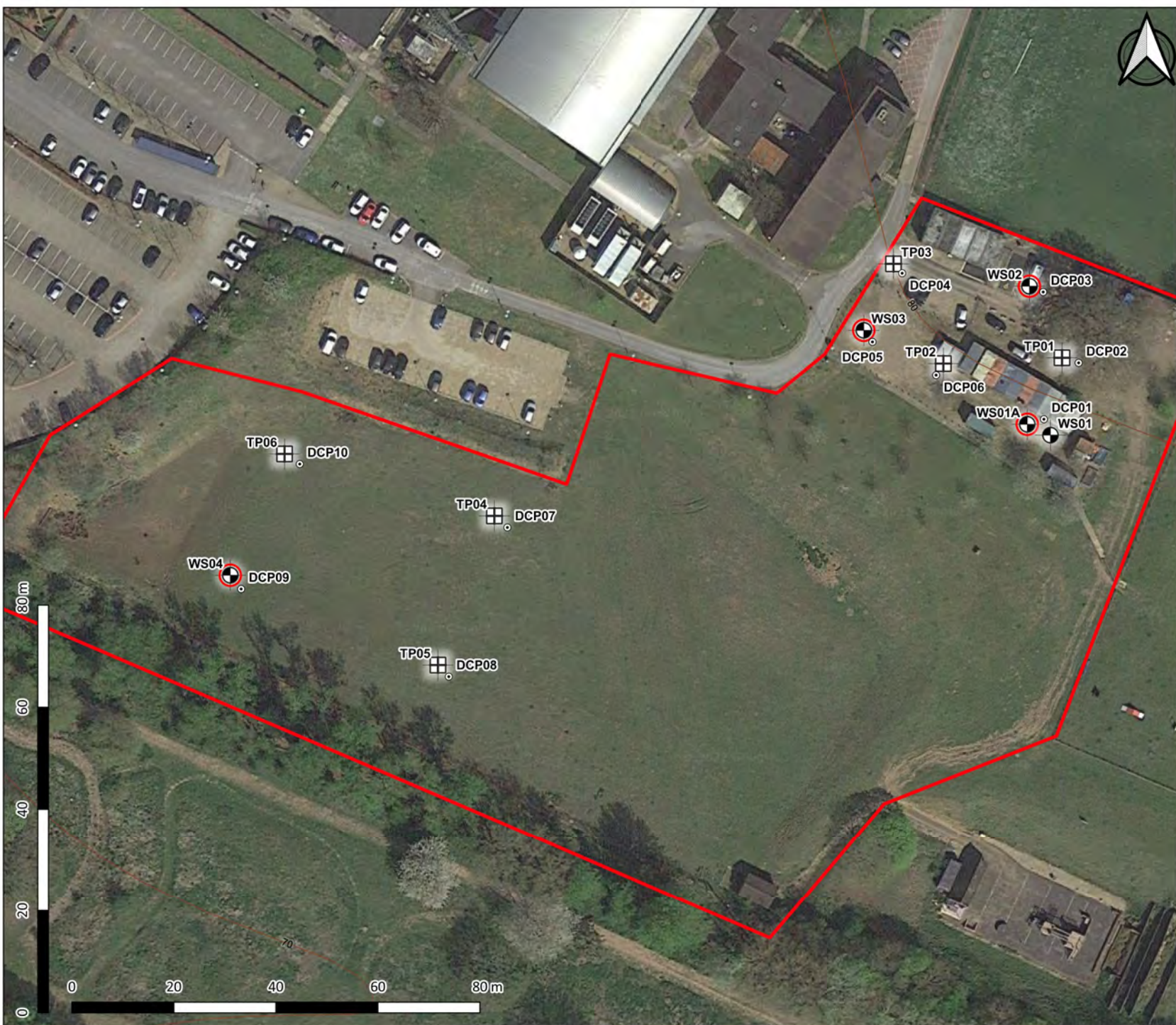


## **Appendix A Drawings**



**Key:**

- Hand Pit
- Windowless Sampling Borehole
- DCPs (CBR)
- Monitoring Installation

**Site Features**

- Site Boundary

**Notes**

- 1) Base image provided by Google.
- 2) All drawn features are approximate.

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Map data © 2022 Google

A	Sept 2022	First issue
REV	DATE	COMMENT ON VARIATION




**soiltechnics**  
environmental • geotechnical • building fabric

**PROJECT**  
Hertfordshire Constabulary HQ - Dog Unit

**TITLE**  
Exploratory Hole Location Plan

PROJECT No.	DRAWING	REVISION
STU5805	01	A

## **Appendix B    Exploratory Hole Logs: Trial Pits**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
GRAVEL SURFACING onto soft dark brown and grey gravelly very sandy CLAY. Gravel is fine to coarse angular to rounded flint and concrete. (MADE GROUND)	0.30	80.20			PID 0.05	PID=0.900	0.00	0.10	ES
Brown sandy clayey GRAVEL of flint with occasional cobbles of flint. (KESGRAVE CATCHMENT SUBGROUP)	0.60	79.90			PP 0.20	PP=0	0.30	0.40	ES
Orangish brown gravelly slightly clayey SAND with occasional cobbles of flint. Gravel is fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)	1.20	79.30			PID 0.35	PID=0.500	0.60	0.70	ES
					PID 0.65	PID=0.000	0.80	1.20	B
TRIAL PIT TERMINATED AT 1.20m									


<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.30m x 0.30m	<b>Date(s)</b> 08/09/2022
	<b>Method</b> Hand tools	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> 80.50	<b>Compiled by</b> JC	<b>Revision</b> 0
	<b>Co-ordinates</b> 523226mE, 211212mN	<b>Checked by</b> KB	<b>TP01</b>

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown gravelly CLAY. Gravel is fine to coarse angular to rounded flint, brick, concrete and fine sandstone. (MADE GROUND)	0.30	79.75			PID 0.05 PID 0.35	PID=0.000 PID=0.000	0.00 0.30	0.10 0.40	ES ES
Light brown sandy clayey GRAVEL of fine to coarse angular to rounded flint with occasional cobbles of flint. (KESGRAVE CATCHMENT SUBGROUP)	0.80	79.25			PID 0.85	PID=0.200	0.50 0.80	0.70 0.90	B ES
Stiff orangish brown gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)	1.20	78.85			PP 0.90 PP 1.20	PP=158 PP=192	1.00 1.20	1.20	B B
TRIAL PIT TERMINATED AT 1.20m									



<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.30m x 0.30m	<b>Date(s)</b> 08/09/2022
	<b>Method</b> Hand tools	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> Groundwater seepage at base of trial pit. Insufficient to cover the base.	<b>Level (m OD)</b> 80.05	<b>Compiled by</b> JC	<b>Revision</b> 0
	<b>Co-ordinates</b> 523203mE, 211211mN	<b>Checked by</b> KB	<b>TP02</b>

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
GRAVEL SURFACING onto dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to rounded flint, concrete and glass. (MADE GROUND)	0.60	78.97			PID 0.05	PID=0.000	0.00	0.10	ES
					PID 0.35	PID=0.100	0.30	0.40	ES
Firm orangish brown slightly gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)	1.00	78.57			PID 0.55	PID=0.500	0.50	0.60	ES
					PP 0.70	PP=142	0.70	0.80	ES
Firm orangish brown slightly gravelly very sandy CLAY. Gravel is fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)	1.20	78.37			PID 0.75	PID=0.500	0.80	1.00	B
					PP 0.90	PP=104	1.00	1.10	ES
					PID 1.05	PID=0.300	1.10	1.20	B
TRIAL PIT TERMINATED AT 1.20m									

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.30m x 0.30m	<b>Date(s)</b> 08/09/2022
	<b>Method</b> Hand tools	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> 79.57	<b>Compiled by</b> JC	<b>Revision</b> 0
	<b>Co-ordinates</b> 523193mE, 211231mN	<b>Checked by</b> KB	<b>TP03</b>


STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto brown sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse angular to rounded flint. (TOPSOIL)	0.40	73.93			PID 0.05	PID=0.000	0.00	0.10	ES
Stiff brown CLAY. (KESGRAVE CATCHMENT SUBGROUP)					PID 0.35	PID=0.000	0.30	0.40	ES
					PID 0.55	PID=0.600	0.50	0.60	ES
					PP 0.60	PP=150			
					PP 0.90	PP=158	1.00		D
					PP 1.20	PP=175			
TRIAL PIT TERMINATED AT 1.20m	1.20	73.13							

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.30m x 0.30m	<b>Date(s)</b> 08/09/2022
	<b>Method</b> Hand tools	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> 74.33	<b>Compiled by</b> JC	<b>Revision</b> 0
	<b>Co-ordinates</b> 523116mE, 211182mN	<b>Checked by</b> KB	<b>TP04</b>

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse angular to rounded flint. (TOPSOIL)	0.30	73.36			PID 0.05 PID 0.35	PID=0.000 PID=0.000	0.00 0.30	0.10 0.40	ES ES
Light brown sandy clayey GRAVEL of fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)							0.60	1.00	B
TRIAL PIT TERMINATED AT 1.20m	1.20	72.46							

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.30m x 0.30m	<b>Date(s)</b> 08/09/2022
	<b>Method</b> Hand tools	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> 73.66	<b>Compiled by</b> JC	<b>Revision</b> 0
	<b>Co-ordinates</b> 523106mE, 211153mN	<b>Checked by</b> KB	<b>TP05</b>



STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown sandy CLAY with frequent rootlets. (TOPSOIL)	0.30	73.61			PID 0.05 PID 0.35	PID=0.000 PID=0.100	0.00 0.30	0.10 0.40	ES ES
Orangish brown sandy clayey GRAVEL of fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)							0.60	0.80	B
TRIAL PIT TERMINATED AT 1.20m	1.20	72.71							

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.30m x 0.30m	<b>Date(s)</b> 08/09/2022
	<b>Method</b> Hand tools	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> 73.91	<b>Compiled by</b> JC	<b>Revision</b> 0
	<b>Co-ordinates</b> 523076mE, 211194mN	<b>Checked by</b> KB	<b>TP06</b>

## **Appendix C    Exploratory Hole Logs: Boreholes**

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft dark brown slightly sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse angular to rounded flint and brick. (TOPSOIL - MADE GROUND)	0.40	79.94		C 1.00 - 1.43	(19)				PID 0.05	PID=0.000	0.00	0.10	ES
	Stiff light brown slightly gravelly silty CLAY with occasional rootlets. Gravel is fine to medium angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)			PID 0.35						PID=0.000	0.30	0.40	ES	
		PP 0.50	PP=208	0.50						0.60	ES			
	Very dense light brown SAND and GRAVEL of fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)	0.85	79.49							PID 0.55	PID=0.000			
		1.43	78.91						PID 0.70	PP=225				
	BOREHOLE TERMINATED AT 1.43m								PID 0.95	PID=0.000	0.90	1.00	ES	

<b>Notes</b> Borehole terminated at 1.43m depth due to density of ground and SPT refusal.	<b>Title</b> Dynamic windowless sampling record			<b>Date(s)</b> 08/09/2022
	<b>Recovery details</b>		<b>Method</b> Windowless sampler	<b>Logged by</b> TL
	<b>Range (m)</b> 0.00 - 1.00	<b>Recovery (%)</b> 100	<b>Level (m OD)</b> 80.34	<b>Compiled by</b> JC
			<b>Co-ordinates</b> 523223mE, 211197mN	<b>Checked by</b> KB
<b>Groundwater observations</b> No groundwater encountered.				<b>Revision</b>  <b>WS01</b>



INSTALL	STRATA			WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)		LEGEND	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)
	GRAVEL SURFACING onto firm dark brown and grey gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (MADE GROUND)	0.30	80.25						PID 0.05	PID=0.800	0.00	0.10	ES
	Orangish brown sandy slightly clayey GRAVEL of fine to coarse angular to rounded flint with pockets of orangish brown sandy gravelly clay. (KESGRAVE CATCHMENT SUBGROUP)								PID 0.35	PID=0.500	0.30	0.40	ES
	Orangish brown sandy gravelly CLAY with occasional pockets of gravelly sand. Gravel is fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)	1.10	79.45		C 1.00 - 1.45	(8) 25			PID 1.15 PP 1.20 PP 1.40 PP 1.60 PP 1.80	PID=1.800 PP=133 PP=225 PP=208 PP=117	1.10	1.20	ES
	Soft orangish brown very sandy CLAY. (KESGRAVE CATCHMENT SUBGROUP)	2.30	78.25		C 2.00 - 2.45	(15) 23			PP 2.00 PP 2.20 PID 2.35 PP 2.40 PP 2.60 PP 2.80	PP=225 PP=125 PID=1.600 PP=42 PP=25 PP=33	1.80	1.90	D
	BOREHOLE TERMINATED AT 3.45m	3.45	77.10		C 3.00 - 3.45	(21) 52					2.30	2.40	ES
											2.60	2.70	D

<b>Notes</b> Borehole terminated at 3.45m depth due to density of ground and SPT refusal.	<b>Title</b> Dynamic windowless sampling record		<b>Date(s)</b> 08/09/2022		
	<b>Recovery details</b>		<b>Method</b> Windowless sampler	<b>Logged by</b> TL	<b>Sheet number</b> Sheet 1 of 1
	<b>Range (m)</b>	<b>Recovery (%)</b>			
	<b>Groundwater observations</b> No groundwater encountered.	0.00 - 1.00	100	<b>Level (m OD)</b> 80.55	<b>Compiled by</b> JC
1.00 - 2.00		100			
2.00 - 3.00		100			
	<b>Co-ordinates</b> 523219mE, 211226mN		<b>Checked by</b> KB	<b>WS02</b>	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	GRAVEL SURFACING onto firm dark brown and grey slightly sandy gravelly CLAY. Gravel is fine to coarse angular to rounded flint and fine sandstone. (MADE GROUND)	0.60	79.50		C 1.00 - 1.45	(9) 20			PID 0.05	PID=0.000	0.00	0.10	ES	
									PID 0.35	PID=0.300	0.30	0.40	ES	
									PID 0.55	PID=0.600	0.50	0.60	ES	
									PID 0.75	PID=1.100	0.70	0.80	ES	
Stiff light brown sandy gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (KESGRAVE CATCHMENT SUBGROUP)									PP 0.80	PP=225	0.80		D	
Stiff orangish brown sandy CLAY. (KESGRAVE CATCHMENT SUBGROUP)	1.15	78.95							PP 1.00	PP=225				
									PID 1.25	PID=2.100	1.20	1.30	ES	
									PP 1.30	PP=225			D	
									PP 1.60	PP=225	1.50			
									PP 1.80	PP=192				
Dense becoming very dense light brown sandy very clayey GRAVEL. (KESGRAVE CATCHMENT SUBGROUP)	1.90	78.20			C 2.00 - 2.45	(13) 36			PID 2.05	PID=2.000	2.00	2.10	ES	
					C 2.50 - 2.88	(27) 50/225mm								
BOREHOLE TERMINATED AT 2.88m		2.88	77.22											

<b>Notes</b> Borehole terminated at 2.88m depth due to density of ground and SPT refusal.	<b>Title</b> Dynamic windowless sampling record			<b>Date(s)</b> 08/09/2022
	<b>Recovery details</b>		<b>Method</b> Windowless sampler	<b>Logged by</b> TL
<b>Groundwater observations</b> No groundwater encountered.	<b>Range (m)</b> 0.00 - 1.00 1.00 - 2.00 2.00 - 2.50	<b>Recovery (%)</b> 100 100 100	<b>Level (m OD)</b> 80.10	<b>Compiled by</b> JC
			<b>Co-ordinates</b> 523188mE, 211218mN	<b>Checked by</b> KB
			<b>Revision</b>  <b>WS03</b>	



## **Appendix D    Photograph Records**



**P1:** General view across the dog unit area; looking north-west



**P2:** General view across the dog unit area; looking north



Title

Photographic records of the site

Reference

PS-1

**P3:** General view of the memorial garden area; looking north-west



**P4:** General view of teh memorial garden area; looking north-east



Title

Photographic records of the site

Reference

PS-2

## **Appendix E    In Situ Test Results**

## Table summarising Pocket Penetrometer results

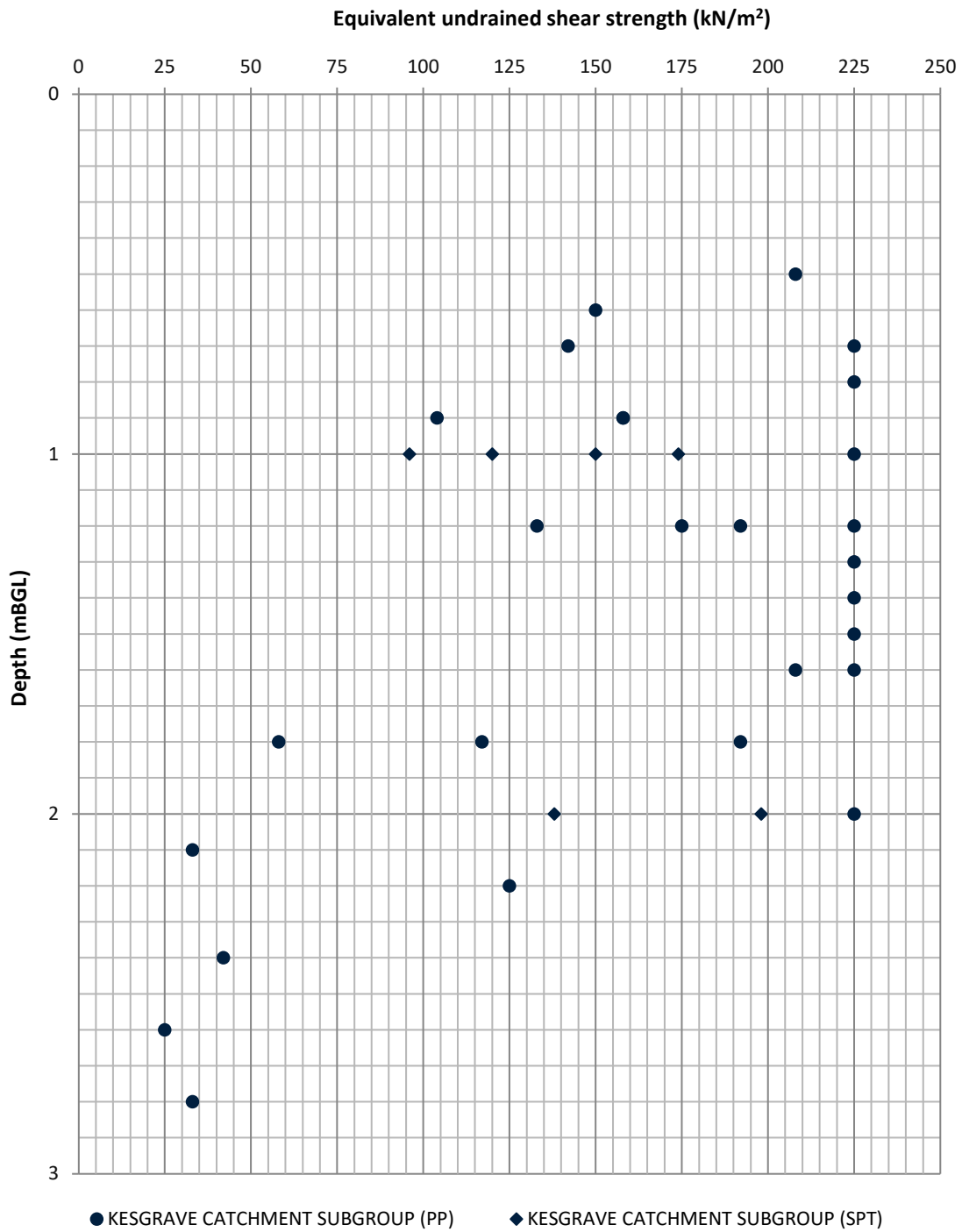
\* Instrument limit reached.

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m <sup>2</sup> )
TP01	0.20	0/0/0	0.00	0
TP02	0.90	3/3/3.5	3.17	158
TP02	1.20	4.5/4/3	3.83	192
TP03	0.70	4.5/2/2	2.83	142
TP03	0.90	2/2.25/2	2.08	104
TP04	0.60	3/3/3	3.00	150
TP04	0.90	3/3.5/3	3.17	158
TP04	1.20	4.5/3/3	3.50	175
WS01	0.50	4.5/4.5/3.5	4.17	208
WS01	0.70	4.5/4.5/4.5	4.50	225
WS01A	1.20	4.5/4.5/4.5	4.50	225
WS01A	1.50	4.5/4.5/4.5	4.50	225
WS01A	1.80	1/1.5/1	1.17	58
WS01A	2.10	0/1/1	0.67	33
WS02	1.20	2.5/3/2.5	2.67	133
WS02	1.40	4.5/4.5/4.5	4.50	225
WS02	1.60	4.5/3.5/4.5	4.17	208
WS02	1.80	2.5/2.5/2	2.33	117
WS02	2.00	4.5/4.5/4.5	4.50	225
WS02	2.20	2/3/2.5	2.50	125
WS02	2.40	0.5/1/1	0.83	42
WS02	2.60	0.5/0.5/0.5	0.50	25
WS02	2.80	1/0.5/0.5	0.67	33
WS03	0.80	4.5/4.5/4.5	4.50	225
WS03	1.00	4.5/4.5/4.5	4.50	225
WS03	1.30	4.5/4.5/4.5	4.50	225
WS03	1.60	4.5/4.5/4.5	4.50	225
WS03	1.90	3/4/4.5	3.83	192

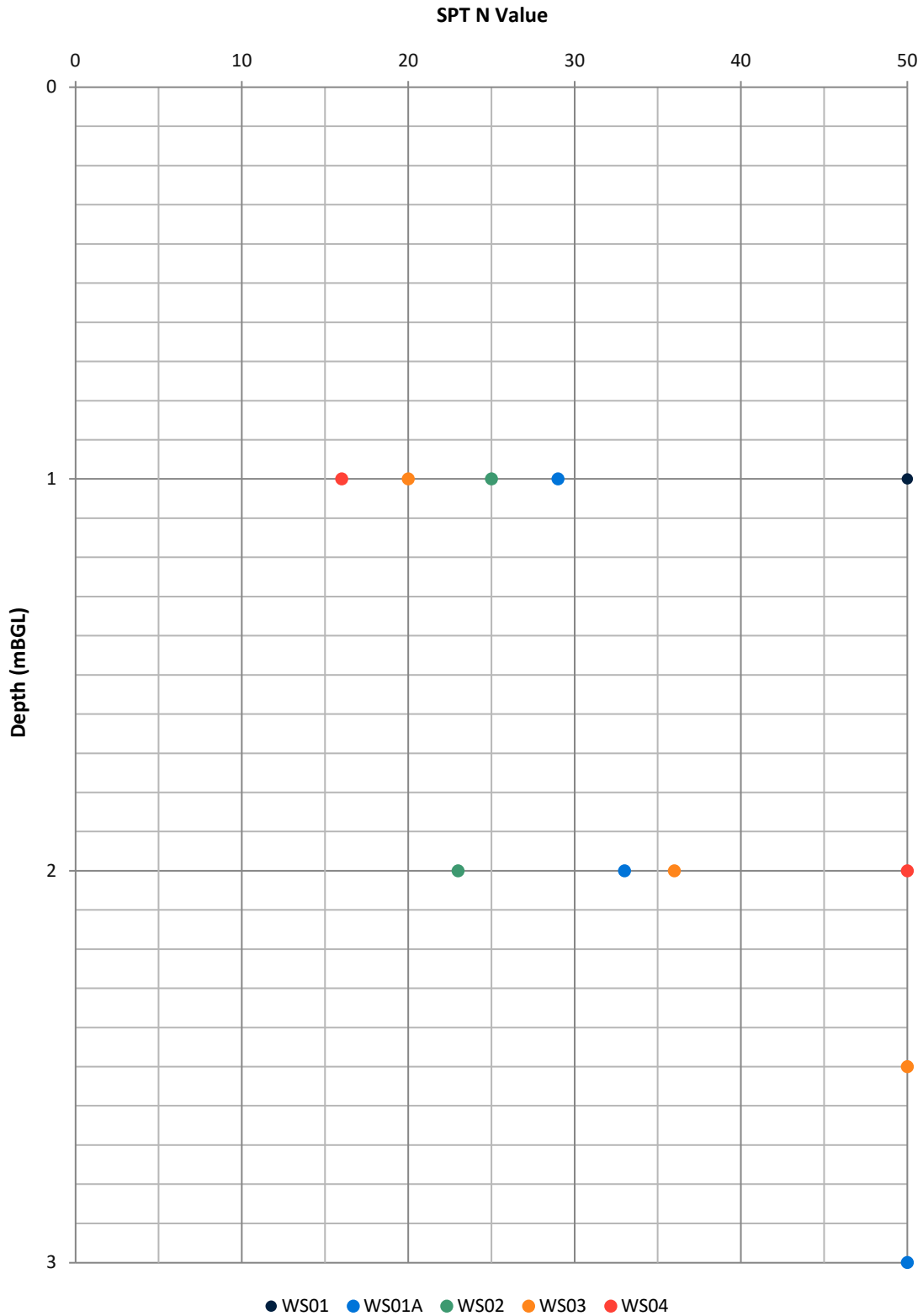
## Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)	Penetration (mm)					
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS01	1.00	8/11	14/13/13/10	19	50	150	280
WS01A	1.00	5/5	7/8/7/7	10	29	150	300
WS01A	2.00	5/6	7/8/8/10	11	33	150	300
WS01A	3.00	9/11	13/13/13/11	20	50	150	270
WS02	1.00	3/5	5/7/6/7	8	25	150	300
WS02	2.00	7/8	5/4/6/8	15	23	150	300
WS02	3.00	10/11	12/13/13/14	21	52	150	300
WS03	1.00	4/5	5/5/5/5	9	20	150	300
WS03	2.00	5/8	9/9/9/9	13	36	150	300
WS03	2.50	13/14	15/15/20	27	50	150	225
WS04	1.00	4/4	4/4/4/4	8	16	150	300
WS04	2.00	15/18	24/26	33	50	150	200

### Plot summarising results of combined insitu testing data by geology (mBGL)



### Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



## **Appendix F     Dynamic Cone Penetrometer Results**



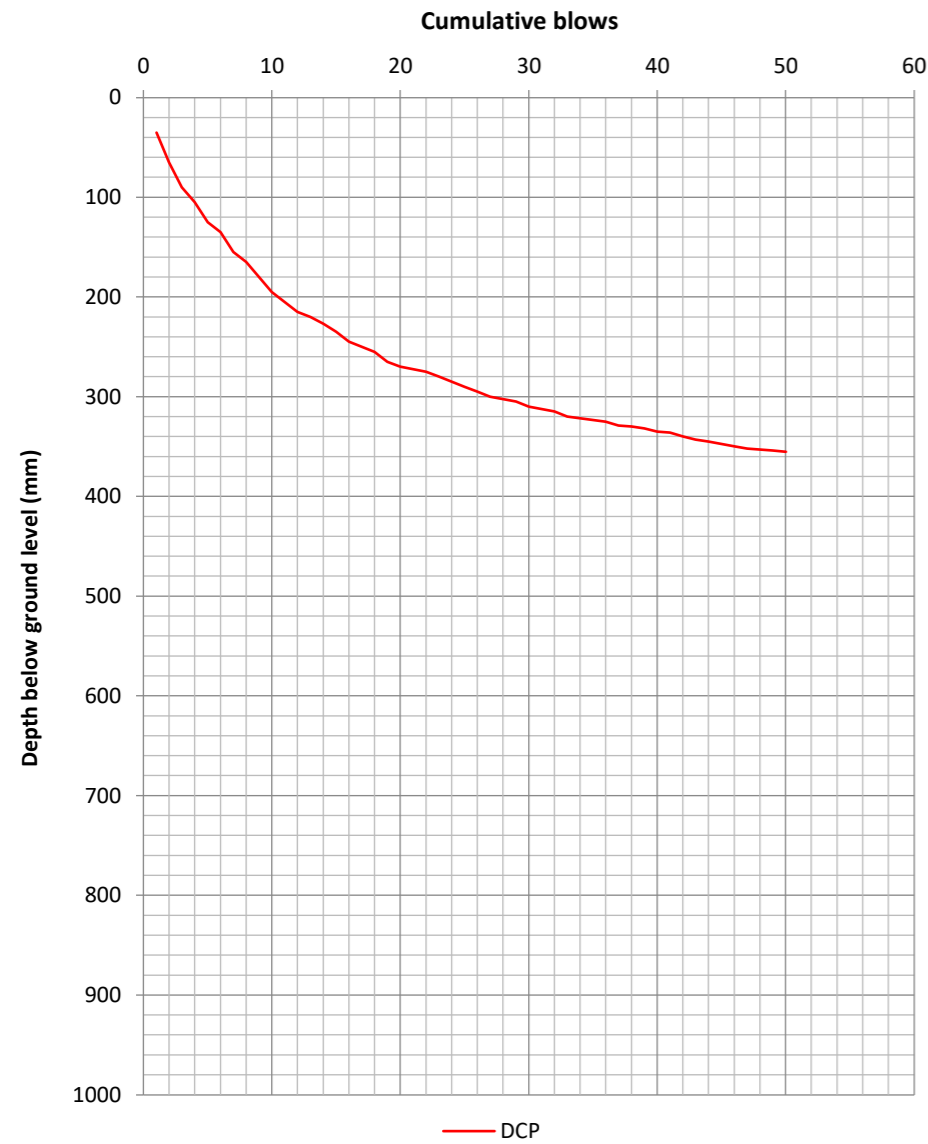
## Dynamic Cone Penetrometer (DCP) summary

Location	Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
DCP01	1	13.4	200	0	200
DCP01	2	36.6	70	200	270
DCP01	3	72.7	50	270	320
DCP01	4	124.8	30	320	350
DCP02	1	15.4	200	0	200
DCP02	2	51.5	160	200	360
DCP02	3	21.8	180	360	540
DCP02	4	28.2	160	540	700
DCP02	5	17.7	190	700	890
DCP03	1	30.9	200	0	200
DCP03	2	27.4	200	200	400
DCP03	3	46.4	120	400	520
DCP03	4	17.8	340	520	860
DCP04	1	17.1	100	0	100
DCP04	2	7.8	100	100	200
DCP04	3	10.1	100	200	300
DCP04	4	11.2	300	300	600
DCP04	5	17.5	310	600	910
DCP05	1	16.8	200	0	200
DCP05	2	29.3	200	200	400
DCP05	3	11.7	500	400	900
DCP06	1	12.9	200	0	200
DCP06	2	16.3	240	200	440
DCP06	3	14.9	190	440	630
DCP06	4	13.6	160	630	790
DCP06	5	32.6	80	790	870
DCP07	1	6.6	200	0	200
DCP07	2	15.5	290	200	490
DCP07	3	2.2	110	490	600
DCP07	4	6.1	280	600	880
DCP08	1	5.0	190	0	190
DCP08	2	28.8	410	190	600
DCP08	3	25.1	250	600	850
DCP09	1	4.8	200	0	200
DCP09	2	29.3	100	200	300
DCP09	3	32.1	50	300	350
DCP09	4	40.7	200	350	550
DCP09	5	13.6	150	550	700
DCP09	6	44.4	190	700	890
DCP10	1	6.1	200	0	200
DCP10	2	19.5	80	200	280
DCP10	3	84.6	80	280	360

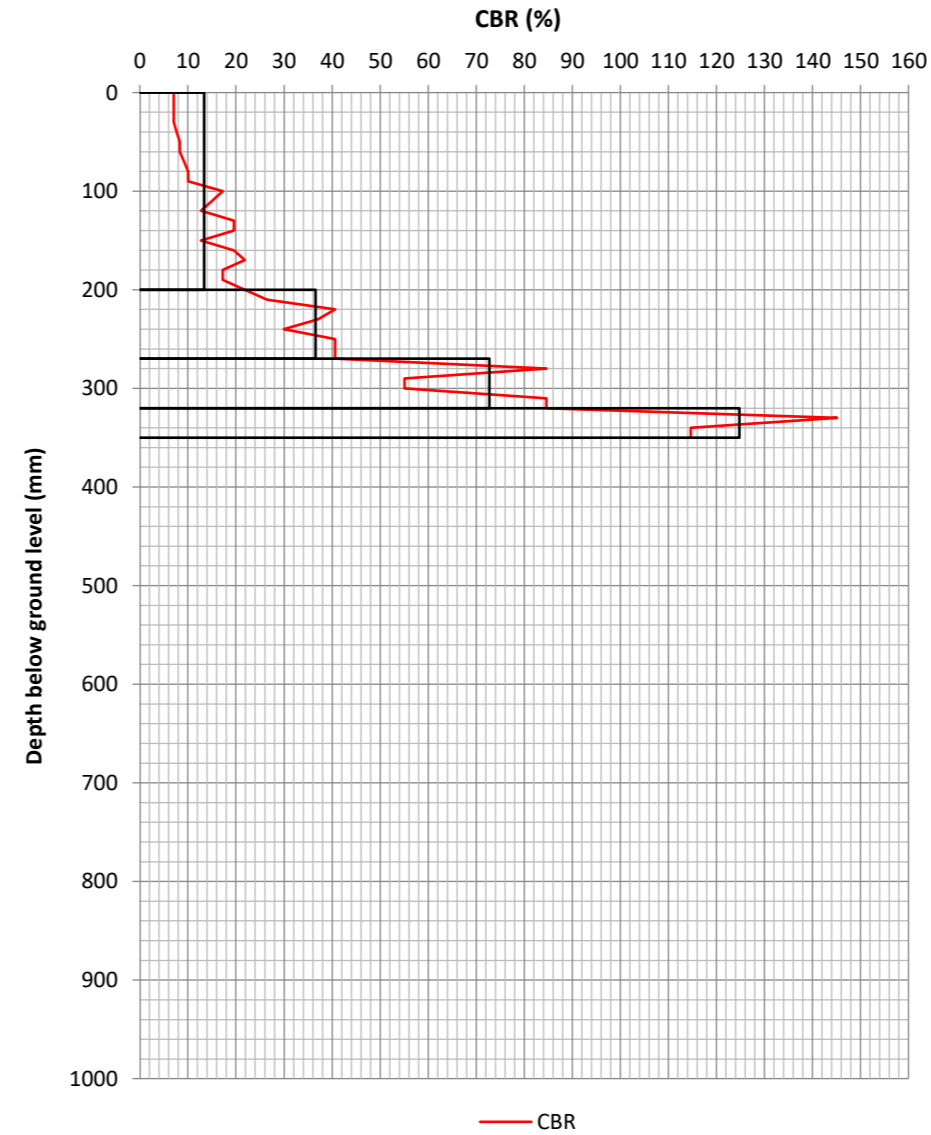
### Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP01	08/09/2022	0	55	TL

#### Plot showing number of blows against depth



#### Plot showing CBR (%) against depth



#### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	13.4	200	0	200
2	36.6	70	200	270
3	72.7	50	270	320
4	124.8	30	320	350

#### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

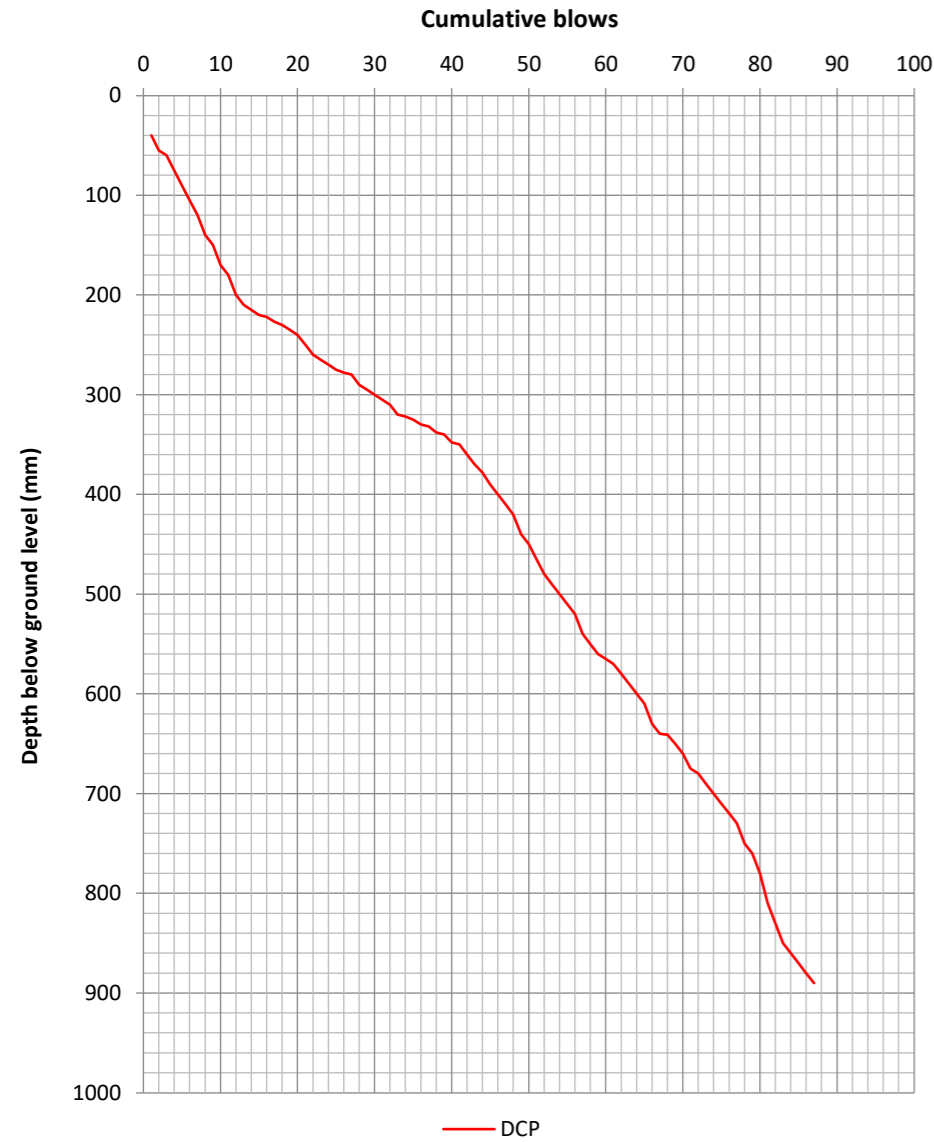
#### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

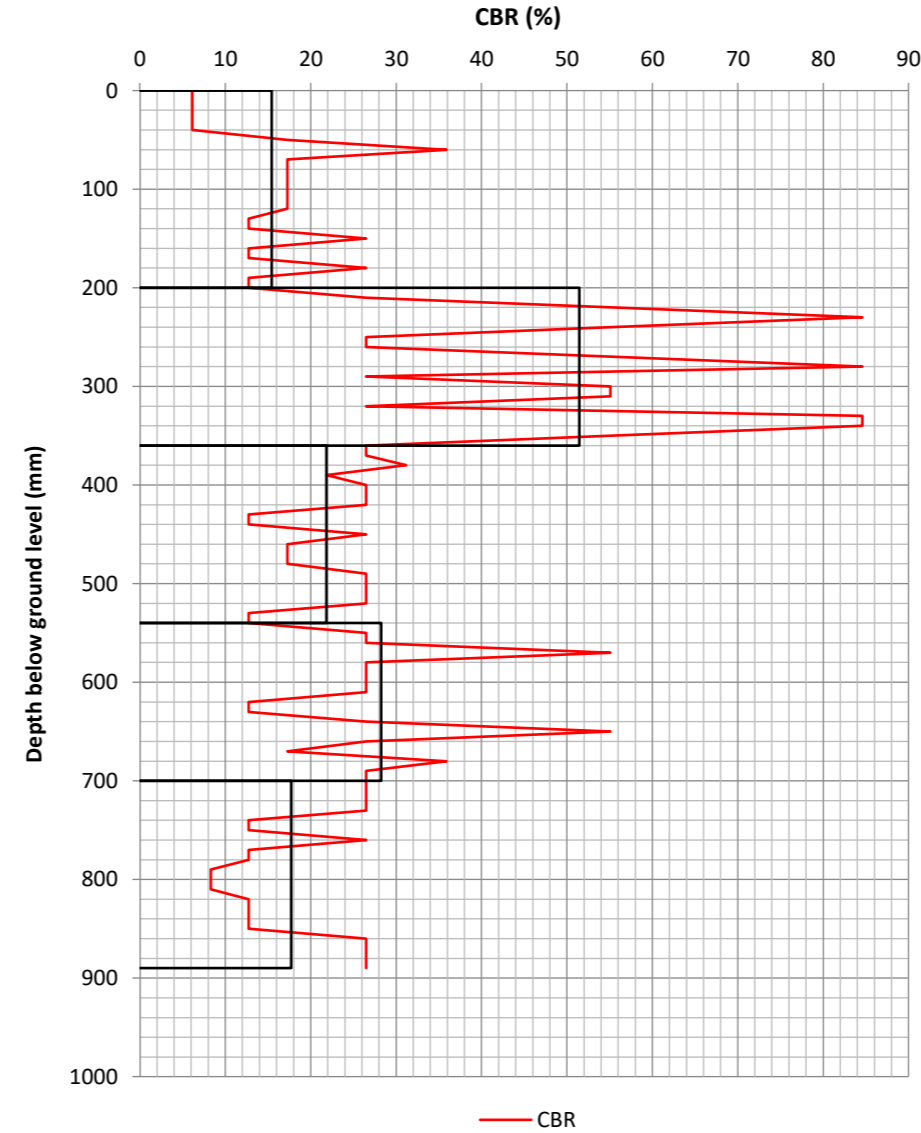
### Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP02	08/09/2022	0	60	TL

#### Plot showing number of blows against depth



#### Plot showing CBR (%) against depth



#### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	15.4	200	0	200
2	51.5	160	200	360
3	21.8	180	360	540
4	28.2	160	540	700
5	17.7	190	700	890

#### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

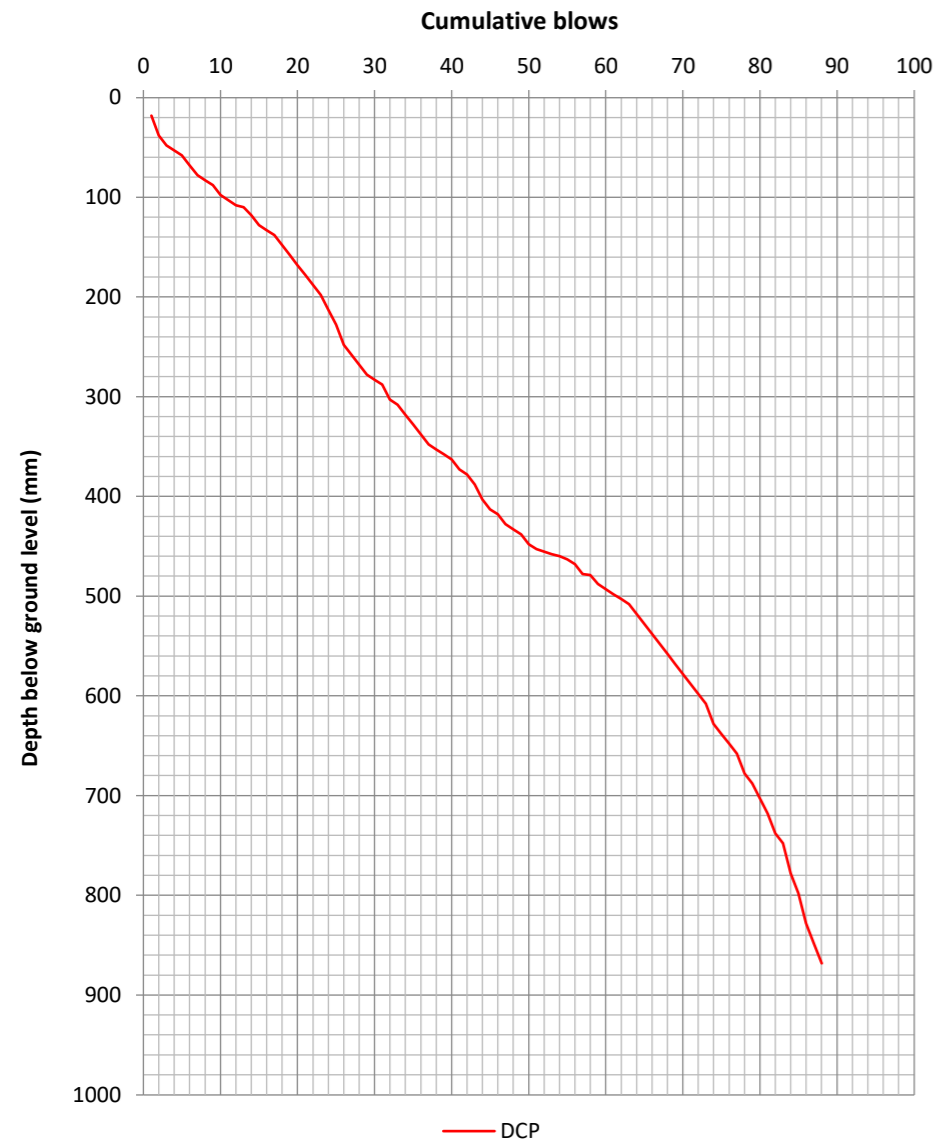
#### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

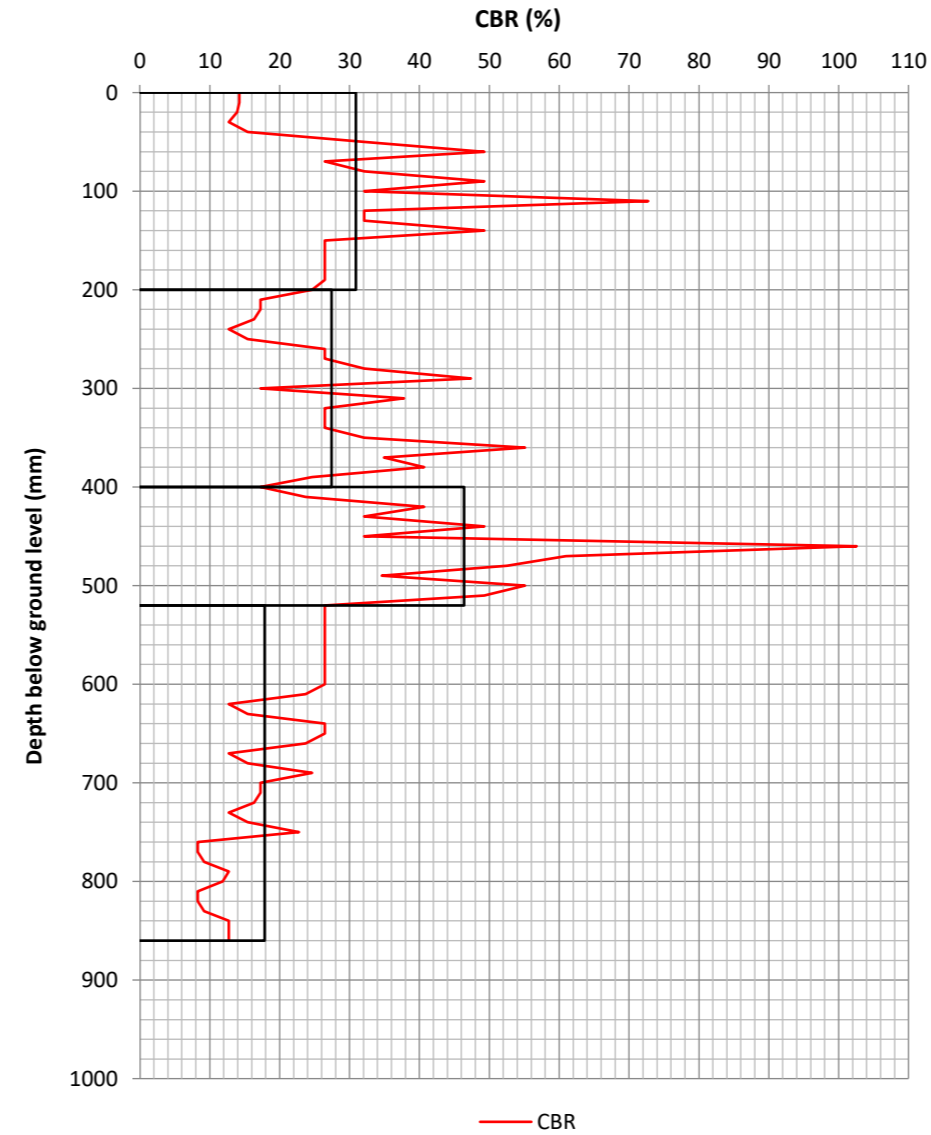
## Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP03	08/09/2022	0	82	TL

### Plot showing number of blows against depth



### Plot showing CBR (%) against depth



### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	30.9	200	0	200
2	27.4	200	200	400
3	46.4	120	400	520
4	17.8	340	520	860

### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

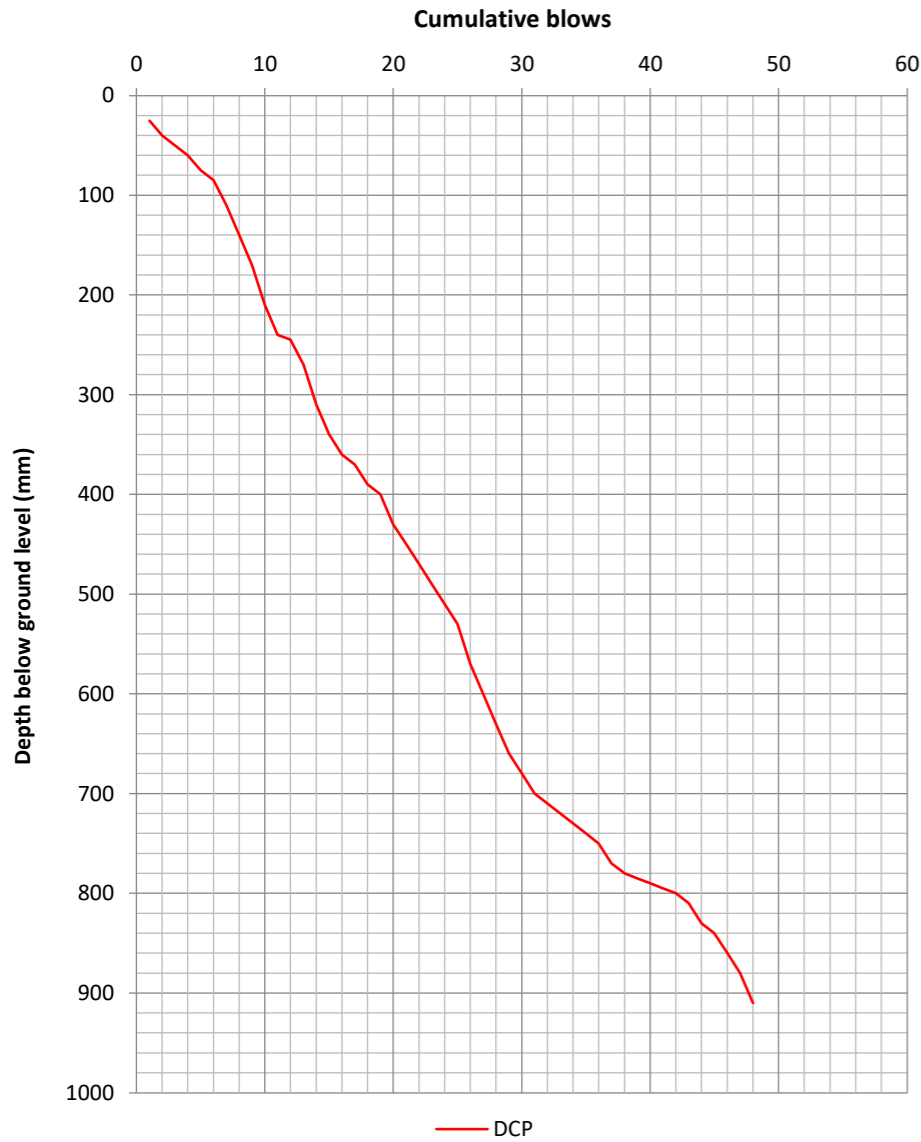
### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

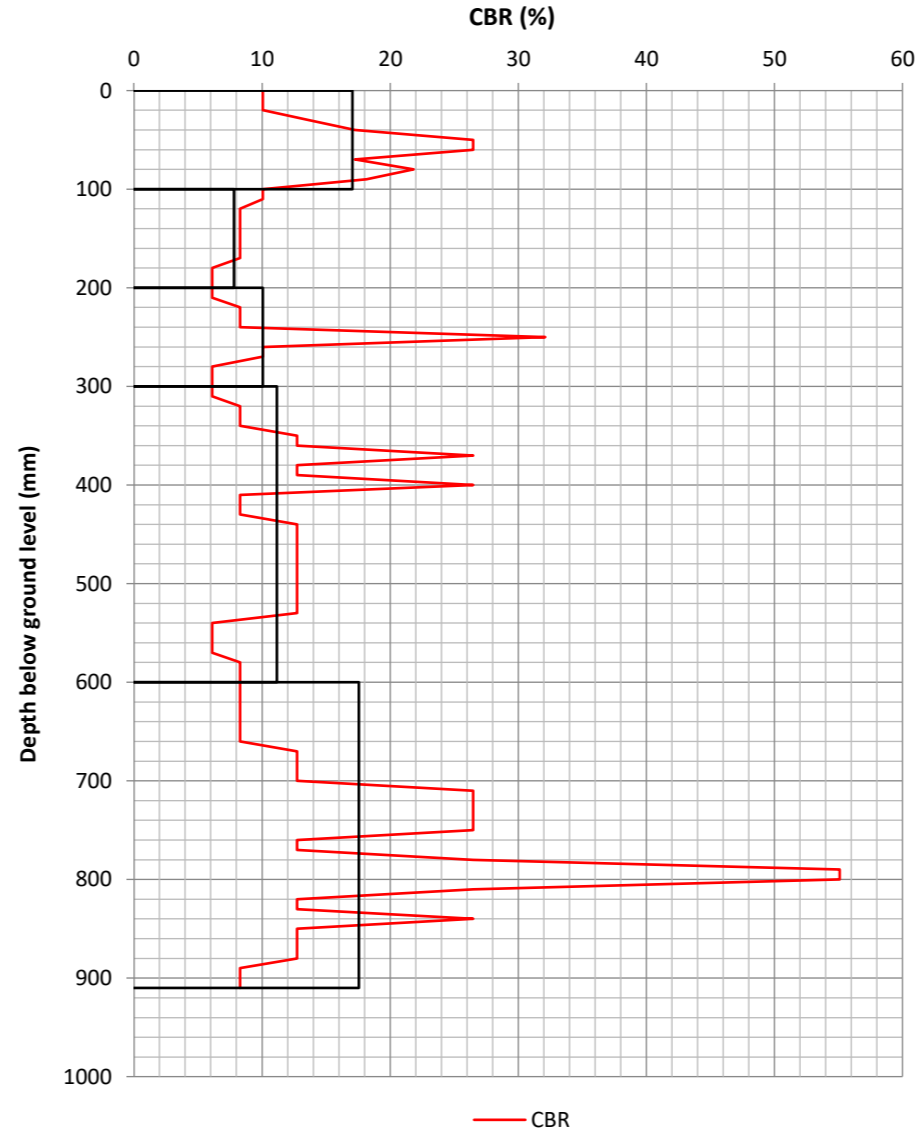
### Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP04	08/09/2022	0	40	TL

#### Plot showing number of blows against depth



#### Plot showing CBR (%) against depth



#### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	17.1	100	0	100
2	7.8	100	100	200
3	10.1	100	200	300
4	11.2	300	300	600
5	17.5	310	600	910

#### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

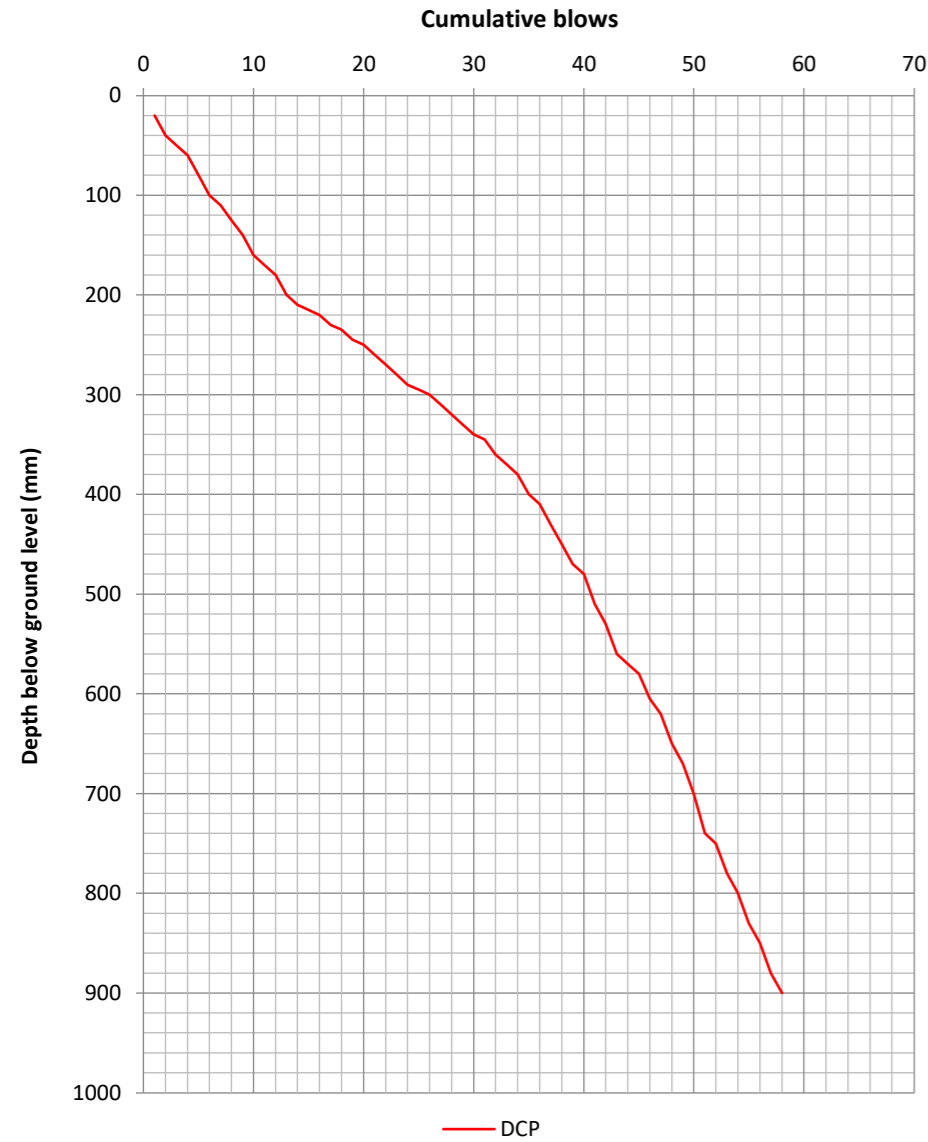
#### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

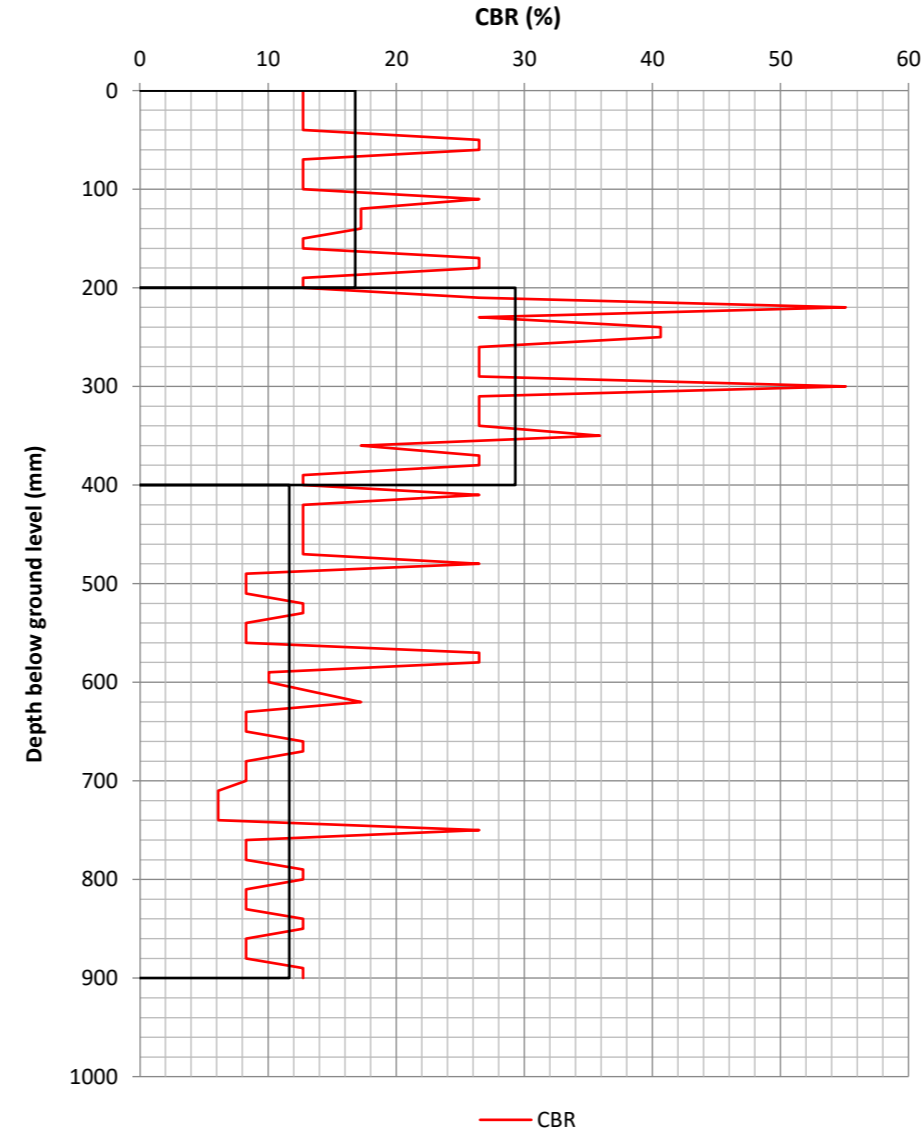
## Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP05	08/09/2022	0	50	TL

### Plot showing number of blows against depth



### Plot showing CBR (%) against depth



### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	16.8	200	0	200
2	29.3	200	200	400
3	11.7	500	400	900

### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

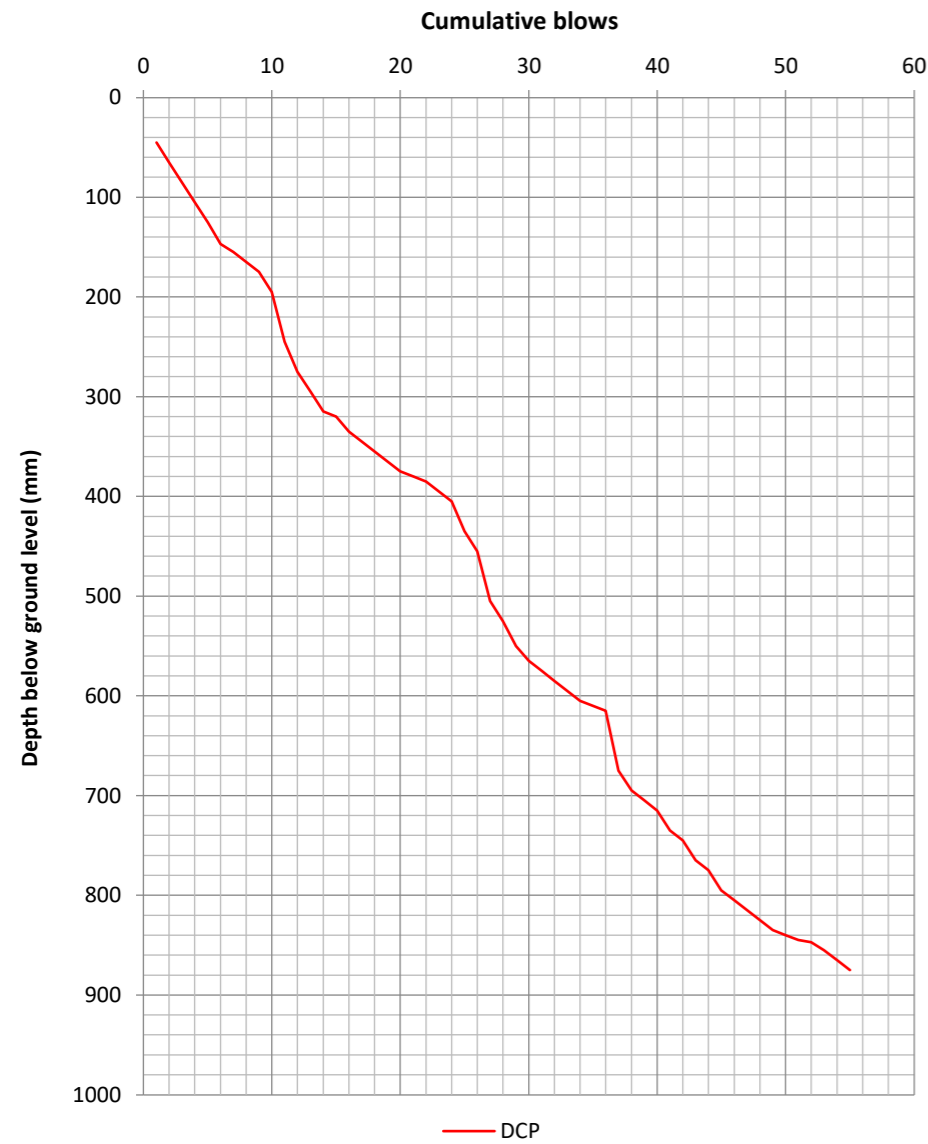
### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

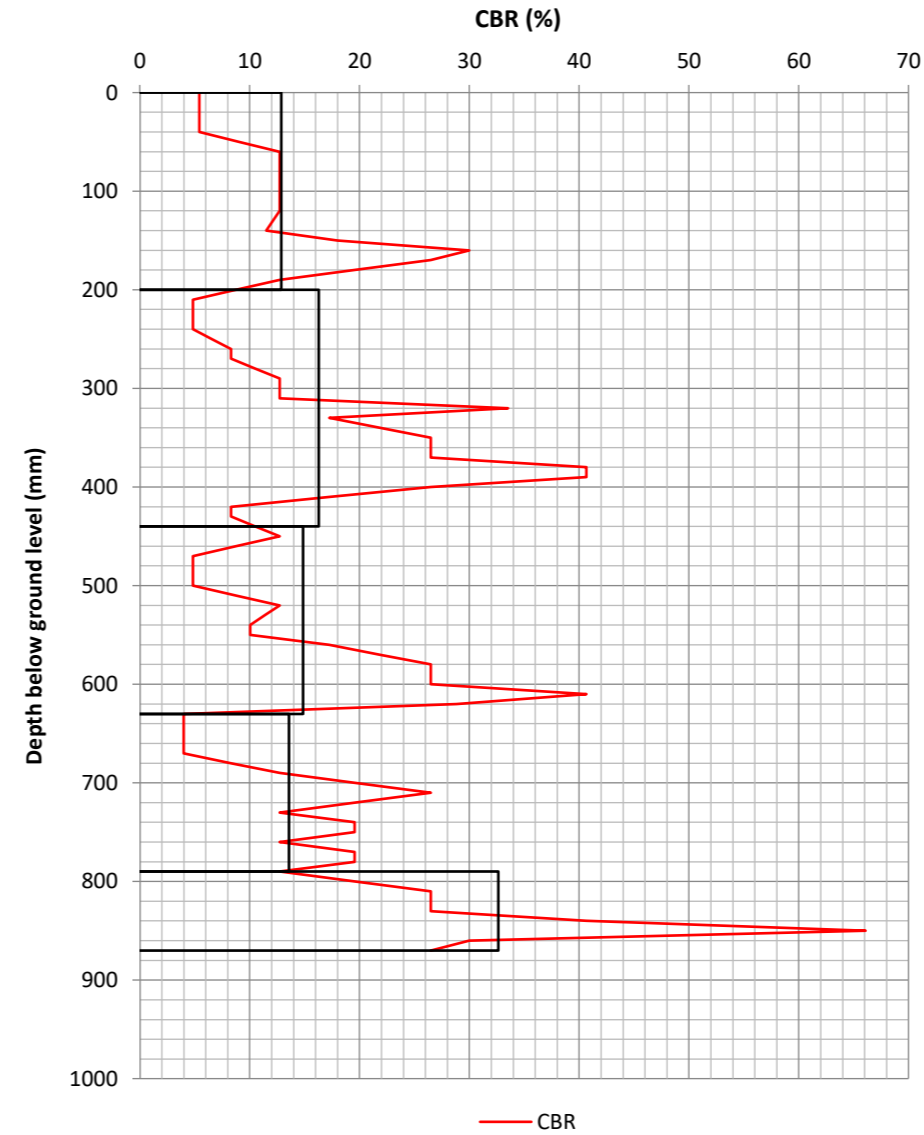
## Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP06	08/09/2022	0	75	TL

### Plot showing number of blows against depth



### Plot showing CBR (%) against depth



### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	12.9	200	0	200
2	16.3	240	200	440
3	14.9	190	440	630
4	13.6	160	630	790
5	32.6	80	790	870

### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

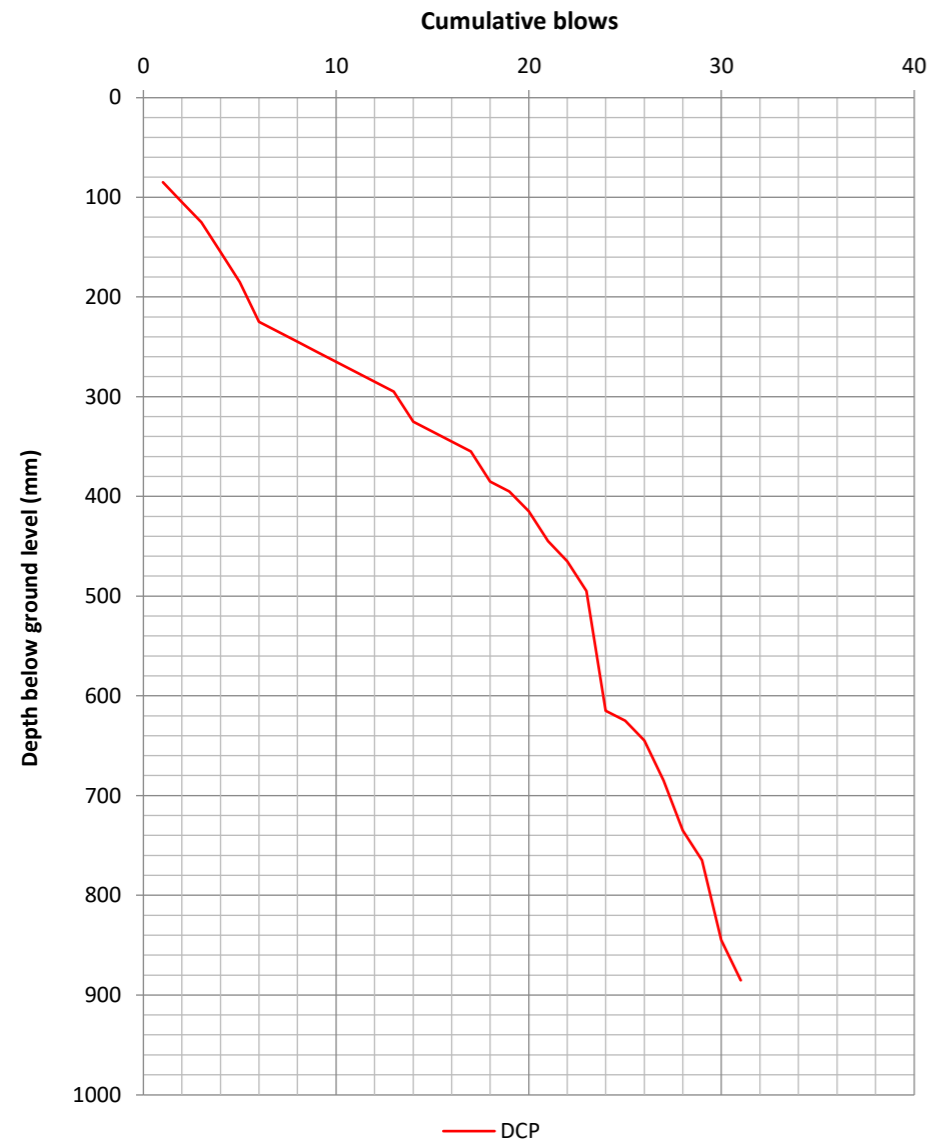
### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

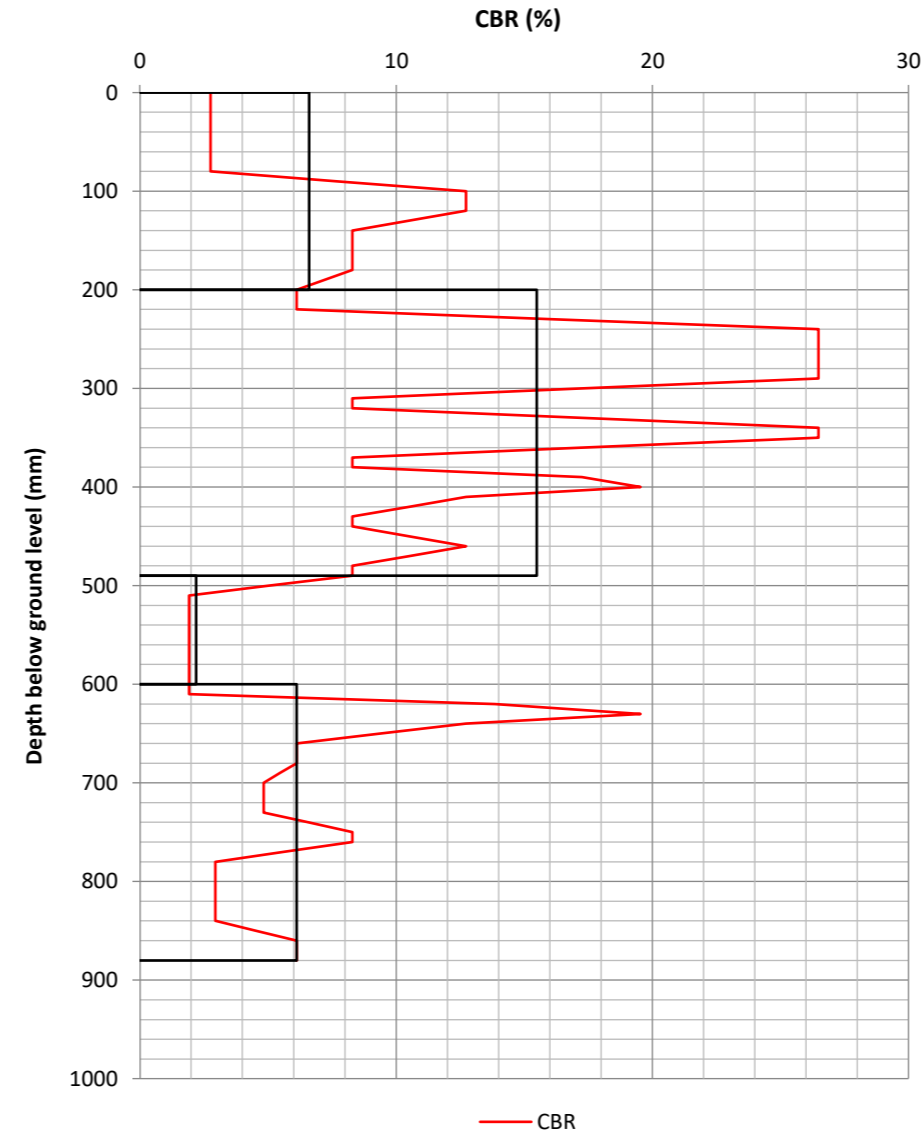
## Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP07	08/09/2022	0	65	TL

### Plot showing number of blows against depth



### Plot showing CBR (%) against depth



### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	6.6	200	0	200
2	15.5	290	200	490
3	2.2	110	490	600
4	6.1	280	600	880

### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

### Calculations

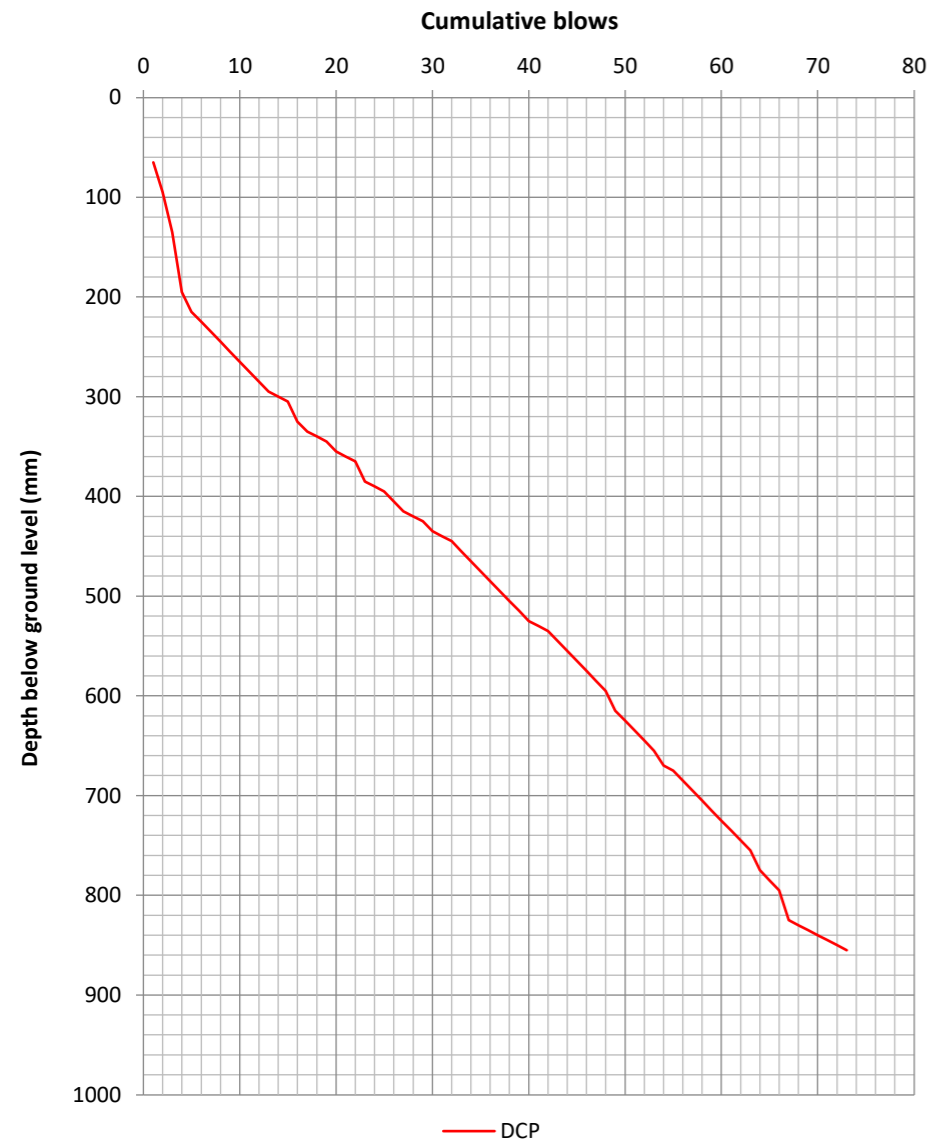
$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$



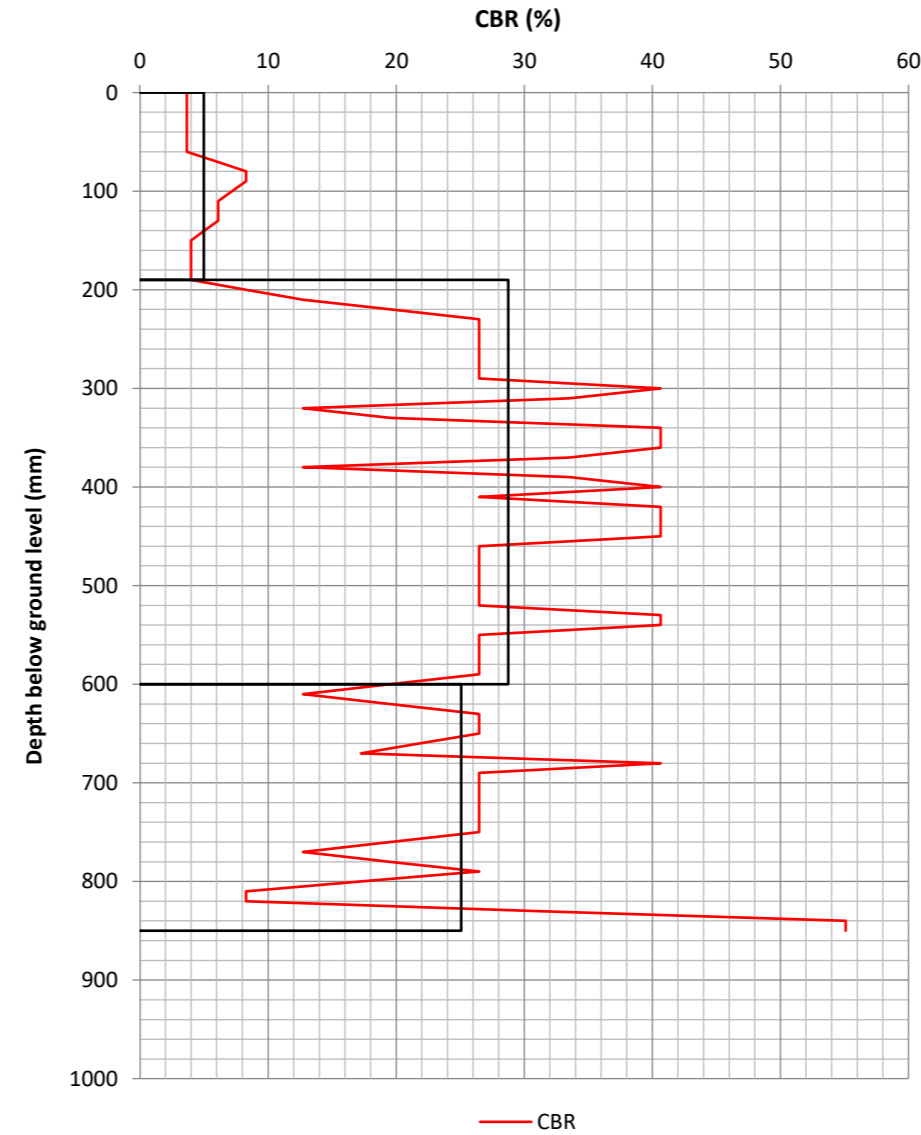
## Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP08	08/09/2022	0	95	TL

### Plot showing number of blows against depth



### Plot showing CBR (%) against depth



### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	5.0	190	0	190
2	28.8	410	190	600
3	25.1	250	600	850

### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

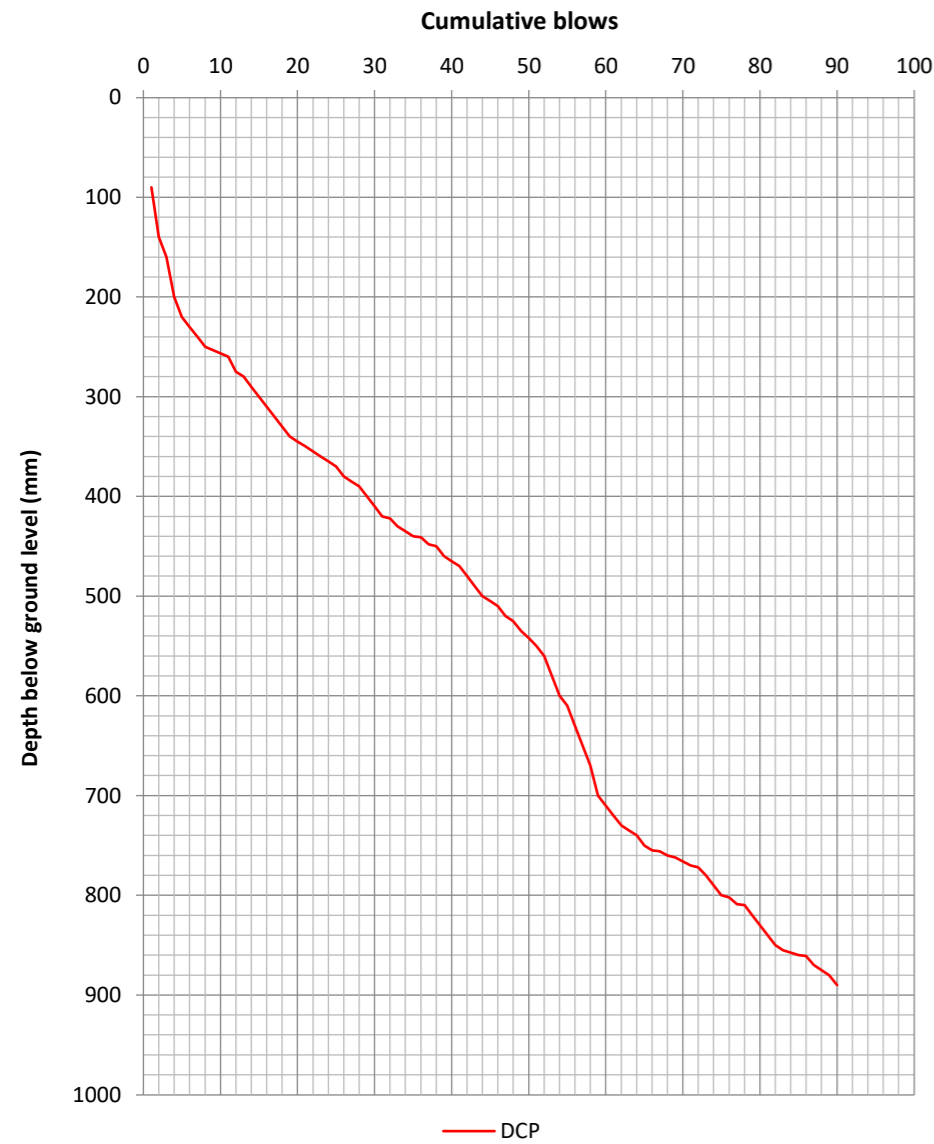
### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

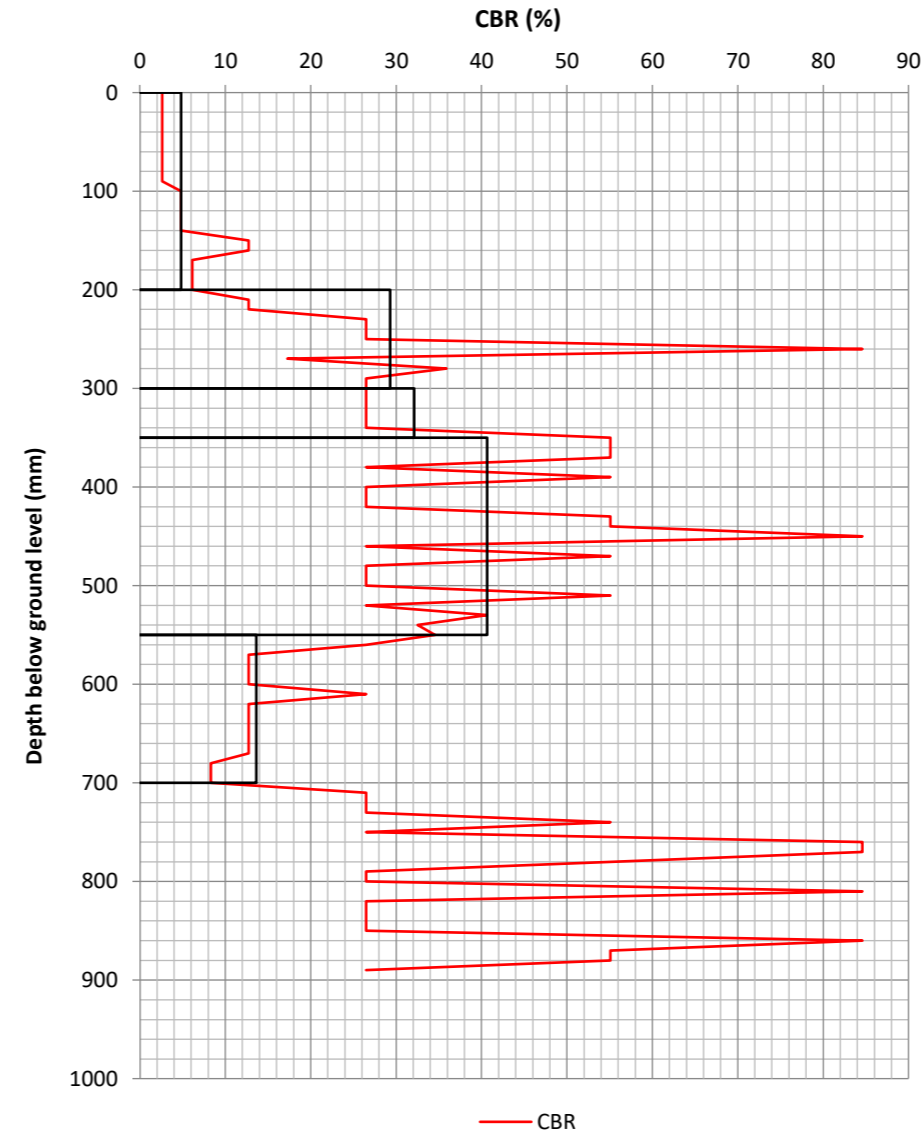
## Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP09	08/09/2022	0	60	TL

### Plot showing number of blows against depth



### Plot showing CBR (%) against depth



### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	4.8	200	0	200
2	29.3	100	200	300
3	32.1	50	300	350
4	40.7	200	350	550
5	13.6	150	550	700
6	44.4	190	700	890

### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

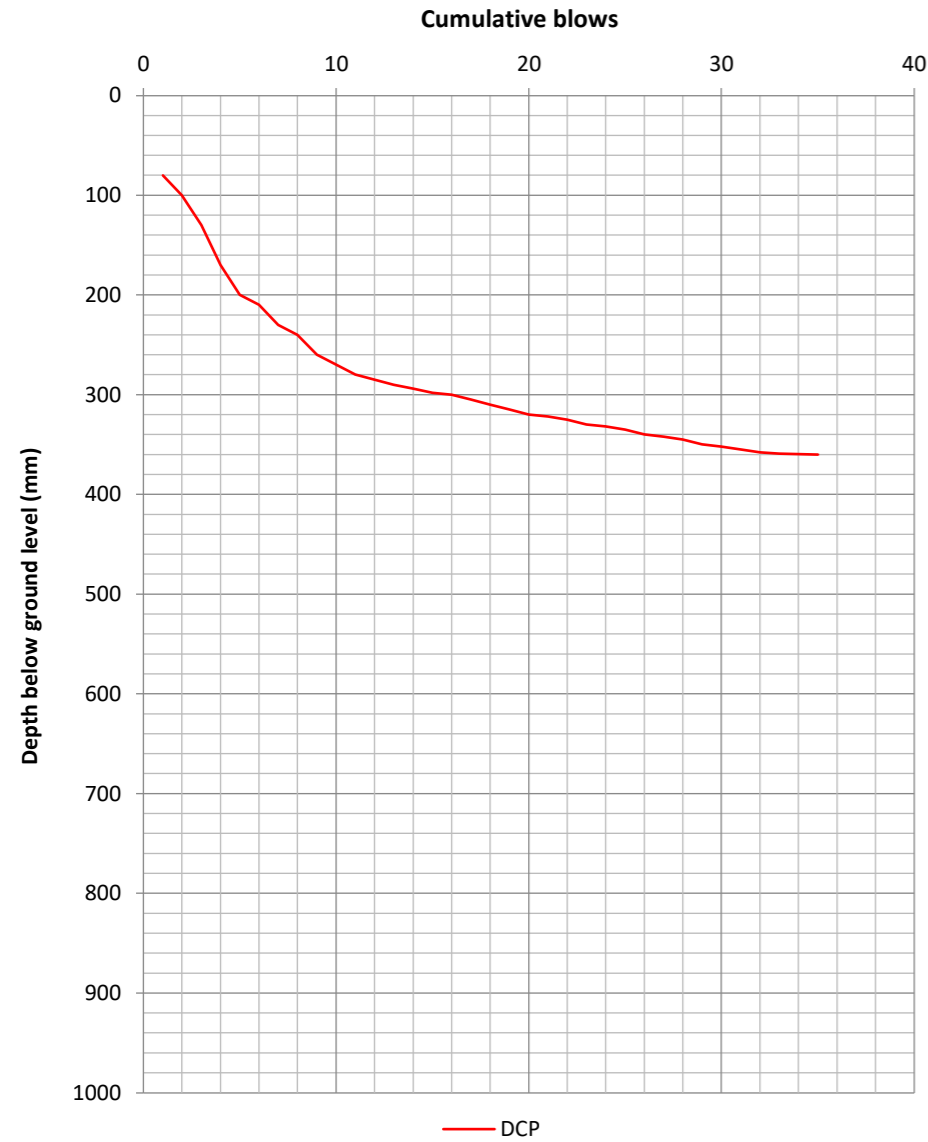
### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

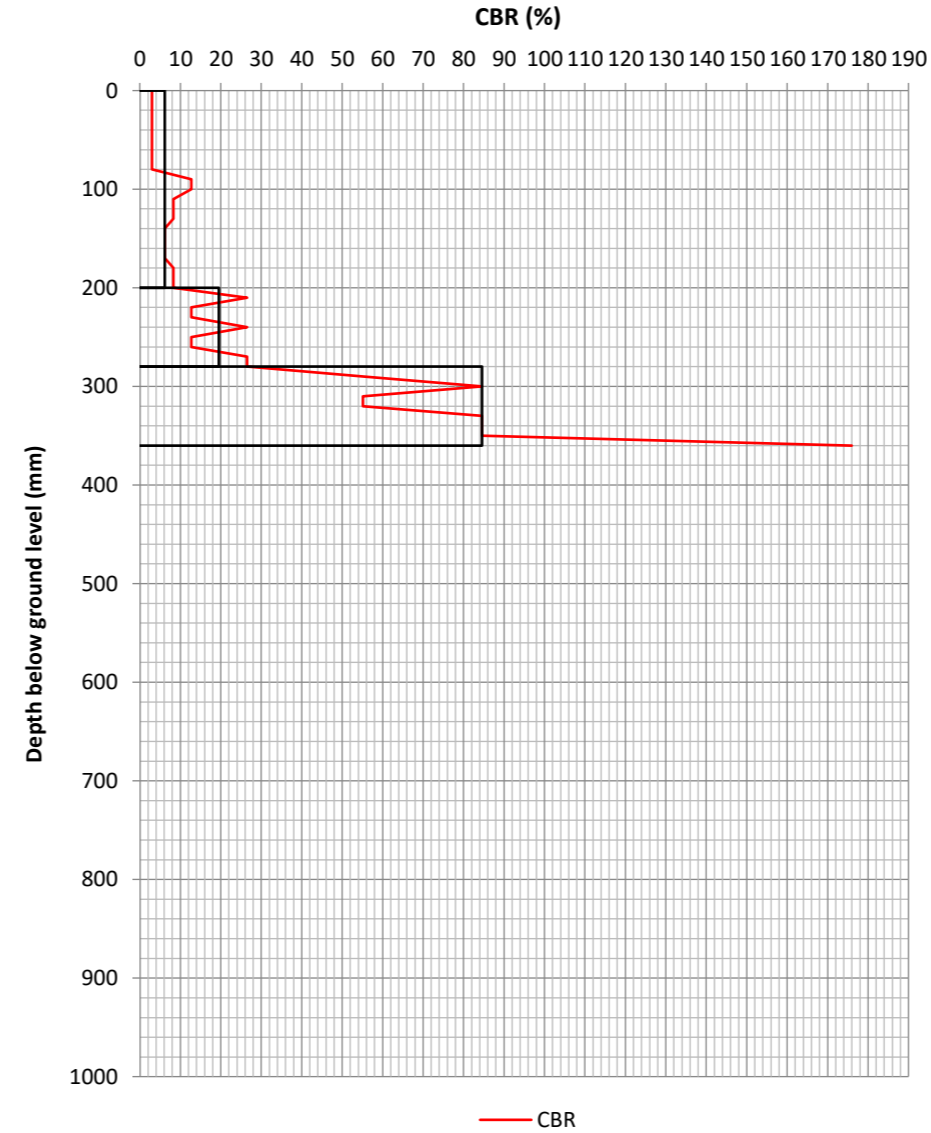
### Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP10	08/09/2022	0	50	TL

#### Plot showing number of blows against depth



#### Plot showing CBR (%) against depth



#### Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	6.1	200	0	200
2	19.5	80	200	280
3	84.6	80	280	360

#### Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

#### Calculations

$$\text{Log}_{10}(\text{Uncorrected (UC) CBR}) = 2.48 - 1.057\text{Log}_{10}(\text{mm/blow})$$

## **Appendix G    In situ Permeability Testing Results**

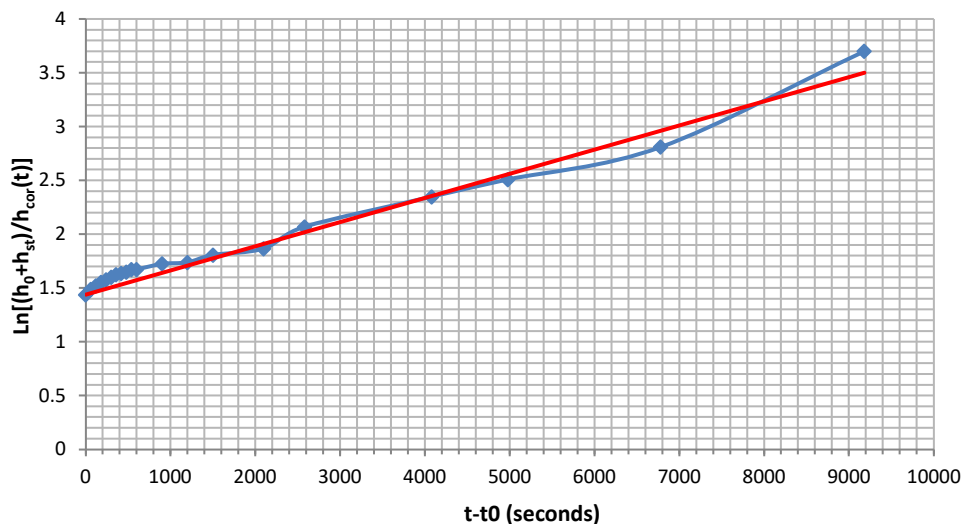
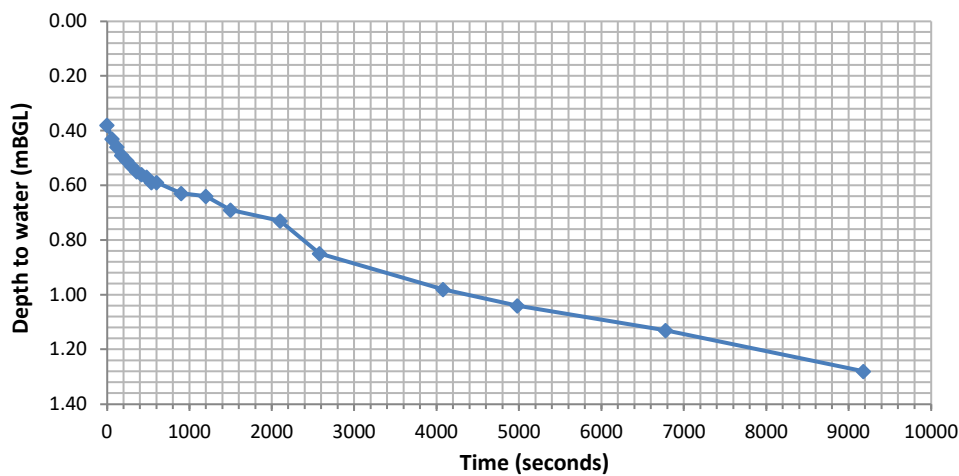
## Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

Location	Test number	Test method	Test system	Test date
WS02	1	Falling head	Standpipe install	08/09/2022

Test base (m)	Test section length (m)	Test diameter (m)
3.00	2.00	0.1

### Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
-	0.38	2.62



<b>F</b>	Shape factor according BS EN ISO 22282-1:2012	3.407 m
<b>S</b>	Cross sectional area of test section	0.0079 m <sup>2</sup>
<b>h<sub>st</sub></b>	Corrective term to initial static level	1.62E+00 m
<b>α</b>	Gradient of line alpha	2.25E-04 s <sup>-1</sup>
<b>k</b>	<b>Permeability (α S / F)</b>	<b>5.18E-07 m/s</b>

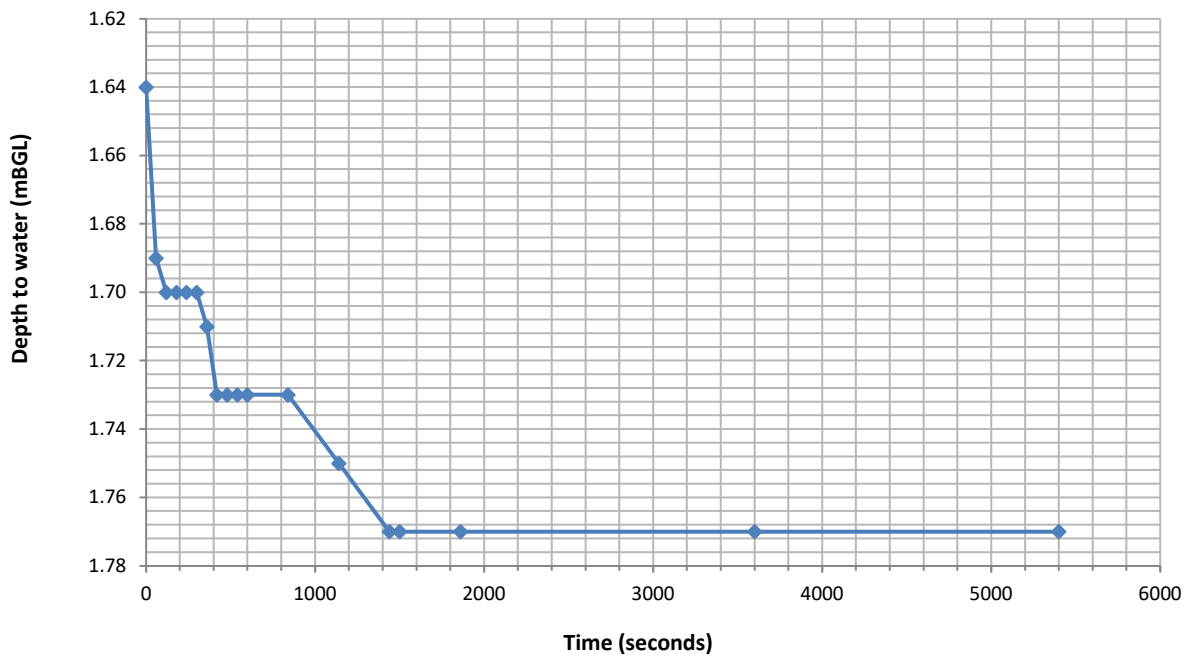
### Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

Location	Test number	Test method	Test system	Test date
WS03	1	Falling head	Standpipe install	08/09/2022

Test base (m)	Test section length (m)	Test diameter (m)
2.00	0.80	0.1

#### Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
-	1.64	0.36



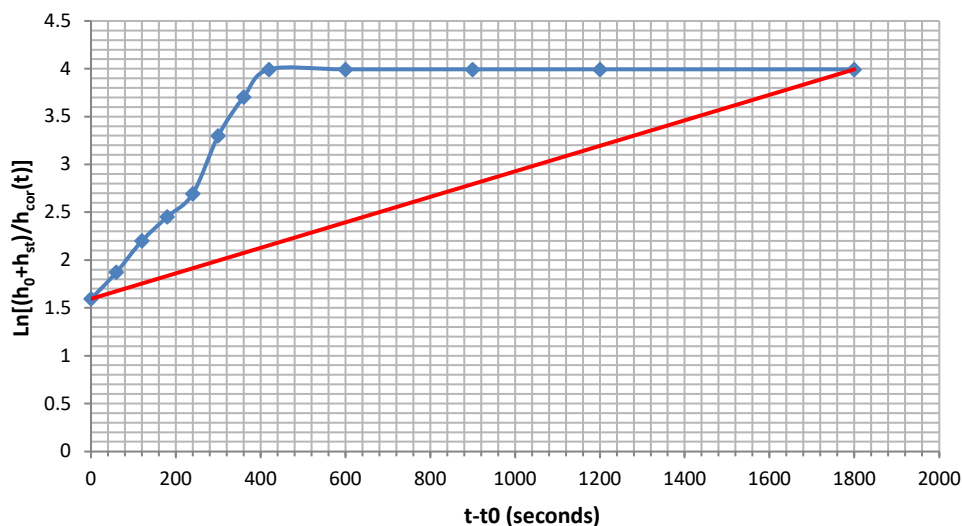
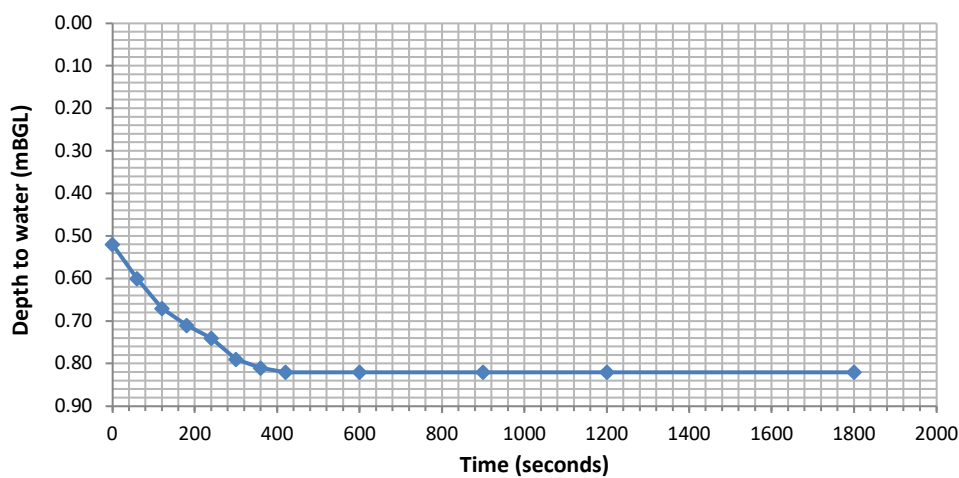
## Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

Location	Test number	Test method	Test system	Test date
WS04	1	Falling head	Standpipe install	08/09/2022

Test base (m)	Test section length (m)	Test diameter (m)
1.50	0.50	0.1

### Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
-	0.52	0.98



<b>F</b>	Shape factor according BS EN ISO 22282-1:2012	1.359 m
<b>S</b>	Cross sectional area of test section	0.0079 m <sup>2</sup>
<b>h<sub>st</sub></b>	Corrective term to initial static level	6.50E-01 m
<b>α</b>	Gradient of line alpha	1.33E-03 s <sup>-1</sup>
<b>k</b>	Permeability (α S / F)	7.70E-06 m/s

## **Appendix H      Geotechnical Laboratory Test Results**





# TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS  
Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

i2 Analytical Ltd  
Unit 8 Harrowden Road  
Brackmills Industrial Estate  
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited  
Client Address: Cedar Barn, White Lodge,  
Walgrave, Northampton,  
NN6 9PY  
Contact: Admin  
Site Address: Hertfordshire Constabulary - Dog Unit

Client Reference: STU5805  
Job Number: 22-85749  
Date Sampled: 08/09/2022  
Date Received: 22/09/2022  
Date Tested: 29/09/2022  
Sampled By: Not Given

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

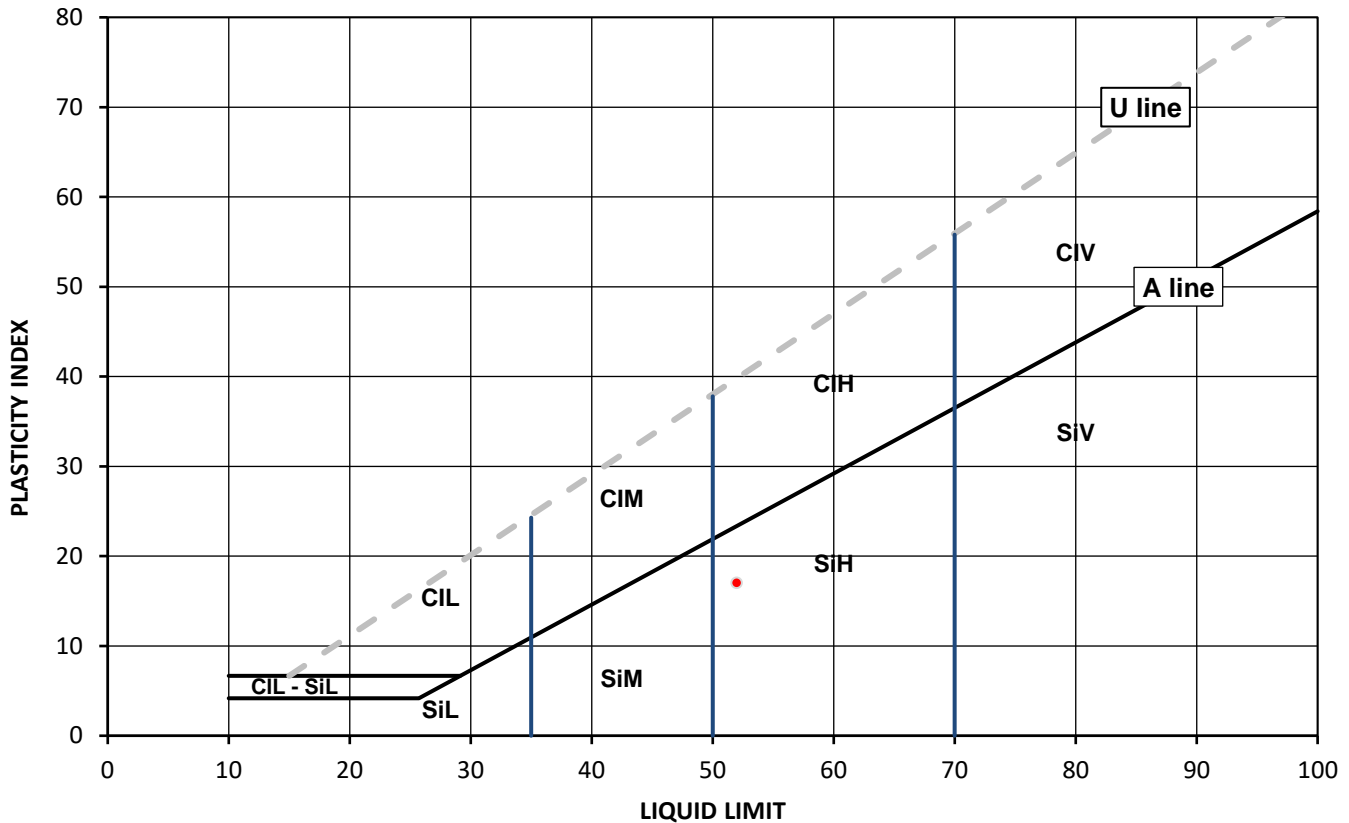
## Test Results:

Laboratory Reference: 2433718  
Hole No.: TP02  
Sample Reference: Not Given  
Sample Description: Yellowish brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 1.00  
Depth Base [m]: 1.20  
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [ W ] %	Liquid Limit [ WL ] %	Plastic Limit [ Wp ] %	Plasticity Index [ Ip ] %	% Passing 425µm BS Test Sieve
15	52	35	17	85



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material ( eg CIHO )

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Katarzyna Koziel  
Technical Reviewer  
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



# TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS  
Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

i2 Analytical Ltd  
Unit 8 Harrowden Road  
Brackmills Industrial Estate  
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited  
Client Address: Cedar Barn, White Lodge,  
Walgrave, Northampton,  
NN6 9PY  
Contact: Admin  
Site Address: Hertfordshire Constabulary - Dog Unit

Client Reference: STU5805  
Job Number: 22-85749  
Date Sampled: 08/09/2022  
Date Received: 22/09/2022  
Date Tested: 29/09/2022  
Sampled By: Not Given

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

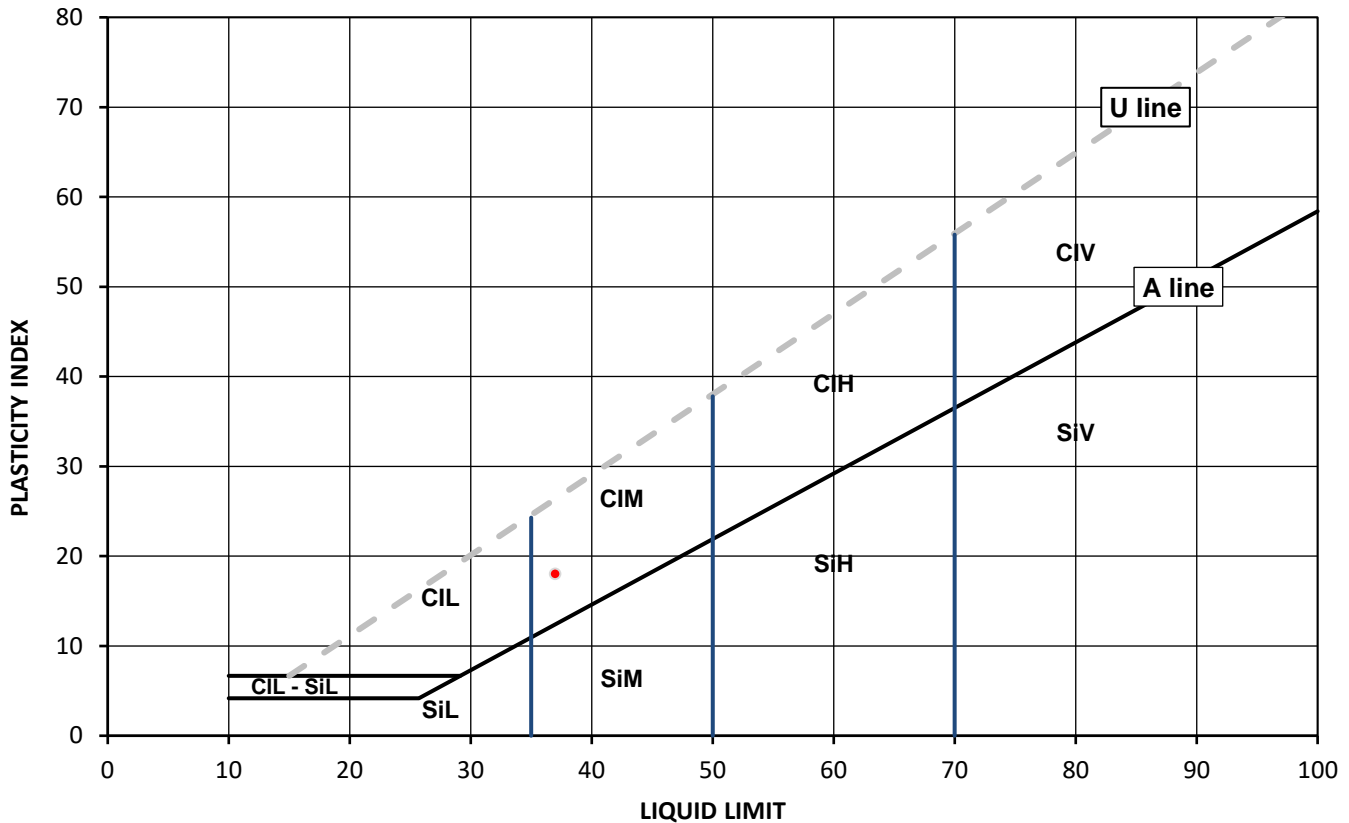
## Test Results:

Laboratory Reference: 2433720  
Hole No.: WS01A  
Sample Reference: Not Given  
Sample Description: Brown gravelly sandy CLAY

Depth Top [m]: 1.20  
Depth Base [m]: 1.40  
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [ W ] %	Liquid Limit [ WL ] %	Plastic Limit [ Wp ] %	Plasticity Index [ Ip ] %	% Passing 425µm BS Test Sieve
10	37	19	18	47



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material ( eg CIHO )

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Katarzyna Koziel  
Technical Reviewer  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS  
Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

i2 Analytical Ltd  
Unit 8 Harrowden Road  
Brackmills Industrial Estate  
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited  
Client Address: Cedar Barn, White Lodge,  
Walgrave, Northampton,  
NN6 9PY  
Contact: Admin  
Site Address: Hertfordshire Constabulary - Dog Unit

Client Reference: STU5805  
Job Number: 22-85749  
Date Sampled: 08/09/2022  
Date Received: 22/09/2022  
Date Tested: 29/09/2022  
Sampled By: Not Given

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

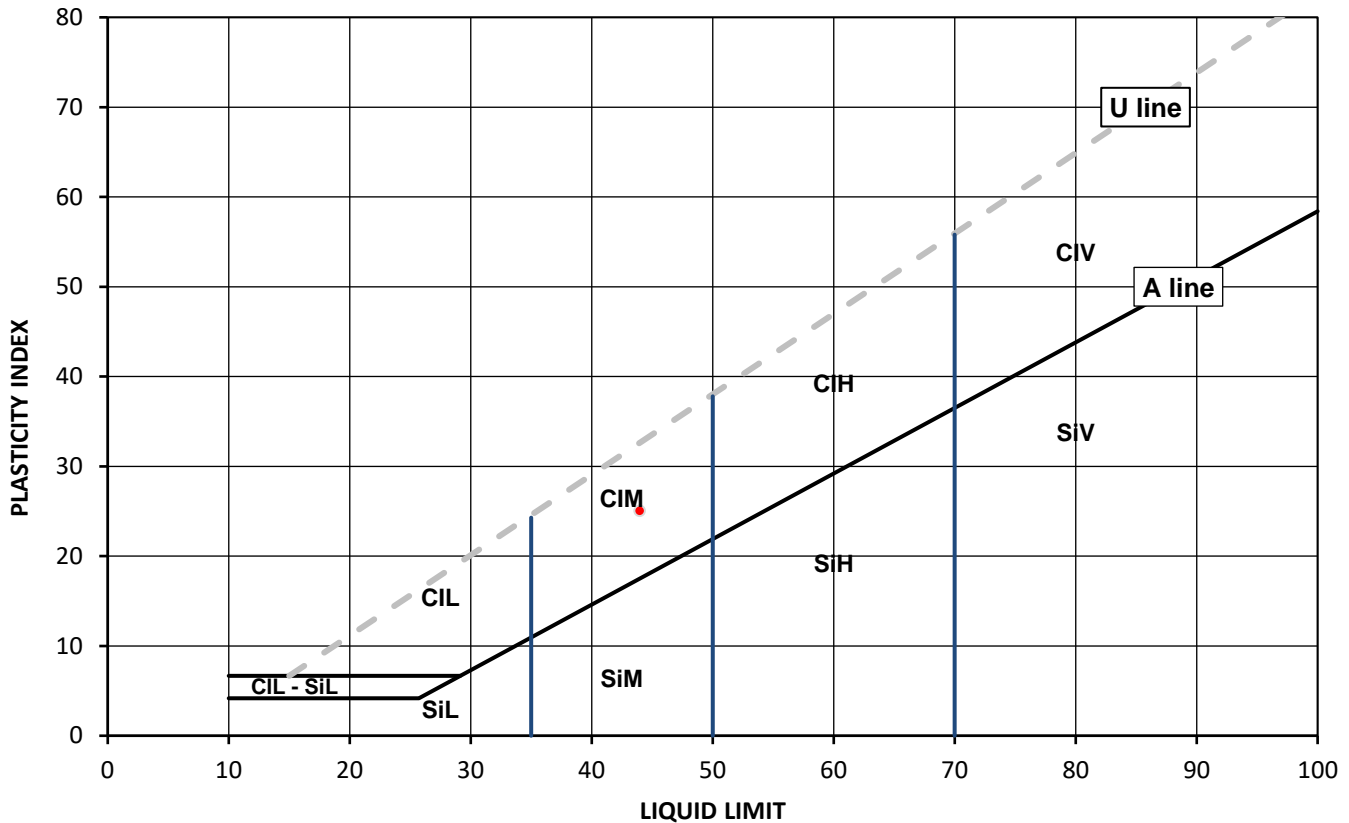
## Test Results:

Laboratory Reference: 2433721  
Hole No.: WS02  
Sample Reference: Not Given  
Sample Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.80  
Depth Base [m]: 1.90  
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [ W ] %	Liquid Limit [ WL ] %	Plastic Limit [ Wp ] %	Plasticity Index [ Ip ] %	% Passing 425µm BS Test Sieve
14	44	19	25	74



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material ( eg CIHO )

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Katarzyna Koziel  
Technical Reviewer  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS  
Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

i2 Analytical Ltd  
Unit 8 Harrowden Road  
Brackmills Industrial Estate  
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited  
Client Address: Cedar Barn, White Lodge,  
Walgrave, Northampton,  
NN6 9PY  
Contact: Admin  
Site Address: Hertfordshire Constabulary - Dog Unit

Client Reference: STU5805  
Job Number: 22-85749  
Date Sampled: 08/09/2022  
Date Received: 22/09/2022  
Date Tested: 29/09/2022  
Sampled By: Not Given

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

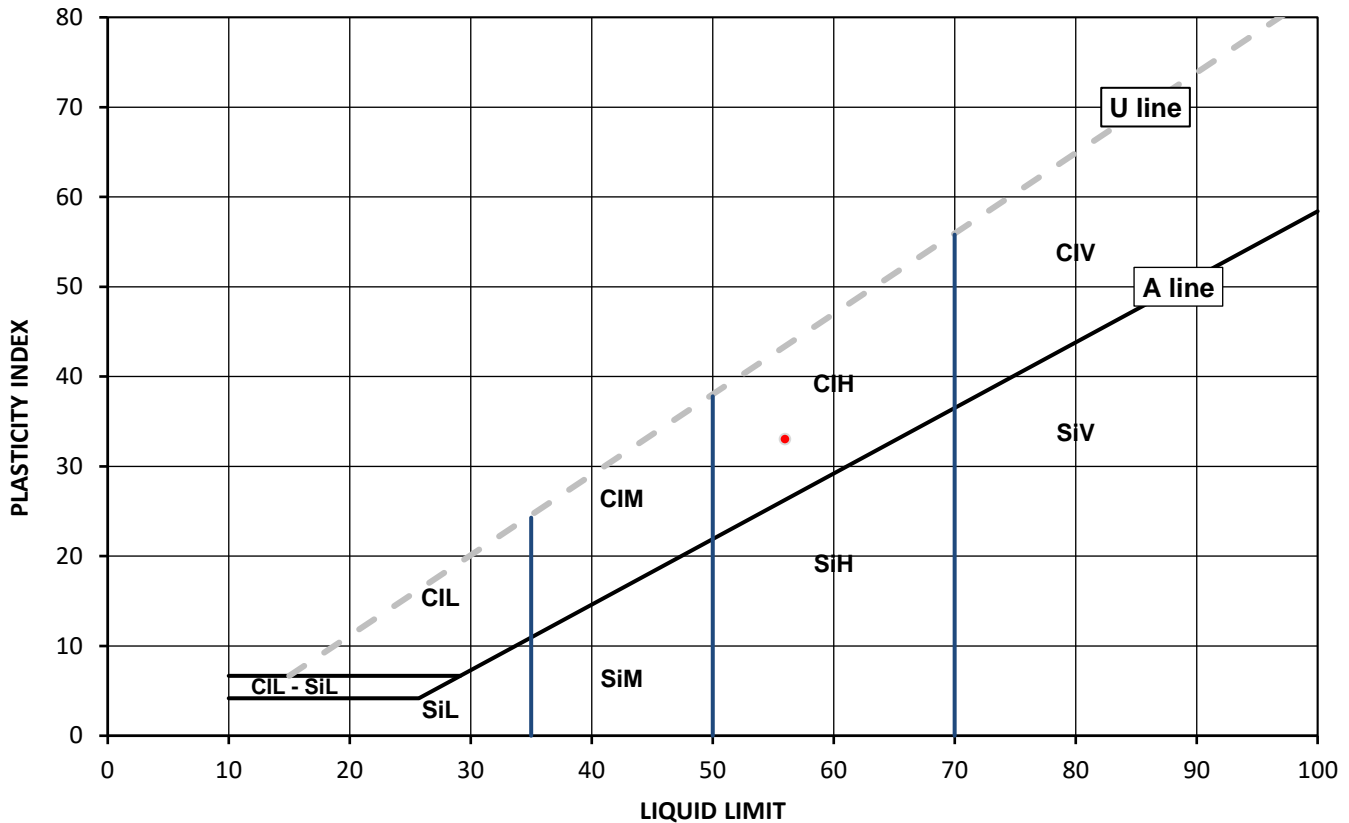
## Test Results:

Laboratory Reference: 2433722  
Hole No.: WS03  
Sample Reference: Not Given  
Sample Description: Brown gravelly slightly sandy CLAY

Depth Top [m]: 0.80  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [ W ] %	Liquid Limit [ WL ] %	Plastic Limit [ Wp ] %	Plasticity Index [ Ip ] %	% Passing 425µm BS Test Sieve
7.7	56	23	33	44



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	Liquid Limit
Si	Silt	L	below 35
		M	35 to 50
		H	50 to 70
		V	exceeding 70
		O	append to classification for organic material ( eg CIHO )

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Katarzyna Koziel  
Technical Reviewer  
for and on behalf of i2 Analytical Ltd

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4041

Client: Soiltechnics Limited  
 Client Address: Cedar Barn, White Lodge,  
 Walgrave, Northampton,  
 NN6 9PY  
 Contact: Admin  
 Site Address: Hertfordshire Constabulary - Dog Unit

## SUMMARY REPORT

### SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990:  
 Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2:  
 1990: Clause 8.2

i2 Analytical Ltd  
 Unit 8 Harrowden Road  
 Brackmills Industrial Estate  
 Northampton NN4 7EB



Environmental Science

Client Reference: STU5805  
 Job Number: 22-85749  
 Date Sampled: 08/09/2022  
 Date Received: 22/09/2022  
 Date Tested: 29/09/2022  
 Sampled By: Not Given

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

### Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [ W ] %	Water Content BS EN ISO 17892-1 [ W ] %	Atterberg				Density			Total Porosity# %	
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3		
2433718	TP02	Not Given	1.00	1.20	B	Yellowish brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	15		85	52	35	17					
2433720	WS01A	Not Given	1.20	1.40	D	Brown gravelly sandy CLAY	Atterberg 1 Point	10		47	37	19	18					
2433721	WS02	Not Given	1.80	1.90	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	14		74	44	19	25					
2433722	WS03	Not Given	0.80	Not Given	D	Brown gravelly slightly sandy CLAY	Atterberg 1 Point	7.7		44	56	23	33					

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Katarzyna Koziel  
 Technical Reviewer  
 for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



4041

Client: Soiltechnics Limited  
 Client Address: Cedar Barn, White Lodge,  
 Walgrave, Northampton,  
 NN6 9PY  
 Contact: Admin  
 Site Address: Hertfordshire Constabulary - Dog Unit

# SUMMARY REPORT

## DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd  
 Unit 8 Harrowden Road  
 Brackmills Industrial Estate  
 Northampton NN4 7EB



Environmental Science

Client Reference: STU5805  
 Job Number: 22-85749  
 Date Sampled: 08/09/2022  
 Date Received: 22/09/2022  
 Date Tested: 29/09/2022  
 Sampled By: Not Given

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

### Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC %	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2433718	TP02	Not Given	1.00	1.20	B	Yellowish brown slightly gravelly slightly sandy CLAY		15	Sample was quartered, oven dried at 107.4 °C			
2433720	WS01A	Not Given	1.20	1.40	D	Brown gravelly sandy CLAY		10	Sample was quartered, oven dried at 107.3 °C			
2433721	WS02	Not Given	1.80	1.90	D	Brown slightly gravelly sandy CLAY		14	Sample was quartered, oven dried at 107.3 °C			
2433722	WS03	Not Given	0.80	Not Given	D	Brown gravelly slightly sandy CLAY		7.7	Sample was quartered, oven dried at 107.3 °C			

Comments:

Signed:

Katarzyna Koziel  
 Technical Reviewer  
 for and on behalf of i2 Analytical Ltd

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4041

# TEST CERTIFICATE

## DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd  
Unit 8 Harrowden Road  
Brackmills Industrial Estate  
Northampton NN4 7EB



Environmental Science

Client: Soiltechnics Limited  
Client Address: Cedar Barn, White Lodge,  
Walgrave, Northampton,  
NN6 9PY  
Contact: Admin  
Site Address: Hertfordshire Constabulary - Dog Unit

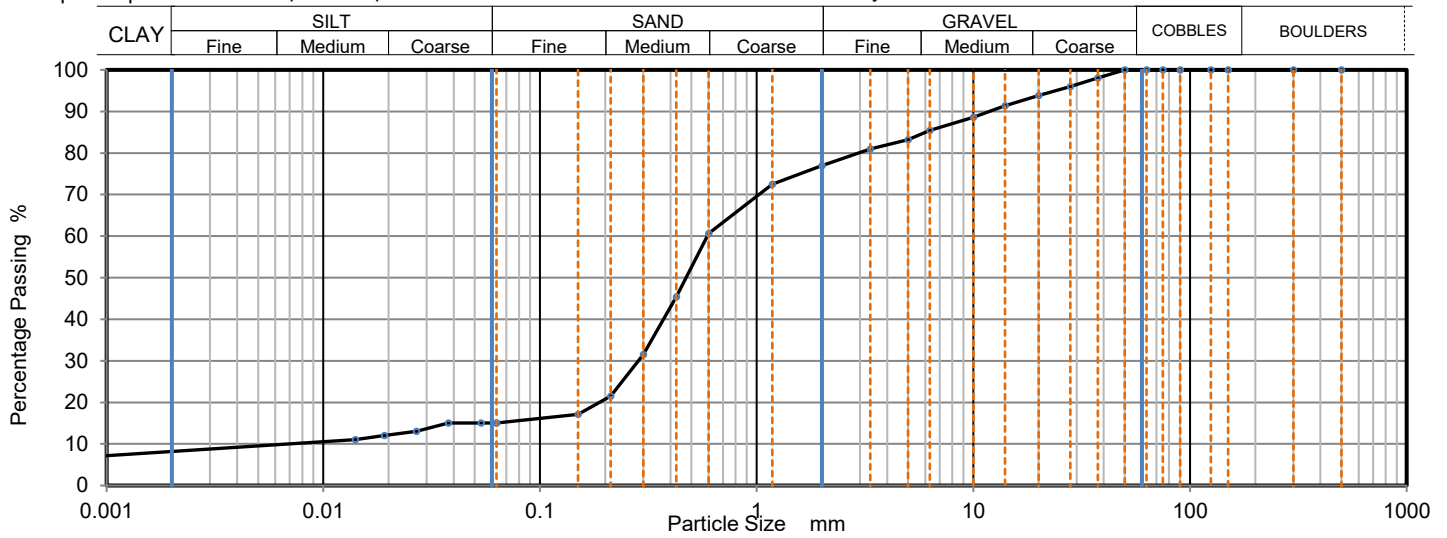
Client Reference: STU5805  
Job Number: 22-85749  
Date Sampled: 08/09/2022  
Date Received: 22/09/2022  
Date Tested: 29/09/2022  
Sampled By: Not Given

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

### Test Results:

Laboratory Reference: 2433717  
Hole No.: TP01  
Sample Reference: Not Given  
Sample Description: Yellowish brown gravelly silty clayey SAND  
Sample Preparation: Sample was quartered, oven dried at 106.3 °C and broken down by hand.

Depth Top [m]: 0.80  
Depth Base [m]: 1.20  
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	15
300	100	0.0534	15
150	100	0.0378	15
125	100	0.0269	13
90	100	0.0191	12
75	100	0.0140	11
63	100	0.009	7
50	100		
37.5	98		
28	96		
20	94		
14	91		
10	89		
6.3	85		
5	83		
3.35	81		
2	77	Particle density (assumed) 2.65 Mg/m3	
1.18	73		
0.6	61		
0.425	45		
0.3	32		
0.212	22		
0.15	17		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	62
Silt	7
Clay	8

Grading Analysis		
D100	mm	50
D60	mm	0.592
D30	mm	0.285
D10	mm	0.0065
Uniformity Coefficient		91
Curvature Coefficient		21

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:

Katarzyna Koziel  
Technical Reviewer  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

## DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd  
Unit 8 Harrowden Road  
Brackmills Industrial Estate  
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited  
Client Address: Cedar Barn, White Lodge,  
Walgrave, Northampton,  
NN6 9PY  
Contact: Admin  
Site Address: Hertfordshire Constabulary - Dog Unit

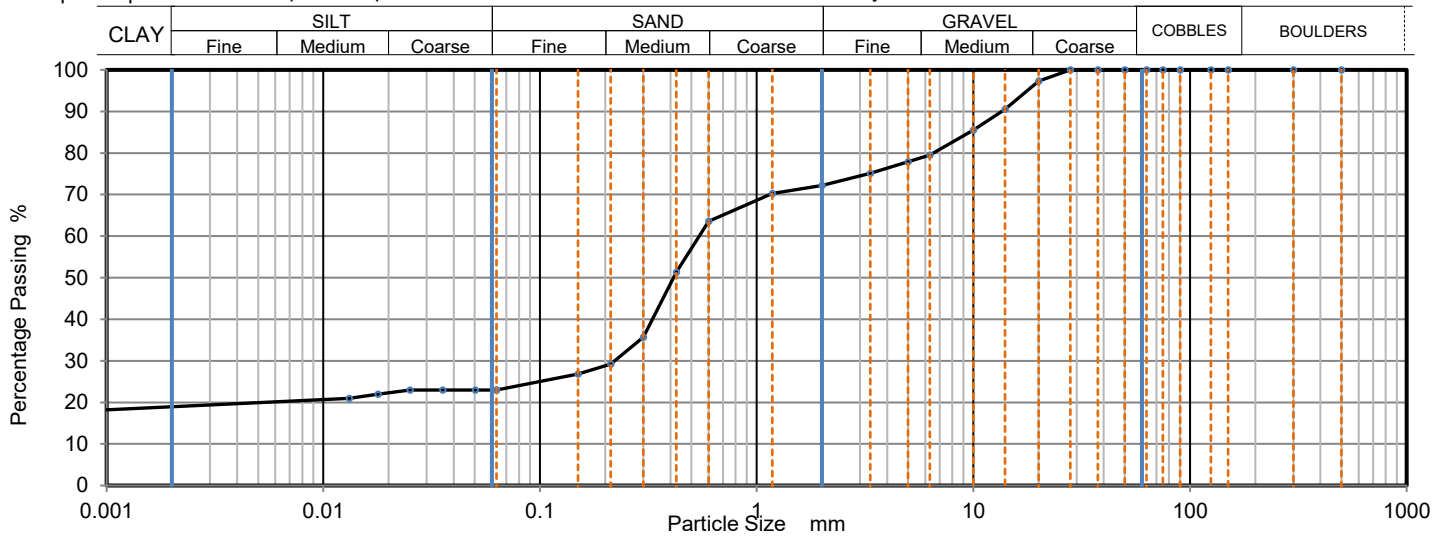
Client Reference: STU5805  
Job Number: 22-85749  
Date Sampled: 08/09/2022  
Date Received: 22/09/2022  
Date Tested: 29/09/2022  
Sampled By: Not Given

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

### Test Results:

Laboratory Reference: 2433719  
Hole No.: TP03  
Sample Reference: Not Given  
Sample Description: Yellowish brown clayey silty very gravelly SAND  
Sample Preparation: Sample was quartered, oven dried at 107.4 °C and broken down by hand.

Depth Top [m]: 1.10  
Depth Base [m]: 1.20  
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	23
300	100	0.0503	23
150	100	0.0355	23
125	100	0.0251	23
90	100	0.0179	22
75	100	0.0131	21
63	100	0.0008	18
50	100		
37.5	100		
28	100		
20	97		
14	91		
10	86		
6.3	80		
5	78		
3.35	75		
2	72	Particle density (assumed) 2.65 Mg/m <sup>3</sup>	
1.18	70		
0.6	64		
0.425	51		
0.3	36		
0.212	29		
0.15	27		
0.063	23		

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	49
Silt	4
Clay	19

Grading Analysis		
D100	mm	28
D60	mm	0.542
D30	mm	0.221
D10	mm	
Uniformity Coefficient		> 660
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:

Katarzyna Koziel  
Technical Reviewer  
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



## **Appendix I      Geoenvironmental Laboratory Test Results**



Lauren Wenham  
Soiltechnics Ltd  
White Lodge  
Cedar Barn  
Walgrave  
NN6 9PY

Derwentside Environmental Testing Services Ltd  
Unit 1  
Rose Lane Industrial Estate  
Rose Lane  
Lenham Heath  
Kent  
ME17 2JN  
t: 01622 850410

## DETS Report No: 22-07894

Site Reference: Hertfordshire Constabulary - Doa Unit

Project / Job Ref: STU5805

Order No: POR013635

Sample Receipt Date: 20/09/2022

Sample Scheduled Date: 21/09/2022

Report Issue Number: 1

Reporting Date: 27/09/2022

Authorised by:

Dave Ashworth  
Technical Manager

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

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

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



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



Soil Analysis Certificate						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP020.001	TP020.803	TP030.302	TP030.503	TP040.001
Project / Job Ref: STU5805	Additional Refs	TP02	TP02	TP03	TP03	TP04
Order No: POR013635	Depth (m)	0.00 - 0.10	0.80 - 0.90	0.30 - 0.40	0.50 - 0.60	0.00 - 0.10
Reporting Date: 27/09/2022	DETS Sample No	613561	613562	613563	613564	613565

Determinand	Unit	RL	Accreditation				
Asbestos Screen <sup>(S)</sup>	N/a	N/a	ISO17025	Not Detected		Not Detected	Not Detected
pH	pH Units	N/a	MCERTS		7.9		7.7
Total Cyanide	mg/kg	< 2	NONE		< 2		< 2
Free Cyanide	mg/kg	< 2	NONE		< 2		< 2
W/S Sulphate as SO <sub>4</sub> (2:1)	mg/l	< 10	MCERTS		15		16
W/S Sulphate as SO <sub>4</sub> (2:1)	g/l	< 0.01	MCERTS		0.01		0.02
Sulphide	mg/kg	< 5	NONE		< 5		< 5
TOC (Total Organic Carbon)	%	< 0.1	MCERTS		0.3		1
Ammoniacal Nitrogen as NH <sub>4</sub>	mg/kg	< 0.5	ISO17025		1.4		0.9
Antimony (Sb)	mg/kg	< 1	NONE		4.5		3.5
Arsenic (As)	mg/kg	< 2	MCERTS		24		19
Barium (Ba)	mg/kg	< 2.5	MCERTS		42		58
Beryllium (Be)	mg/kg	< 0.5	MCERTS		1		0.7
W/S Boron	mg/kg	< 1	NONE		< 1		< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS		< 0.2		0.2
Chromium (III)	mg/kg	< 2	NONE		22		20
Chromium (hexavalent)	mg/kg	< 2	NONE		< 2		< 2
Copper (Cu)	mg/kg	< 4	MCERTS		23		33
Lead (Pb)	mg/kg	< 3	MCERTS		14		79
Mercury (Hg)	mg/kg	< 1	MCERTS		< 1		< 1
Nickel (Ni)	mg/kg	< 3	MCERTS		24		18
Selenium (Se)	mg/kg	< 2	MCERTS		< 3		< 3
Vanadium (V)	mg/kg	< 1	MCERTS		45		33
Zinc (Zn)	mg/kg	< 3	MCERTS		80		84
Magnesium	mg/kg	< 50	NONE		1210		893

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



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



Soil Analysis Certificate						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP040.503	TP050.001	TP060.001	WS010.001	WS010.302
Project / Job Ref: STU5805	Additional Refs	TP04	TP05	TP06	WS01	WS01
Order No: POR013635	Depth (m)	0.50 - 0.60	0.00 - 0.10	0.00 - 0.10	0.00 - 0.10	0.30 - 0.40
Reporting Date: 27/09/2022	DETS Sample No	613566	613567	613568	613569	613570

Determinand	Unit	RL	Accreditation				
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.7	7.6	7.7	
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	
W/S Sulphate as SO <sub>4</sub> (2:1)	mg/l	< 10	MCERTS	< 10	< 10	< 10	
W/S Sulphate as SO <sub>4</sub> (2:1)	g/l	< 0.01	MCERTS	< 0.01	< 0.01	< 0.01	
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	0.3	1.3	3.1	
Ammoniacal Nitrogen as NH <sub>4</sub>	mg/kg	< 0.5	ISO17025	1	0.9	2.1	
Antimony (Sb)	mg/kg	< 1	NONE	3.8	3	2.8	
Arsenic (As)	mg/kg	< 2	MCERTS	17	16	13	
Barium (Ba)	mg/kg	< 2.5	MCERTS	40	59	51	
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.1	0.8	0.6	
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	0.6	
Chromium (III)	mg/kg	< 2	NONE	27	24	20	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	23	14	26	
Lead (Pb)	mg/kg	< 3	MCERTS	19	15	58	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	32	21	16	
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	
Vanadium (V)	mg/kg	< 1	MCERTS	48	40	31	
Zinc (Zn)	mg/kg	< 3	MCERTS	77	51	81	
Magnesium	mg/kg	< 50	NONE	1990	1280	979	

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



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



Soil Analysis Certificate						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	WS01A0.302	WS01A0.804	WS020.001	WS021.103	WS030.001
Project / Job Ref: STU5805	Additional Refs	WS01A	WS01A	WS02	WS02	WS03
Order No: POR013635	Depth (m)	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20	0.00 - 0.10
Reporting Date: 27/09/2022	DETS Sample No	613571	613572	613573	613574	613575

Determinand	Unit	RL	Accreditation	08/09/22	08/09/22	08/09/22	08/09/22
Asbestos Screen <sup>(S)</sup>	N/a	N/a	ISO17025	Not Detected		Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.6	7.7	7.8	7.7
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
W/S Sulphate as SO <sub>4</sub> (2:1)	mg/l	< 10	MCERTS	< 10	< 10	24	17
W/S Sulphate as SO <sub>4</sub> (2:1)	g/l	< 0.01	MCERTS	< 0.01	< 0.01	0.02	0.02
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	0.9	0.4	0.9	0.9
Ammoniacal Nitrogen as NH <sub>4</sub>	mg/kg	< 0.5	ISO17025	1.3	0.9	1.5	1.5
Antimony (Sb)	mg/kg	< 1	NONE	3.4	3.4	5.3	4.1
Arsenic (As)	mg/kg	< 2	MCERTS	20	20	21	27
Barium (Ba)	mg/kg	< 2.5	MCERTS	67	39	45	24
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.7	0.7	0.9	1
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	< 0.2	< 0.2	< 0.2
Chromium (III)	mg/kg	< 2	NONE	19	17	22	25
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	19	13	16	14
Lead (Pb)	mg/kg	< 3	MCERTS	35	13	38	14
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	21	21	21	23
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	35	35	46	43
Zinc (Zn)	mg/kg	< 3	MCERTS	102	91	78	88
Magnesium	mg/kg	< 50	NONE	857	865	903	547

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



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



Soil Analysis Certificate						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	WS030.503	WS031.205	WS040.001	WS041.403	
Project / Job Ref: STU5805	Additional Refs	WS03	WS03	WS04	WS04	
Order No: POR013635	Depth (m)	0.50 - 0.60	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50	
Reporting Date: 27/09/2022	DETS Sample No	613576	613577	613578	613579	

Determinand	Unit	RL	Accreditation				
Asbestos Screen <sup>(S)</sup>	N/a	N/a	ISO17025	Not Detected		Not Detected	
pH	pH Units	N/a	MCERTS	7.6	7.7	7.6	7.5
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
W/S Sulphate as SO <sub>4</sub> (2:1)	mg/l	< 10	MCERTS	17	12	24	26
W/S Sulphate as SO <sub>4</sub> (2:1)	g/l	< 0.01	MCERTS	0.02	0.01	0.02	0.03
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	0.4	0.3	1.3	0.9
Ammoniacal Nitrogen as NH <sub>4</sub>	mg/kg	< 0.5	ISO17025	1.5	2.6	2.2	5.2
Antimony (Sb)	mg/kg	< 1	NONE	4.1	2.9	2.9	3.6
Arsenic (As)	mg/kg	< 2	MCERTS	24	16	16	23
Barium (Ba)	mg/kg	< 2.5	MCERTS	39	26	52	55
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.9	0.7	0.6	0.8
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	0.3	< 0.2
Chromium (III)	mg/kg	< 2	NONE	33	19	20	22
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	18	16	21	17
Lead (Pb)	mg/kg	< 3	MCERTS	14	16	43	20
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	25	18	15	25
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	48	36	28	40
Zinc (Zn)	mg/kg	< 3	MCERTS	82	70	61	95
Magnesium	mg/kg	< 50	NONE	943	776	778	725

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



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



Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP020.803	TP030.503	TP040.001	TP040.503	TP050.001
Project / Job Ref: STU5805	Additional Refs	TP02	TP03	TP04	TP04	TP05
Order No: POR013635	Depth (m)	0.80 - 0.90	0.50 - 0.60	0.00 - 0.10	0.50 - 0.60	0.00 - 0.10
Reporting Date: 27/09/2022	DETS Sample No	613562	613564	613565	613566	613567

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	0.12	0.20	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.29	0.32	< 0.1	0.13
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.27	0.28	< 0.1	0.12
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.14	0.15	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	0.15	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	0.16	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP060.001	WS01A0.302	WS01A0.804	WS020.001	WS021.103
Project / Job Ref: STU5805	Additional Refs	TP06	WS01A	WS01A	WS02	WS02
Order No: POR013635	Depth (m)	0.00 - 0.10	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20
Reporting Date: 27/09/2022	DETS Sample No	613568	613571	613572	613573	613574

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.24	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.23	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.13	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.15	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.14	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6





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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	WS030.503	WS031.205	WS040.001	WS041.403	
Project / Job Ref: STU5805	Additional Refs	WS03	WS03	WS04	WS04	
Order No: POR013635	Depth (m)	0.50 - 0.60	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50	
Reporting Date: 27/09/2022	DETS Sample No	613576	613577	613578	613579	

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.20	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.12	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.11	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6



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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP020.803	TP030.503	TP040.001	TP040.503	TP050.001
Project / Job Ref: STU5805	Additional Refs	TP02	TP03	TP04	TP04	TP05
Order No: POR013635	Depth (m)	0.80 - 0.90	0.50 - 0.60	0.00 - 0.10	0.50 - 0.60	0.00 - 0.10
Reporting Date: 27/09/2022	DETS Sample No	613562	613564	613565	613566	613567

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



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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP060.001	WS01A0.302	WS01A0.804	WS020.001	WS021.103
Project / Job Ref: STU5805	Additional Refs	TP06	WS01A	WS01A	WS02	WS02
Order No: POR013635	Depth (m)	0.00 - 0.10	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20
Reporting Date: 27/09/2022	DETS Sample No	613568	613571	613572	613573	613574

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



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	WS030.503	WS031.205	WS040.001	WS041.403
Project / Job Ref: STU5805	Additional Refs	WS03	WS03	WS04	WS04
Order No: POR013635	Depth (m)	0.50 - 0.60	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50
Reporting Date: 27/09/2022	DETS Sample No	613576	613577	613578	613579

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



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP020.803	TP030.503	TP040.001	TP040.503	TP050.001
Project / Job Ref: STU5805	Additional Refs	TP02	TP03	TP04	TP04	TP05
Order No: POR013635	Depth (m)	0.80 - 0.90	0.50 - 0.60	0.00 - 0.10	0.50 - 0.60	0.00 - 0.10
Reporting Date: 27/09/2022	DETS Sample No	613562	613564	613565	613566	613567

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



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP060.001	WS01A0.302	WS01A0.804	WS020.001	WS021.103
Project / Job Ref: STU5805	Additional Refs	TP06	WS01A	WS01A	WS02	WS02
Order No: POR013635	Depth (m)	0.00 - 0.10	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20
Reporting Date: 27/09/2022	DETS Sample No	613568	613571	613572	613573	613574

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



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	WS030.503	WS031.205	WS040.001	WS041.403	
Project / Job Ref: STU5805	Additional Refs	WS03	WS03	WS04	WS04	
Order No: POR013635	Depth (m)	0.50 - 0.60	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50	
Reporting Date: 27/09/2022	DETS Sample No	613576	613577	613578	613579	

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



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Soil Analysis Certificate - Speciated Phenols						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP020.803	TP030.503	TP040.001	TP040.503	TP050.001
Project / Job Ref: STU5805	Additional Refs	TP02	TP03	TP04	TP04	TP05
Order No: POR013635	Depth (m)	0.80 - 0.90	0.50 - 0.60	0.00 - 0.10	0.50 - 0.60	0.00 - 0.10
Reporting Date: 27/09/2022	DETS Sample No	613562	613564	613565	613566	613567

Determinand	Unit	RL	Accreditation					
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C





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Soil Analysis Certificate - Speciated Phenols						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP060.001	WS01A0.302	WS01A0.804	WS020.001	WS021.103
Project / Job Ref: STU5805	Additional Refs	TP06	WS01A	WS01A	WS02	WS02
Order No: POR013635	Depth (m)	0.00 - 0.10	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20
Reporting Date: 27/09/2022	DETS Sample No	613568	613571	613572	613573	613574

Determinand	Unit	RL	Accreditation					
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Speciated Phenols						
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22	08/09/22	08/09/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	WS030.503	WS031.205	WS040.001	WS041.403	
Project / Job Ref: STU5805	Additional Refs	WS03	WS03	WS04	WS04	
Order No: POR013635	Depth (m)	0.50 - 0.60	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50	
Reporting Date: 27/09/2022	DETS Sample No	613576	613577	613578	613579	

Determinand	Unit	RL	Accreditation					
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Organochlorine Pesticides					
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22		
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP050.001	TP060.001		
Project / Job Ref: STU5805	Additional Refs	TP05	TP06		
Order No: POR013635	Depth (m)	0.00 - 0.10	0.00 - 0.10		
Reporting Date: 27/09/2022	DETS Sample No	613567	613568		

Determinand	Unit	RL	Accreditation				
Aldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
alpha-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
beta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
cis-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
delta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Dieldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Endosulfan A	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Endosulfan B	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Endrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
gamma-HCH (Lindane)	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Heptachlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Heptachlor epoxide	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Hexachlorobenzene (HCB)	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Isodrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Methoxychlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
o,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
o,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
o,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
p,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
p,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
p,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
trans-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02		
Trifluralin	mg/kg	< 0.02	NONE	< 0.02	< 0.02		



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Soil Analysis Certificate - Organophosphorus Pesticides					
DETS Report No: 22-07894	Date Sampled	08/09/22	08/09/22		
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Hertfordshire Constabulary - Dog Unit	TP / BH No	TP050.001	TP060.001		
Project / Job Ref: STU5805	Additional Refs	TP05	TP06		
Order No: POR013635	Depth (m)	0.00 - 0.10	0.00 - 0.10		
Reporting Date: 27/09/2022	DETS Sample No	613567	613568		

Determinand	Unit	RL	Accreditation				
Azinphos-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Chlorfenvinphos, alpha	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Chlorfenvinphos, beta	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Chlorpyrifos-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Diazinon	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Dichlorvos	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Dimethoate	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Fenitrothion	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Fenthion	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Malathion	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
<b>Mevinphos, E</b>	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Mevinphos, (Z)	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Parathion-ethyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Parathion-methyl	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
Phorate	mg/kg	< 0.1	NONE	< 0.1	< 0.1		









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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 22-07894	
Soiltechnics Ltd	
Site Reference: Hertfordshire Constabulary - Dog Unit	
Project / Job Ref: STU5805	
Order No: POR013635	
Reporting Date: 27/09/2022	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
\$ 613562	TP020.803	TP02	0.80 - 0.90	13.3	Red sandy clay
\$ 613564	TP030.503	TP03	0.50 - 0.60	8.2	Brown sandy clay with stones
\$ 613565	TP040.001	TP04	0.00 - 0.10	11.7	Brown sandy clay with stones and vegetation
\$ 613566	TP040.503	TP04	0.50 - 0.60	13.3	Brown sandy clay
\$ 613567	TP050.001	TP05	0.00 - 0.10	7.2	Brown sandy clay with stones
\$ 613568	TP060.001	TP06	0.00 - 0.10	20.3	Brown loamy sand with stones and vegetation
\$ 613571	WS01A0.302	WS01A	0.30 - 0.40	9.2	Brown sandy clay with stones
\$ 613572	WS01A0.804	WS01A	0.80 - 0.90	8	Light brown sandy clay with stones
\$ 613573	WS020.001	WS02	0.00 - 0.10	9.3	Brown sandy clay with stones
\$ 613574	WS021.103	WS02	1.10 - 1.20	8.9	Light brown sandy clay with stones
\$ 613576	WS030.503	WS03	0.50 - 0.60	8.2	Light brown sandy clay with stones
\$ 613577	WS031.205	WS03	1.20 - 1.30	9	Light brown sandy clay with stones
\$ 613578	WS040.001	WS04	0.00 - 0.10	10.6	Brown sandy clay with stones and vegetation
\$ 613579	WS041.403	WS04	1.40 - 1.50	9.1	Brown sandy clay with stones

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

Insufficient Sample <sup>1/5</sup>

Unsuitable Sample <sup>U/S</sup>

\$ samples exceeded recommended holding times



Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No:	22-07894
Soiltechnics Ltd	
Site Reference:	Hertfordshire Constabulary - Dog Unit
Project / Job Ref:	STU5805
Order No:	POR013635
Reporting Date:	27/09/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content: determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCS	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried  
AR As Received

<b>Water Analysis Certificate - Methodology &amp; Miscellaneous Information</b>	
DETS Report No: 22-07894	
Soiltechnics Ltd	
Site Reference: Hertfordshire Constabulary - Dog Unit	
Project / Job Ref: STU5805	
Order No: POR013635	
Reporting Date: 27/09/2022	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LOM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

**Key**

F Filtered  
UF Unfiltered

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	20.0	%
Loss on Ignition	Soil	BS EN 12457	35.0	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	23.0	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	11.6	%
pH	Soil	BS EN 12457	0.28	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	18.7	%
Barium	Leachate	BS EN 12457	11.6	%
Cadmium	Leachate	BS EN 12457	20.3	%
Chromium	Leachate	BS EN 12457	18.3	%
Copper	Leachate	BS EN 12457	24.3	%
Mercury	Leachate	BS EN 12457	23.7	%
Molybdenum	Leachate	BS EN 12457	14.7	%
Nickel	Leachate	BS EN 12457	16.1	%
Lead	Leachate	BS EN 12457	15.7	%
Antimony	Leachate	BS EN 12457	17.9	%
Selenium	Leachate	BS EN 12457	22.0	%
Zinc	Leachate	BS EN 12457	17.4	%
Chloride	Leachate	BS EN 12457	15.3	%
Fluoride	Leachate	BS EN 12457	16.4	%
Sulphate	Leachate	BS EN 12457	20.6	%
TDS	Leachate	BS EN 12457	12.0	%
Phenol Index	Leachate	BS EN 12457	14.0	%
DOC	Leachate	BS EN 12457	10.0	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	35.0	%
pH	Soil	BS 3882: 2015	0.14	Units
Carbonate	Soil	BS 3882: 2015	16.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	14.9	%
Copper	Soil	BS 3882: 2015	16.0	%
Nickel	Soil	BS 3882: 2015	17.7	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

## **Appendix J      Post Fieldwork monitoring**

## Ground gas and groundwater monitoring results

### Notes

- 1) The instrument limit of detection has been adopted where no gas flows or concentrations have been recorded (indicated in grey italics).
- 2) Atmospheric temperature (\*) data sourced from local weather station data.
- 3) CH4 = methane; CO2 = carbon dioxide; O2 = oxygen; PPM = parts per million CO = carbon monoxide; H2S = hydrogen sulphide.
- 4) Gas Screening Values (GSVs) are rounded to 3 decimal places.

									Worst case scenario												
									Average scenario												
Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH <sub>4</sub> (%v/v)		CO <sub>2</sub> (%v/v)		O <sub>2</sub> (%v/v)		Other Gases (PPM)		GSV (CH <sub>4</sub> )		GSV (CO <sub>2</sub> )	
				Response Zone (mBGL)	Flooded					Peak	Steady	Peak	Steady	Minimum	Average	CO	H <sub>2</sub> S	Peak	Steady	Peak	Steady
16/09/2022	15:37	WS01A	1	1.00 - 3.00	No	1010	15	Dry	0	0.0	0.0	2.8	2.6	16.8	16.9	0	1	0.000	0.000	0.002	0.002
23/09/2022	13:51	WS01A	1	1.00 - 3.00	No	1007	17	Dry	-0.1	0.0	0.0	3.3	2.8	16.9	17.5	0	0	0.000	0.000	0.003	0.002
30/09/2022	10:48	WS01A	1	1.00 - 3.00	No	1000	11	Dry	0	0.0	0.0	3.1	2.8	18.4	18.6	0	0	0.000	0.000	0.003	0.002
07/10/2022	10:34	WS01A	1	1.00 - 3.00	No	1011	14	Dry	0	0.0	0.0	3.2	2.8	17.4	17.9	0	1	0.000	0.000	0.003	0.002
14/10/2022	10:26	WS01A	1	1.00 - 3.00	No	1008	12	Dry	0	0.0	0.0	3.1	2.6	17.6	18.0	0	0	0.000	0.000	0.003	0.002
21/10/2022	09:47	WS01A	1	1.00 - 3.00	No	993	14	Dry	0	0.0	0.0	3.6	2.9	16.5	17.0	0	0	0.000	0.000	0.003	0.002
16/09/2022	15:19	WS02	1	1.00 - 3.00	No	1011	15	Dry	0	0.0	0.0	2.5	1.2	17.3	20.0	0	1	0.000	0.000	0.002	0.001
23/09/2022	14:28	WS02	1	1.00 - 3.00	No	1007	16	Dry	0	0.0	0.0	3.1	2.5	17.1	18.5	0	1	0.000	0.000	0.003	0.002
30/09/2022	11:28	WS02	1	1.00 - 3.00	No	1001	12	Dry	-0.1	0.0	0.0	3.4	1.1	18.1	20.7	0	0	0.000	0.000	0.003	0.001
07/10/2022	10:59	WS02	1	1.00 - 3.00	No	1011	16	Dry	0	0.0	0.0	3.0	2.6	18.1	18.8	0	1	0.000	0.000	0.003	0.002
14/10/2022	11:01	WS02	1	1.00 - 3.00	No	1007	12	Dry	0	0.0	0.0	3.3	3.1	17.2	17.3	0	1	0.000	0.000	0.003	0.003
21/10/2022	10:06	WS02	1	1.00 - 3.00	No	993	14	Dry	-0.2	0.0	0.0	3.5	3.4	16.3	16.4	0	0	0.000	0.000	0.006	0.006
16/09/2022	14:54	WS03	1	1.20 - 2.00	No	1011	15	Dry	-0.1	0.0	0.0	7.8	4.4	12.6	16.4	0	0	0.000	0.000	0.007	0.004
23/09/2022	15:15	WS03	1	1.20 - 2.00	No	1008	16	Dry	0	0.0	0.0	8.7	4.8	11.9	16.7	0	2	0.000	0.000	0.007	0.004
30/09/2022	12:09	WS03	1	1.20 - 2.00	No	1000	13	Dry	0	0.0	0.0	8.6	1.5	12.8	20.5	0	0	0.000	0.000	0.007	0.001
07/10/2022	11:43	WS03	1	1.20 - 2.00	No	1011	16	Dry	-0.1	0.0	0.0	8.6	1.9	11.9	19.9	0	2	0.000	0.000	0.007	0.002
14/10/2022	11:33	WS03	1	1.20 - 2.00	No	1007	13	Dry	0	0.0	0.0	8.4	2.7	12.1	18.9	0	2	0.000	0.000	0.007	0.002
21/10/2022	10:42	WS03	1	1.20 - 2.00	No	993	15	Dry	0.1	0.0	0.0	9.1	2.1	11.0	19.1	0	1	0.000	0.000	0.008	0.002
16/09/2022	14:26	WS04	1	1.00 - 1.50	Yes	1011	15	0.93	0	0.0	0.0	0.8	0.1	20.1	20.6	0	0	0.000	0.000	0.001	0.000
23/09/2022	15:51	WS04	1	1.00 - 1.50	No	1008	16	Dry	0	0.0	0.0	0.4	0.1	19.9	20.8	0	0	0.000	0.000	0.000	0.000
30/09/2022	12:30	WS04	1	1.00 - 1.50	No	1001	14	1.03	0	0.0	0.0	1.1	0.1	20.1	21.2	0	0	0.000	0.000	0.001	0.000
07/10/2022	12:10	WS04	1	1.00 - 1.50	No	1011	17	1.12	0.1	0.0	0.0	1.0	0.2	20.2	21.0	0	2	0.000	0.000	0.001	0.000
14/10/2022	11:56	WS04	1	1.00 - 1.50	No	1007	13	1.20	-0.1	0.0	0.0	1.2	0.5	20.5	20.9	0	2	0.000	0.000	0.001	0.000
21/10/2022	11:05	WS04	1	1.00 - 1.50	No	993	15	1.34	0	0.0	0.0	1.1	0.9	20.0	20.2	0	1	0.000	0.000	0.001	0.001

## **Appendix K      Contamination Assessment Screening**

## GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	Completed	27/10/22	KB	SD
Chronic human health risk - Soils	Completed	27/10/22	KB	SD
<i>Chronic human health risk - Groundwater vapour</i>	<i>Not undertaken</i>			
<i>Controlled waters risk - Surface water</i>	<i>Not undertaken</i>			
<i>Controlled waters risk - Drinking water</i>	<i>Not undertaken</i>			
<i>Controlled waters - Free phase indicator</i>	<i>Not undertaken</i>			
<i>Phytotoxicity</i>	<i>Not undertaken</i>			
<i>Ecotoxicity</i>	<i>Not undertaken</i>			

## Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Acute human health risk - Soils	AGAC	Acute Generic Assessment Criteria (SoBRA)	April 2019
	**sat.**	Contaminant poses a low acute risk unless the soil saturation limit is exceeded and a free oil phase is present.	April 2019
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010

**Chronic human health risk (soils)**

Scenario	
End user	Proposed site user
Receptor	POS (Park)
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	TP02	TP02	TP03	TP03	TP04	TP04	TP05
				Depth (m)	0.00 - 0.10	0.80 - 0.90	0.30 - 0.40	0.50 - 0.60	0.00 - 0.10	0.50 - 0.60	0.00 - 0.10
				Date	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
<b>Inorganics - Metals</b>											
Arsenic	C4SL	170	27			24		19	21	17	16
Beryllium	S4UL	63	1.1			1		0.7	0.8	1.1	0.8
Boron	S4UL	46000	<LoD			<1		<1	<1	<1	<1
Cadmium	C4SL	880	0.6			<0.2		0.2	0.5	<0.2	<0.2
Chromium (VI)	C4SL	250	<LoD			<2		<2	<2	<2	<2
Copper	S4UL	44000	33			23		33	26	23	14
Cyanide - Free	-	-	<LoD			<2		<2	<2	<2	<2
Lead	C4SL	1300	79			14		79	45	19	15
Mercury	S4UL	240	<LoD			<1		<1	<1	<1	<1
Nickel	S4UL	800	32			24		18	22	32	21
Selenium	S4UL	1800	<LoD			<3		<3	<3	<3	<3
Vanadium	S4UL	5000	48			45		33	39	48	40
Zinc	S4UL	170000	102			80		84	95	77	51
<b>Inorganics - Asbestos</b>											
Asbestos Screen		N/A			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
<b>Organics - PAH &amp; Phenol</b>											
Acenaphthene	S4UL	29000	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Acenaphthylene	S4UL	29000	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Anthracene	S4UL	150000	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	S4UL	49	0.15			<0.1		0.14	0.15	<0.1	<0.1
Benzo(a)pyrene	C4SL	21	0.13			<0.1		0.13	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	S4UL	13	0.17			<0.1		0.17	0.16	<0.1	<0.1
Benzo(ghi)perylene	S4UL	1400	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	S4UL	370	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Chrysene	S4UL	93	0.17			<0.1		0.17	0.15	<0.1	<0.1
Dibenz(a,h)anthracene	S4UL	1.1	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Fluoranthene	S4UL	6300	0.32			<0.1		0.29	0.32	<0.1	0.13
Fluorene	S4UL	20000	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	S4UL	150	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Naphthalene	S4UL	1200	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Phenanthrene	S4UL	6200	0.2			<0.1		0.12	0.2	<0.1	<0.1
Phenol	S4UL	440	<LoD			<0.1		<0.1	<0.1	<0.1	<0.1
Pyrene	S4UL	15000	0.28			<0.1		0.27	0.28	<0.1	0.12
<b>Organics - TPH CWG and BTEX</b>											
Benzene	C4SL	230	<LoD			<0.002		<0.002	<0.002	<0.002	<0.002
Toluene	S4UL	87000	<LoD			<0.005		<0.005	<0.005	<0.005	<0.005
Ethylbenzene	S4UL	17000	<LoD			<0.002		<0.002	<0.002	<0.002	<0.002
o-Xylene	S4UL	17000	<LoD			<0.002		<0.002	<0.002	<0.002	<0.002
m & p-xylene	S4UL	17000	<LoD			<0.002		<0.002	<0.002	<0.002	<0.002
Xylenes (sum of)	S4UL	17000	<LoD			<LoD		<LoD	<LoD	<LoD	<LoD
EC05 - EC06 Aliphatic	S4UL	95000	<LoD			<0.01		<0.01	<0.01	<0.01	<0.01
EC>06 - EC08 Aliphatic	S4UL	150000	<LoD			<0.05		<0.05	<0.05	<0.05	<0.05
EC>08 - EC10 Aliphatic	S4UL	14000	<LoD			<2		<2	<2	<2	<2
EC>10 - EC12 Aliphatic	S4UL	21000	<LoD			<2		<2	<2	<2	<2
EC>12 - EC16 Aliphatic	S4UL	25000	<LoD			<3		<3	<3	<3	<3
EC>16 - EC21 Aliphatic	S4UL	450000	<LoD			<3		<3	<3	<3	<3
EC>21 - EC35 Aliphatic	S4UL	450000	<LoD			<10		<10	<10	<10	<10
EC5 - EC7 (benzene)	S4UL	76000	<LoD			<0.01		<0.01	<0.01	<0.01	<0.01
EC7 - >EC8 (toluene)	S4UL	87000	<LoD			<0.05		<0.05	<0.05	<0.05	<0.05
EC>08 - EC10 Aromatic	S4UL	7200	<LoD			<2		<2	<2	<2	<2
EC>10 - EC12 Aromatic	S4UL	9200	<LoD			<2		<2	<2	<2	<2
EC>12 - EC16 Aromatic	S4UL	10000	<LoD			<2		<2	<2	<2	<2
EC>16 - EC21 Aromatic	S4UL	7600	<LoD			<3		<3	<3	<3	<3
EC>21 - EC35 Aromatic	S4UL	7800	<LoD			<10		<10	<10	<10	<10
<b>Organics - Volatile Organic Compounds (VOCs)</b>											
MTBE	ATK	70800	<LoD			<0.005		<0.005	<0.005	<0.005	<0.005
<b>Organics - Semi-Volatile Organic Compounds (SVOCs)</b>											
Hexachlorobenzene	S4UL	30	<LoD								<0.02



**Chronic human health risk (soils)**

Scenario	
End user	Proposed site user
Receptor	POS (Park)
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	TP06	WS01	WS01	WS01A	WS01A	WS02	WS02
				Depth (m)	0.00 - 0.10	0.00 - 0.10	0.30 - 0.40	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20
				Date	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
<b>Inorganics - Metals</b>											
Arsenic	C4SL	170	27		13			20	20	21	27
Beryllium	S4UL	63	1.1		0.6			0.7	0.7	0.9	1
Boron	S4UL	46000	<LoD		<1			<1	<1	<1	<1
Cadmium	C4SL	880	0.6		0.6			0.2	<0.2	<0.2	<0.2
Chromium (VI)	C4SL	250	<LoD		<2			<2	<2	<2	<2
Copper	S4UL	44000	33		26			19	13	16	14
Cyanide - Free	-	-	<LoD		<2			<2	<2	<2	<2
Lead	C4SL	1300	79		58			35	13	38	14
Mercury	S4UL	240	<LoD		<1			<1	<1	<1	<1
Nickel	S4UL	800	32		16			21	21	21	23
Selenium	S4UL	1800	<LoD		<3			<3	<3	<3	<3
Vanadium	S4UL	5000	48		31			35	35	46	43
Zinc	S4UL	170000	102		81			102	91	78	88
<b>Inorganics - Asbestos</b>											
Asbestos Screen		N/A			Not Detected	Not Detected	Not Detected	Not Detected		Not Detected	
<b>Organics - PAH &amp; Phenol</b>											
Acenaphthene	S4UL	29000	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Acenaphthylene	S4UL	29000	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Anthracene	S4UL	150000	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	S4UL	49	0.15		0.13			<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	C4SL	21	0.13		<0.1			<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	S4UL	13	0.17		0.14			<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	S4UL	1400	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	S4UL	370	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Chrysene	S4UL	93	0.17		0.15			<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	S4UL	1.1	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Fluoranthene	S4UL	6300	0.32		0.24			<0.1	<0.1	<0.1	<0.1
Fluorene	S4UL	20000	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	S4UL	150	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Naphthalene	S4UL	1200	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Phenanthrene	S4UL	6200	0.2		<0.1			<0.1	<0.1	<0.1	<0.1
Phenol	S4UL	440	<LoD		<0.1			<0.1	<0.1	<0.1	<0.1
Pyrene	S4UL	15000	0.28		0.23			<0.1	<0.1	<0.1	<0.1
<b>Organics - TPH CWG and BTEX</b>											
Benzene	C4SL	230	<LoD		<0.002			<0.002	<0.002	<0.002	<0.002
Toluene	S4UL	87000	<LoD		<0.005			<0.005	<0.005	<0.005	<0.005
Ethylbenzene	S4UL	17000	<LoD		<0.002			<0.002	<0.002	<0.002	<0.002
o-Xylene	S4UL	17000	<LoD		<0.002			<0.002	<0.002	<0.002	<0.002
m & p-xylene	S4UL	17000	<LoD		<0.002			<0.002	<0.002	<0.002	<0.002
Xylenes (sum of)	S4UL	17000	<LoD		<LoD			<LoD	<LoD	<LoD	<LoD
EC05 - EC06 Aliphatic	S4UL	95000	<LoD		<0.01			<0.01	<0.01	<0.01	<0.01
EC06 - EC08 Aliphatic	S4UL	150000	<LoD		<0.05			<0.05	<0.05	<0.05	<0.05
EC08 - EC10 Aliphatic	S4UL	14000	<LoD		<2			<2	<2	<2	<2
EC10 - EC12 Aliphatic	S4UL	21000	<LoD		<2			<2	<2	<2	<2
EC12 - EC16 Aliphatic	S4UL	25000	<LoD		<3			<3	<3	<3	<3
EC16 - EC21 Aliphatic	S4UL	450000	<LoD		<3			<3	<3	<3	<3
EC21 - EC35 Aliphatic	S4UL	450000	<LoD		<10			<10	<10	<10	<10
EC5 - EC7 (benzene)	S4UL	76000	<LoD		<0.01			<0.01	<0.01	<0.01	<0.01
EC7 - >EC8 (toluene)	S4UL	87000	<LoD		<0.05			<0.05	<0.05	<0.05	<0.05
EC08 - EC10 Aromatic	S4UL	7200	<LoD		<2			<2	<2	<2	<2
EC10 - EC12 Aromatic	S4UL	9200	<LoD		<2			<2	<2	<2	<2
EC12 - EC16 Aromatic	S4UL	10000	<LoD		<2			<2	<2	<2	<2
EC16 - EC21 Aromatic	S4UL	7600	<LoD		<3			<3	<3	<3	<3
EC21 - EC35 Aromatic	S4UL	7800	<LoD		<10			<10	<10	<10	<10
<b>Organics - Volatile Organic Compounds (VOCs)</b>											
MTBE	ATK	70800	<LoD		<0.005			<0.005	<0.005	<0.005	<0.005
<b>Organics - Semi-Volatile Organic Compounds (SVOCs)</b>											
Hexachlorobenzene	S4UL	30	<LoD		<0.02						

**Chronic human health risk (soils)**

Scenario	
End user	Proposed site user
Receptor	POS (Park)
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	WS03	WS03	WS03	WS04	WS04
				Depth (m)	0.00 - 0.10	0.50 - 0.60	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50
				Date	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
<b>Inorganics - Metals</b>									
Arsenic	C4SL	170	27			24	16	16	23
Beryllium	S4UL	63	1.1			0.9	0.7	0.6	0.8
Boron	S4UL	46000	<LoD			<1	<1	<1	<1
Cadmium	C4SL	880	0.6			<0.2	<0.2	0.3	<0.2
Chromium (VI)	C4SL	250	<LoD			<2	<2	<2	<2
Copper	S4UL	44000	33			18	16	21	17
Cyanide - Free	-	-	<LoD			<2	<2	<2	<2
Lead	C4SL	1300	79			14	16	43	20
Mercury	S4UL	240	<LoD			<1	<1	<1	<1
Nickel	S4UL	800	32			25	18	15	25
Selenium	S4UL	1800	<LoD			<3	<3	<3	<3
Vanadium	S4UL	5000	48			48	36	28	40
Zinc	S4UL	170000	102			82	70	61	95
<b>Inorganics - Asbestos</b>									
Asbestos Screen		N/A			Not Detected	Not Detected		Not Detected	
<b>Organics - PAH &amp; Phenol</b>									
Acenaphthene	S4UL	29000	<LoD			<0.1	<0.1	<0.1	<0.1
Acenaphthylene	S4UL	29000	<LoD			<0.1	<0.1	<0.1	<0.1
Anthracene	S4UL	150000	<LoD			<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	S4UL	49	0.15			<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	C4SL	21	0.13			<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	S4UL	13	0.17			<0.1	<0.1	0.11	<0.1
Benzo(ghi)perylene	S4UL	1400	<LoD			<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	S4UL	370	<LoD			<0.1	<0.1	<0.1	<0.1
Chrysene	S4UL	93	0.17			<0.1	<0.1	0.12	<0.1
Dibenz(a,h)anthracene	S4UL	1.1	<LoD			<0.1	<0.1	<0.1	<0.1
Fluoranthene	S4UL	6300	0.32			<0.1	<0.1	0.2	<0.1
Fluorene	S4UL	20000	<LoD			<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	S4UL	150	<LoD			<0.1	<0.1	<0.1	<0.1
Naphthalene	S4UL	1200	<LoD			<0.1	<0.1	<0.1	<0.1
Phenanthrene	S4UL	6200	0.2			<0.1	<0.1	<0.1	<0.1
Phenol	S4UL	440	<LoD			<0.1	<0.1	<0.1	<0.1
Pyrene	S4UL	15000	0.28			<0.1	<0.1	0.18	<0.1
<b>Organics - TPH CWG and BTEX</b>									
Benzene	C4SL	230	<LoD			<0.002	<0.002	<0.002	<0.002
Toluene	S4UL	87000	<LoD			<0.005	<0.005	<0.005	<0.005
Ethylbenzene	S4UL	17000	<LoD			<0.002	<0.002	<0.002	<0.002
o-Xylene	S4UL	17000	<LoD			<0.002	<0.002	<0.002	<0.002
m & p-xylene	S4UL	17000	<LoD			<0.002	<0.002	<0.002	<0.002
Xylenes (sum of)	S4UL	17000	<LoD			<LoD	<LoD	<LoD	<LoD
EC05 - EC06 Aliphatic	S4UL	95000	<LoD			<0.01	<0.01	<0.01	<0.01
EC>06 - EC08 Aliphatic	S4UL	150000	<LoD			<0.05	<0.05	<0.05	<0.05
EC>08 - EC10 Aliphatic	S4UL	14000	<LoD			<2	<2	<2	<2
EC>10 - EC12 Aliphatic	S4UL	21000	<LoD			<2	<2	<2	<2
EC>12 - EC16 Aliphatic	S4UL	25000	<LoD			<3	<3	<3	<3
EC>16 - EC21 Aliphatic	S4UL	450000	<LoD			<3	<3	<3	<3
EC>21 - EC35 Aliphatic	S4UL	450000	<LoD			<10	<10	<10	<10
EC5 - EC7 (benzene)	S4UL	76000	<LoD			<0.01	<0.01	<0.01	<0.01
EC7 - >EC8 (toluene)	S4UL	87000	<LoD			<0.05	<0.05	<0.05	<0.05
EC>08 - EC10 Aromatic	S4UL	7200	<LoD			<2	<2	<2	<2
EC>10 - EC12 Aromatic	S4UL	9200	<LoD			<2	<2	<2	<2
EC>12 - EC16 Aromatic	S4UL	10000	<LoD			<2	<2	<2	<2
EC>16 - EC21 Aromatic	S4UL	7600	<LoD			<3	<3	<3	<3
EC>21 - EC35 Aromatic	S4UL	7800	<LoD			<10	<10	<10	<10
<b>Organics - Volatile Organic Compounds (VOCs)</b>									
MTBE	ATK	70800	<LoD			<0.005	<0.005	<0.005	<0.005
<b>Organics - Semi-Volatile Organic Compounds (SVOCs)</b>									
Hexachlorobenzene	S4UL	30	<LoD						

### Acute human health risk (soils)

<b>Scenario</b>	Occupational exposure (construction worker)
<b>Critical receptor</b>	Adult female worker
<b>Oral exposure</b>	Ingestion of soil and dusts over a single working day
<b>Demal exposure</b>	Soil being left on the skin for several hours, assumed no PPE worn
<b>Inhalation exposure</b>	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	TP02	TP03	TP04	TP04	TP05	TP06	WS01A	WS01A	WS02	WS02	WS03
					Depth (m)	0.80 - 0.90	0.50 - 0.60	0.00 - 0.10	0.50 - 0.60	0.00 - 0.10	0.00 - 0.10	0.30 - 0.40	0.80 - 0.90	0.00 - 0.10	1.10 - 1.20	0.50 - 0.60
					Date	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22	08/09/22
<b>Inorganics</b>																
Arsenic	AGAC	Oral	7,000	27		24	19	21	17	16	13	20	20	21	27	24
Cadmium	AGAC	Oral	12,000	0.6		< 0.2	0.2	0.5	< 0.2	< 0.2	0.6	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cyanide - Free	AGAC	Oral & Inhalation	1,400	<LoD		< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
<b>Organics</b>																
Benzene	AGAC	Inhalation	240	<LoD		< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Phenol	AGAC	**sat.**	**sat.**	<LoD		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

### Acute human health risk (soils)

<b>Scenario</b>	Occupational exposure (construction worker)
<b>Critical receptor</b>	Adult female worker
<b>Oral exposure</b>	Ingestion of soil and dusts over a single working day
<b>Demal exposure</b>	Soil being left on the skin for several hours, assumed no PPE worn
<b>Inhalation exposure</b>	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	WS03	WS04	WS04
					Depth (m)	1.20 - 1.30	0.00 - 0.10	1.40 - 1.50
					Date	08/09/22	08/09/22	08/09/22
<b>Inorganics</b>								
Arsenic	AGAC	Oral	7,000	27		16	16	23
Cadmium	AGAC	Oral	12,000	0.6		< 0.2	0.3	< 0.2
Cyanide - Free	AGAC	Oral & Inhalation	1,400	<LoD		< 2	< 2	< 2
<b>Organics</b>								
Benzene	AGAC	Inhalation	240	<LoD		< 0.002	< 0.002	< 0.002
Phenol	AGAC	**sat.**	**sat.**	<LoD		< 0.1	< 0.1	< 0.1

## **Appendix L    Waste Characterisation Analysis**

### Waste Classification Assessment Summary

Waste population	Made Ground
Hazard assessment	Non-hazardous waste
List of waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03

Hazard property	Assessment
HP1 - Explosive	Not hazardous by HP1
HP2 - Oxidising	Not hazardous by HP2
HP3 - Flammable	Not hazardous by HP3
HP4 - Irritant	Not hazardous by HP4
HP5 - STOT & aspiration toxicity	Not hazardous by HP5
HP6 - Acute toxicity	Not hazardous by HP6
HP7 - Carcinogenic	Not hazardous by HP7
HP8 - Corrosive	Not hazardous by HP8
HP9 - Infectious	Not hazardous by HP9
HP10 - Toxic for reproduction	Not hazardous by HP10
HP11 - Mutagenic	Not hazardous by HP11
HP12 - Release of an acute toxic gas	Not hazardous by HP12
HP13 - Sensitising	Not hazardous by HP13
HP14 - Ecotoxic	Not hazardous by HP14



## Waste acceptance

Parameter	Inert waste landfill	Stable non-reactive hazardous waste in a non-hazardous landfill cell (SNRHW)	Hazardous waste landfill	Location	TP05	WS01A	WS03
				Depth (m)	0.00 - 0.10	0.30 - 0.40	0.50 - 0.60
				Date	08/09/22	08/09/22	08/09/22
<b>Parameters determined on the waste</b>							
Total organic carbon	3	5	6		1.3	0.9	0.4
Loss on ignition			10		2.5	3.2	2.7
BTEX	6				< 0.05	< 0.05	< 0.05
PCBs (7 congeners)	1				< 0.1	< 0.1	< 0.1
Mineral oil	500				< 10	< 10	< 10
PAH (17 congeners)	100				< 1.7	< 1.7	< 1.7
pH		6			7.6	7.6	7.6
<b>Limit values (mg kg<sup>-1</sup>) for compliance test using BN 12457-3 at L/S 10 l</b>							
Arsenic	0.5	2	25		< 0.2	< 0.2	< 0.2
Barium	20	100	300		0.1	0.2	< 0.1
Cadmium	0.04	1	5		< 0.02	< 0.02	< 0.02
Chromium (III)	0.5	10	70		< 0.20	< 0.20	< 0.20
Copper	2	50	100		< 0.5	< 0.5	< 0.5
Mercury	0.01	0.2	2		< 0.005	< 0.005	< 0.005
Molybdenum	0.5	10	30		< 0.1	< 0.1	< 0.1
Nickel	0.4	10	40		< 0.2	< 0.2	< 0.2
Lead	0.5	10	50		< 0.2	< 0.2	< 0.2
Antimony	0.06	0.7	5		< 0.05	< 0.05	< 0.05
Selenium	0.1	0.5	7		< 0.05	< 0.05	< 0.05
Zinc	4	50	200		< 0.2	< 0.2	< 0.2
Chloride	800	15,000	25,000		22	23	17
Fluoride	10	150	500		< 1	< 1	< 1
Sulphate	1,000	20,000	50,000		143	20	25
Total dissolved solids	4,000	60,000	100,000		655	523	366
Phenol	1				< 0.5	< 0.5	< 0.5
Dissolved organic carbon	500	800	1000		140	148	74.2
<b>Classifications</b>							
<b>Waste classification</b>					<b>Non-hazardous</b>	<b>Non-hazardous</b>	<b>Non-hazardous</b>
<b>Landfill type</b>					Inert	Inert	Inert

### Key Notes:

- 1) The values for total dissolved solids (TDS) can be used alternatively to the values for sulphate and chloride.
- 2) Soils with TOC values over the limit value may still be accepted provided the DOC value falls are below it's respective limit value.
- 3) In a hazardous waste, either the TOC or LOI must be used.
- 4) Where Notes 1, 2, and 3 can apply, the waste contractor or landfill operator should be contacted to determine acceptance.