceptual model will be sufficiently refined by this stage that only certain contaminants of concern, certain pathways and certain receptors will require further assessment, the remainder having been screened out.

Additional site specific data is normally required for this stage of assessment, as explained above, more processes that are capable of affecting contaminant concentrations are considered (such as dilution and attenuation).

Remediation criteria, if derived, will therefore be specific to each site and will be based on a detailed assessment of the potential impact at the identified receptor or *compliance point*. A greater level of confidence can be placed on the predicted impact on the compliance point following a DQRA.

BACKGROUND INFORMATION, CURRENT GUIDANCE AND RISK ASSESSMENT METHODOLOGY FOR RISKS POSED BY GROUND GAS

Background

Origin of Ground and Landfill Gases

When carrying out a ground gas risk assessment, the origin or source of the gases is important as potential risks will vary depending on the source. This Appendix relates to the risk of the two main ground gases of concern; methane and carbon dioxide, and does not apply to other ground gases (e.g. radon or vapours from hydrocarbon spills). Methane and carbon dioxide are major constituents of landfill gas but can also occur from a variety of anthropogenic and natural sources, as summarised in Table 5 below:

Gas	Source	Comments
Landfill Gas	Anaerobic decomposition of degradable waste within landfill sites. Typically 60% methane and 40% carbon dioxide during methanogenic phase.	Composition varies over time, particularly in early stages. Contains a range of minor constituents (particularly carbon monoxide and hydrogen sulphide).
Landfill Associated Gases	- Anaerobic degradation of leachate external to the site; - Degassing of dissolved gases in groundwater; - Evolution of gases following interaction between leachate and groundwater	Can result in secondary (external) production of methane or carbon dioxide.
Made Ground	Anaerobic degradation of organic components	Very variable depending on source
Sewer Gas, Cess Pits	Anaerobic degradation of organic components of sewage producing methane and carbon dioxide.	Often characterised by hydrogen sulphide odour.
Mains Gas	Leakage from underground pipework or storage tanks. Mainly methane but often contains higher alkanes.	An odouriser is added to permit detection of leaks. Typically 90% CH ₄ , but 1 to 27% C ₂ -C ₄ alkanes, May also contain other trace gases e.g. CO, helium and CO ₂ (from degradation of CH ₄ in the ground).
Other Anthropogenic Sources	- Degradation of leaked or spilled hydrocarbons or other industrial chemicals; - Anaerobic degradation of organic contaminants in groundwaters (e.g. silage liquor); - Reactions between monitoring well construction components and environment; - Burial grounds/cemeteries.	Hydrocarbon spillages often have an 'oily' odour. Fuel spillages common – Petrol or Diesel and can contain a wide range of VOC's. Can degrade to produce methane / carbon dioxide.
Alluvium / Marsh / Peat Gas	Anaerobic microbial degradation of organic material (usually waterlogged vegetation / peat). Often associated with the presence of alluvial deposits or dredgings.	
Geogenic Gas	Natural seepages of carbon dioxide and hydrocarbon gases derived from geologic sources such as coal seams and deep oil / gas source formations. Can be present in solution in groundwaters.	Methane most common but can contain carbon dioxide and higher alkanes.
Mine Gases	Various types. Most common is "fire damp" with high methane, produced by the desorption of gas trapped in coal. "Black damp" (Stythe gas) with high carbon dioxide and denser than air. "White damp" is high in carbon monoxide.	Methane most common. Can contain higher alkanes, carbon dioxide and carbon monoxide. Often low in oxygen.
Natural Shallow Ground Gas	Various types - high carbon dioxide formed by subsurface aerobic activity leading to depleted oxygen and elevated carbon dioxide; - chemical degradation of rocks (e.g. carbonates) producing carbon dioxide; - carbon dioxide production in root zone of soils by plants.	Gases can be emitted from ground under falling barometric pressure conditions.

Table 5. Potential Sources of Ground Gases

This Appendix does not provide guidance for the assessment of risk when other gases are present due to 'Other Sources' from the above table (particularly organic compounds such as BTEX and VOC's or for the risk from radon or hydrogen sulphide).

To determine the origin of the gas a range of factors must be considered together, including;

1. Proximity of likely sources
2. Ground conditions (geology, hydrogeology, anthropogenic pathways etc)
3. Properties of gases present including:
 - Chemical composition
 - Physical properties
 - Ratios of components e.g. methane : carbon dioxide
4. Timeframe of activities such as infilling periods, capping works, installation of gas control systems etc

Identification of the originating source may be problematic given that there may be more than one source present and trace gas analysis may be required. Identification of the sources of the gases encountered during monitoring is usually carried out through a process of eliminating the most unlikely potential sources (given the site setting) and selecting those which are most likely.

Hazards Associated with Presence of Methane

Methane gas is combustible and potentially explosive. When the concentration of methane in air is between the limits of 5.0%v/v and 15.0%v/v an explosive mixture is formed. The Lower Explosive Limit (LEL) of methane is 5.0%v/v, which is equivalent to 100% LEL. The 15.0%v/v limit is known as the Upper Explosive Limit (UEL), but concentrations above this level cannot be assumed to represent safe concentrations. Further, the LEL and UEL will vary (up and down) depending upon the proportion of other gases (including oxygen). However, the fact that methane is a colourless, odourless gas means that there

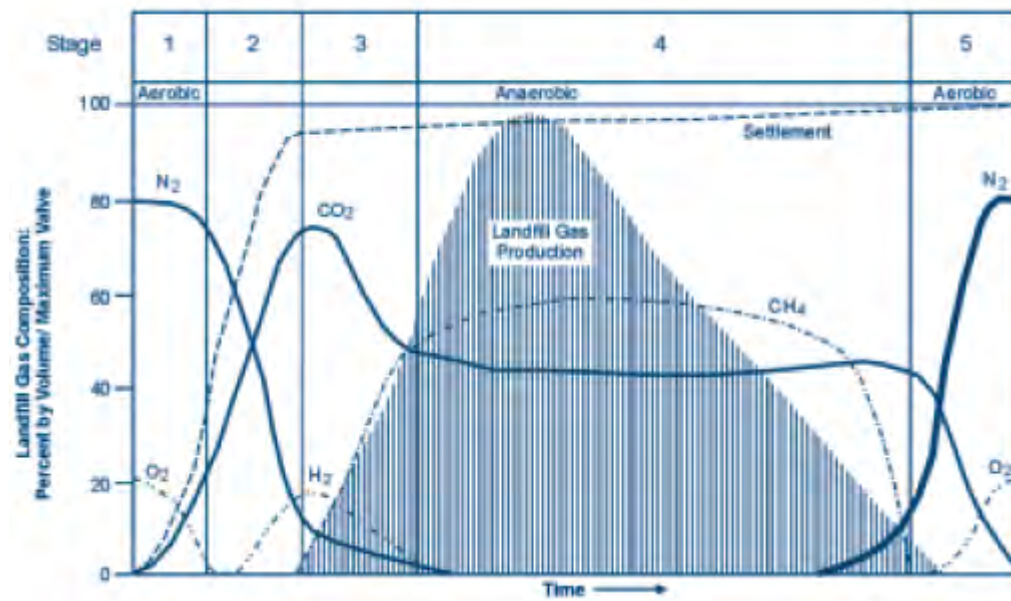
is no simple indicator of the presence of the gas until such a time as explosive limits are reached and an incident occurs. Methane is lighter than air and has a low toxicity. However, at high concentrations it can result in asphyxiation due to oxygen displacement.

Hazards Associated with Presence of Carbon Dioxide

Carbon dioxide is a colourless, odourless gas, which, although non-flammable, is both toxic and an asphyxiant. As carbon dioxide is denser than air, it will collect in low points and depressions. The UK Health & Safety Executive (HSE) has published information relating to concentrations of carbon dioxide that humans may be exposed to, which uses concentrations contained in the Control of Substances Hazardous to Health Regulations 2002 (as amended). These are the Long Term Occupational Exposure Limit (LTOEL, 8 hour period) and the Short Term Occupational Exposure Limit (STOEL, 15 minute period), which are 0.5% and 1.5% carbon dioxide, respectively.

Parameters Influencing the Rate of Ground Gas Production

The figure below is taken from EA guidance document LFTGN 03 illustrates typical ground gas generation curves from biodegradable materials:



The production of methane and carbon dioxide at a landfill site may be expected to be considerable and ongoing. Concentrations of methane will eventually decrease, followed by concentrations of carbon dioxide, but the duration and rate of gas production can vary markedly between sites. Five distinct phases of gas production occur during the process which are, in order of event as marked above, as follows:

1. An aerobic phase involving oxygen depletion and temperature increase through aerobic respiration;
2. The establishment of anaerobic conditions and the evolution of carbon dioxide and hydrogen through acidogenic activity;
3. Commencement of methanogenic activity; the establishment of populations of methanogenic bacteria;
4. A phase of stable methanogenic activity, which may go on for many tens of years;
5. A phase of decreasing methanogenic activity, representing depletion of the organic material and a return to aerobic conditions.

The time scale for the return to the normal ground gas concentrations will be highly variable, depending upon the types and quantities of materials present. In addition, the optimum parameters influencing the rate of decomposition and ground gas production within the ground at a site are as follows:

- High water content with adequate rainfall and water infiltration to provide moisture content between approximately 20 to 26%;
- Conditions that either are or are very close to anaerobic;
- High proportion of biodegradable materials;
- A pH between 6.5 and 8.5, ideally verging slightly on the acidic between pH 6 to 7;
- Temperature between 25°C and 55°C;
- The ratio of the biochemical and chemical oxygen demands (BOD:COD);
- High permeability;
- Small particle size, as finer subsurface materials possess a greater surface area to provide a growing 'face' for the micro-organisms but high fines levels reduces permeability and reduces decomposition rate.

For this reason, it is vital that sources of methane and carbon dioxide are identified prior to the commencement of any work on a construction site, and that the ground gas regime is characterised at the worst temporal conditions a site may experience. From this, a risk assessment is carried out to identify the risk at the site from ground gases so that suitable protection measures can be designed and incorporated into a development to prevent a dangerous build-up of gas occurring.

Factors Influencing the Migration and Behaviour of Ground Gases

There are many factors that influence the migration of ground gases which can effect the risk from a gassing source:

- driving force – pressure differential along a pathway, diffusion and dissolved in solution;
- meteorological conditions – short term and seasonal conditions including atmospheric pressure changes (e.g. rapidly falling pressure causes gas to expand increasing emission rates), rainfall, frozen ground and thawing, temperature;
- geological and groundwater conditions – these can have the over riding influence on the direction/pathways and quantity of migrating gas;
- anthropogenic influences – man-made pathways include mine shafts, service runs/drains, foundation piles, underground voids/pits/basements, foundation/building design/construction

Current Guidance

Previous versions of Building Regulations Approved Document C provided statutory guidance stating that consideration should be given to appropriate action and / or specific solutions in situations where methane concentration exceeded 1%v/v or carbon dioxide concentrations exceeded 5%v/v. The latest Building Regulations Approved Document C (DoE 2004) no longer endorses this approach and recommends the use of a risk based approach to interpreting a gas monitoring survey. This is in line with current EA guidance for landfill gas (LFTGN 03, 2004) which recommends the use of a structured risk based approach similar to that outlined in CLR 11. On this basis, recent guidance has been produced in 2006 and 2007 with the aim of providing up to date advice in relation to residential and commercial development. The guidance does not address issues associated with gas derived from landfills, for this refer to "*Guidance on the Management of Landfill Gas*" (Environment Agency 2004) for an overview.

Recent guidance relevant to gas assessments for residential and commercial development includes;

- Wilson *et al.* (CIRIA C665, December 2007) "**Assessing Risks Posed by Hazardous Ground Gases for Buildings.**"
This document provides up to date advice on all aspects of ground gas risk assessment such as investigation, monitoring programmes, data collection and interpretation. The guidance presents separate methodologies for the characterisation of:
 - All development types except low rise housing with gardens (Situation A)
 - Low rise housing with gardens (Situation B)
- Boyle and Witherington (NHBC / RSK Group, Report 10627-R01(04) January 2007) "**Guidance on the Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present.**"
This document presents the "Traffic Lights System" detailed below and is relevant only for low rise properties (e.g. bungalows and town houses) that have a ventilated sub-floor void (i.e. Situation B as described in CIRIA C665).
- British Standard (BS 8485, December 2007) "**Code of Practice for the Characterization and Remediation from Ground Gas in Affected Developments**"
This document provides an overview of gas characterisation and assessment. The Standard is intended to be used by designers of gas protection measures and regulators involved in the assessment of design solutions.

Further guidance, Wilson and Card (CIEH) "**Ground Gas Handbook for Designers and Regulators**" providing practical guidance on ground gas assessments and the design and evaluation of protection measures, is expected to be published in March 2009.

Each of these documents continues to highlight the importance of, and give further guidance towards, carrying out a tiered risk-based decision-making process in accord with government policy on dealing with contamination from historic or natural sources and highlight the importance of the Conceptual Model in site characterisation.

Ground Gas Risk Assessment Methodology

Assessment of risk posed by ground gas is undertaken using the methodology as outlined previously, and summarised hereunder:

- Tier 1 Preliminary Risk Assessment
- Tier 2 Generic Quantitative Risk Assessment
- Tier 3 Detailed Quantitative Risk Assessment

The methodology used in each of the above assessments with concern to ground gas is discussed hereunder.

Tier 1 Preliminary Risk Assessment

All potential sources of methane and carbon dioxide are identified in the Preliminary Conceptual Model and the generation potential determined. The background information discussed earlier is referred to in order to determine the potential for a source to generate ground gas.

CIRIA C665 provides idealised monitoring frequency / period dependant upon generation potential of gas source and sensitivity of the proposed land use as below:

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Idealised Frequency and Period of Monitoring (after Table 5.5a and 5.5b, CIRIA C665)

		Generation Potential of Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	4/1	6/2	6/3	12/6	12/12
	Moderate (Flats)	6/2	6/3	9/6	12/12	24/24
	High (Residential with Gardens)	6/3	9/6	12/6	24/12	24/24

Notes

1. First number is the number of readings and the second is the minimum period in months (e.g. 6/2 – six sets of readings over two months).
2. At least two sets of readings must be at low (preferably under 1,000 mb) and falling pressure.

The monitoring programme is decided using the above table prior to the intrusive site investigation. However, if the intrusive investigation reveals that a the potential source is better or worse than anticipated the monitoring programme should be modified accordingly. For example, if the made ground contains no evidence of organic material and comprises entirely granular brick fill, the potential for that made ground to generate ground gas is reduced considerably.

Tier 2 Generic Quantitative Risk Assessment

Generic Quantitative Risk Assessment is undertaken upon completion of the required gas monitoring period.

All three current guidance documents propose that both ground gas concentrations and flow rates are used to calculate the limiting gas well gas volume flow rates for methane and carbon dioxide, based on the ground gas conditions monitored for during the worse-case temporal conditions. This limiting gas well volume flow rate is termed the Gas Screening Value (GSV, note that this was termed borehole gas volume flow), and is calculated as follows:

$$GSV (l/hr) = \frac{[gas\ well\ gas\ concentration\ (\%v/v)] \times [gas\ well\ flow\ rate\ (l/hr)]}{100}$$

GSV's are compared to typical max concentrations and limiting gas screening values derived for either Situation A - All development except low rise housing with gardens, or Situation B low rise housing with gardens (NHBC Traffic Light System). Table 8.5 from CIRIA C665 is used for comparison of gas screening values for "Situation A Developments" and is presented hereunder:

Characteristic Situation (CIRIA R149)	Comparable Partners in Technology gas Regime (see Box 8.2)	Risk Classification	Gas Screening Value (CH ₄ or CO ₂) (l/hr) ¹	Additional Factors	Typical Source of Generation
1	A	Very low risk	<0.07	Typically methane ≤ 1% and/or carbon dioxide ≤ 5%. Otherwise consider increase to Situation 2	Natural soils with low organic content "Typical" made ground
2	B	Low risk	<0.7	Borehole air flow rate not to exceed 70l/hr. Otherwise consider increase to characteristic Situation 3	Natural soil, high peat/organic content. "Typical" made ground
3	C	Moderate risk	<3.5		Old landfill, inert waste, mineworking flooded
4	D	Moderate to high risk	<15	Quantitative risk assessment required to evaluate scope of protective measures.	Mineworking susceptible to flooding, completed landfill (WMP 26B criteria)
5	E	High risk	<70		Mineworking unflooded inactive with shallow workings near surface
6	F	Very high risk	>70		Recent landfill site

Table 8.5 from CIRIA C665 Modified Wilson and Card Classification

Table 8.7 is used for comparison of gas screening values for "Situation B Developments" and is presented herunder:

Traffic Light	Methane ¹		Carbon Dioxide ²	
	Typical max concentration ³ (% by volume)	Gas screening value ^{2,4} (litres/hour)	Typical max concentration ³ (% by volume)	Gas screening value ^{2,4} (litres/hour)
Green				
Amber 1	1	0.13	5	0.78
Amber 2	5	0.63	10	1.60
Red	20	1.60	30	3.10

Notes:

1. The worst-case ground gas regime identified on the site, either methane or carbon dioxide, at the worst-case temporal conditions that the site may be expected to encounter will be the decoder as to what Traffic Light is allocated;
2. Borehole Gas Volume Flow Rate, in litres per hour as defined in Wilson and Card (1999), is the borehole flow rate multiplied by the concentration in the air stream of the particular gas being considered;
3. The Typical Maximum Concentration can be exceeded in certain circumstances should the Conceptual Site Model indicate it is safe to do so;
4. The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment taking into account site-specific conditions.

Table 8.7 from CIRIA C665 - NHBC Traffic light system for 150 mm void

Dependant on the outcome of the assessment of risk posed by ground gas it is determined whether gas protection measures are required for the proposed development, and or whether a detailed quantitative risk assessment is required for the site.

Selection & Design of Protective Measures

Table 8.6 and Box 8.4 of CIRIA C665 contain information on the detailed design of protection measures and were initially intended for the purposes of determining then level of protection measures a development requires. These tables and related text include some useful information on the design of gas protection measures, however BS8485:2007, which supersedes the guidance included within CIRIA C665, is used for selection of gas protection measures.

BS8485: 2007 uses a scoring system dependant on the Characteristic Situation / NHBC Traffic Light and proposed end use of the site. The scoring system is summarised in BS8485:2015 Table 2 as presented hereunder:

Characteristic gas situation, CS	NHBC traffic light	Required gas protection			
		Non-managed property e.g. private housing	Public building (a)	Commercial buildings	Industrial buildings (b)
1	Green	0	0	0	0
2	Amber 1	3	3	2	1 (c)
3	Amber 2	4	3	2	2
4	Red	6 (d)	5(d)	4	3
5			6(e)	5	4
6				7	6

NOTE Traffic light indications are taken from NHBC Report no.:10627-RO1 (04) and are mainly applicable to low-rise residential housing¹. These are for comparative purposes but the boundaries between the traffic light indications and CS values do not coincide.

a) Public buildings include, for example, managed apartments, schools and hospitals.
b) Industrial buildings are generally open and well ventilated. However, areas such as office pods might require a separate assessment and may be classified as commercial buildings and require a different scope of gas protection to the main building.
c) Maximum methane concentration 20% otherwise consider and increase to CS3.
d) Residential building on higher traffic light/CS sites is not recommended unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.
e) Consideration of issues such as ease of evacuation and how false alarms will be handled are needed when completing the design specification of any gas protection scheme

¹ The NHBC guidance and CIRIA C665 guidance refers to low rise housing (which is up to three storeys without lifts) that is constructed with a 150mm ventilated sub-floor void.

BS8485:2007 Table 2 Required gas protection by characteristic gas situation and type of building

Once a score is assigned, a combination of protection systems / elements is chosen from BS8485:2007 Table 3 shown below:
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PROTECTION ELEMENT / SYSTEM		SCORE	COMMENTS	
a) Venting / dilution (See Annex A BS8485)				
Passive sub floor ventilation (venting layer can be a clear void or formed using gravel, geocomposites, polystyrene void formers, etc.) ^A Subfloor ventilation with active abstraction/pressurization (venting layer can be a clear void or formed using gravel, geocomposites, polystyrene void formers, etc.) ^A Ventilated car park (basement or undercroft)	Very good performance	2.5	Ventilation performance in accordance with Annex A (BS8485) If passive ventilation is poor this is generally unacceptable and some form of active system will be required. There have to be robust management systems in place to ensure the continued maintenance of any ventilation system. Active ventilation can always be designed to meet good performance. Mechanically assisted systems come in two forms: extraction and positive pressurization.	
	Good performance	1		
		2.5		
		4		
b) Barriers				
Floor slabs Block and beam floor slab Reinforced concrete ground bearing slab Reinforced concrete ground bearing foundation raft with limited service penetrations that are cast into slab Reinforced concrete cast in situ suspended floor slab with minimal service penetrations and water bars around all slab penetrations and at joints Fully tanked basement		0 0.5 1.5 1.5 2	It is good practice to install ventilation in all foundation systems to effect pressure relief as a minimum. Breaches in floor slabs such as joints have to be effectively sealed against gas ingress in order to maintain these performances.	
c) Membranes				
Taped and sealed membrane to reasonable levels of workmanship/in line with current good practice with validation ^{B,C} Proprietary gas resistant membrane to reasonable levels of workmanship /in line with good practice under independent inspection (CQA) ^{B,C} Proprietary gas resistant membrane installed to reasonable levels of workmanship/in line with current good practice under CQA with integrity testing and independent validation		0.5 1 2		
d) Monitoring and detection (not applicable to non-managed property, or in isolation)				
Intermittent monitoring using hand held equipment Permanent monitoring and alarm system ^A	Installed in the underfloor venting/dilution system	0.5 2		Where fitted, permanent monitoring systems ought to be installed in the underfloor venting/dilution system in the first instance but can also be provided within the occupied space as a fail safe.
		1		
	e) Pathway Intervention			
Pathway intervention		-	This can consist of site protection measures for off-site or on-site sources (see Annex A, BS8485)	
NOTE In practice the choice of materials might well rely on factors such as construction method and the risk of damage after installation. It is important to ensure that the chosen combination gives an appropriate level of protection				
A) It is possible to test ventilation systems by installing monitoring probes for post installation validation. B) If a 1 200g DPM material is to function as a gas barrier it should be installed according to BRE 212 /BRE 414 being taped and sealed to all penetrations C) Polymeric Materials> 1200 g (proportional to thickness) but their physical properties mean that they are more robust and resistant to damage.				

BS8485:2007 Table 3 Solution Scores

Where the gas situation is 4 or more (and for NHBC Red situations) the site requires a comprehensive risk assessment to confirm the scope of protection measures. These are higher risk sites and reliance on Table 2 and 3 alone is not sufficient.

For a site which is impacted by migratory gases from an off site source, the development may be protected by imposing pathway intervention methods, which if successfully validated, could also remove the need for further analysis. It is essential that the gas regime in these circumstances has been fully characterised and that the only source impacting the site is located off site and that the pathway is clearly defined and its interception equally proven before construction commences. Pathway intervention methods may include vertical membrane installations, venting trenches, rows of stone columns, activated trenches and various proprietary systems. These systems are particularly relevant to domestic housing where there is limited scope for foundation type solutions.

CURRENT GUIDANCE ON REMEDIATION

When risk assessment of the site has been completed and it indicates that remedial works are required, the main guidance in managing this process is set out in the DEFRA/EA publication CLR11 (2004) "Model Procedures for the Management of Land Contamination." The stages of managing remediation are as follows:

- (a) Options Appraisal and develop Remediation Strategy;
- (b) Develop Implementation Plan and Verification Plan;
- (c) Remediation, Verification and Monitoring.

The Remediation Strategy sets out the remediation targets, identifies technically feasible remedial solutions and presents an evaluation of the options so that these can be assessed enabling that the most suitable solution is adopted. An outline of the proposed remedial method should be presented. Agreement should be sought of the appropriate statutory bodies for the Remediation Strategy before proceeding to the next stage.

The Implementation Plan is a detailed method statement setting out how the remediation is to be carried out including stating how the site will be managed, welfare procedures, health and safety considerations together with practical measures such as details of temporary works, programme of works, waste management licences and regulatory consents required. Agreement should again be sought of the appropriate statutory bodies for this Plan.

The Verification Plan sets out the requirements for gathering data to demonstrate that the remediation has met the required remediation objectives and criteria. The Verification Plan presents the requirements for a wide range of issues including the level of supervision, sampling and testing regimes for treated materials, waste and imported materials, required monitoring works during and post remediation, how compliance with all licenses and consents will be checked etc. Agreement should again be sought of the appropriate statutory bodies for the Verification Plan. On completion of the remediation a Verification Report should be produced to provide a complete record of all remediation activities on site and the data collected as required in the Verification Plan. The Verification Report should demonstrate that the remediation has met the remedial targets to show that the site is suitable for the proposed use.

APPENDIX L: NOTES ON LIMITATIONS

Standard Terms and Conditions of Engagement

Notes on Limitations For Geoenvironmental and Geotechnical Consultancy Services

General

CC GEOTECHNICAL LTD has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from CC GEOTECHNICAL LTD and a charge may be levied against such approval.

CC GEOTECHNICAL LTD accepts no responsibility or liability for:

the consequences of this document being used for any purpose or project other than for which it was commissioned and/or

the consequences of use of this document by any party with whom an agreement has not been executed.

Phase I Environmental Audits / Desk Studies

The work undertaken to provide the basis of a Phase 1 Desk Study report comprises a study of available documented information from a variety of sources (including the client), together with (where appropriate) a walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in a Desk Study report have been dictated by finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in the report, CC GEOTECHNICAL LTD reserves the right to review such information and to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Environmental Audits

The investigation of the site has been carried out with the intention of providing sufficient information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated to potential human targets, building materials, the environment (including adjacent land), and surface and groundwater.

The amount of exploratory work and chemical testing undertaken may have been restricted by the timescale available, and the locations of the exploratory holes may have been restricted to areas unoccupied by the building(s) on the site, and further restricted by the existence of buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues may need to be resolved.

For those reasons, if costs have been included in relation to site remediation these must be considered as tentative only and must, in any event, be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, investigate only a small volume of the ground in relation to the size of the site, and can only provide a general indication of site conditions. The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

Geoenvironmental Ground Investigations

The investigation of the site has been carried out to provide sufficient information within the agreed scope of the investigation, under the general headings of type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions, to provide a reasonable assessment of the environmental risks together with engineering and development implications.

If costs have been included in relation to the site remediation, these must be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, investigate only a small volume of the ground in relation to the size of the site, and can only provide a general indication of the site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site of each of the exploratory holes. There may be ground conditions present on the site which have not been disclosed by this investigation, and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal, weather, or other effects.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.