APPENDIX D

CERTIFICATION OF FIELD APPARATUS

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	DART302
Test Date:	07/02/2018
Report Date:	07/02/2018
File Name:	DART302.spt
Test Operator:	RM

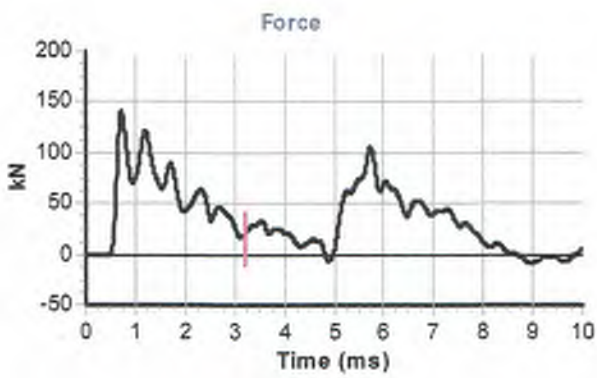
Instrumented Rod Data

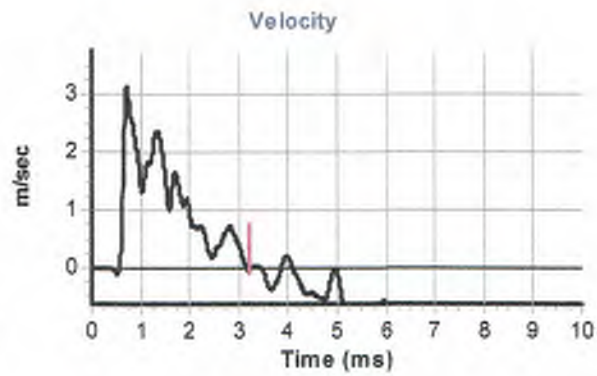
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.3
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	7080
Accelerometer No.2:	11609

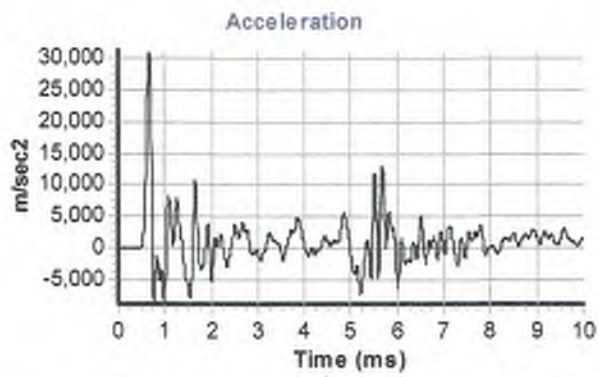
SPT Hammer Information

Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

Comments / Location







Calculations

Area of Rod A (mm2):	944
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	310

Energy Ratio E_r (%): **66**

[redacted]

Signed: R.MATTIMORE

Title: FITTER

The recommended calibration interval is 12 months

APPENDIX E

MONITORING DATA

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	19/09/2018

Weather:	Overcast / Windy
Engineer:	AP / IT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.03	Peak: 0.0	Initial	0.1	0.01	0.5	20.1	0.0	1.0			0.0			
						30	0.1	0.01	0.1	20.7	0.0	0.0			0.0			
						60	0.1	0.01	0.1	20.7	0.0	0.0			0.0			
						90	0.1	0.01	0.1	20.7	0.0	0.0			0.0			
				Steady: 0.02	Steady: 0.0	120	0.1	0.01	0.1	20.7	0.0	0.0			0.0			
						150	0.1	0.01	0.1	20.7	0.0	0.0			0.0			
BH201	13:05	1004	20			180	0.1	0.01	0.1	20.7	0.0	0.0			0.0	Dry	4.89	
				Peak: -0.15	Peak: -0.1	Initial	0.0	0.00	0.1	20.7	0.0	0.0			0.0			
						30	0.0	0.00	0.1	20.6	0.0	1.0			0.0			
						60	0.0	0.00	0.1	20.6	0.0	1.0			0.0			
						90	0.0	0.00	0.1	20.6	0.0	1.0			0.0			
				Steady: 0.03	Steady: 0.0	120	0.1	0.01	0.1	20.6	0.0	1.0			0.0			
						150	0.1	0.01	0.1	20.6	0.0	1.0			0.0			
BH202	13:20	1004	20			180	0.1	0.01	0.1	20.6	0.0	1.0			0.0	7.95	9.14	2 water samples taken (6 L removed)
				Peak:	Peak: 0.1	Initial	0.1	0.01	1.8	18.7	0.0	0.1			0.0			
						30	0.1	0.01	1.8	18.7	0.0	0.1			0.0			
						60	0.1	0.01	1.8	18.6	0.0	0.1			0.0			
						90	0.1	0.01	1.9	18.5	0.0	0.1			0.0			
				Steady:	Steady: 0.0	120	0.1	0.01	1.9	18.5	0.0	0.1			0.0			
						150	0.1	0.01	1.9	18.5	0.0	0.1			0.0			
BH203	11:17	1003	19			180	0.1	0.01	1.9	18.5	0.0	0.1			0.0	Dry	3.41	BAL 79.5%
				Peak:	Peak: 0.0	Initial	0.1	1.00	2.4	18.7	0.0	0.1			0.0			
						30	0.1	1.00	2.4	18.6	0.0	0.1			0.0			
						60	0.1	1.00	2.4	18.6	0.0	0.1			0.0			
						90	0.1	1.00	2.4	18.6	0.0	0.1			0.0			
				Steady:	Steady: 0.0	120	0.1	1.00	2.4	18.6	0.0	0.1			0.0			
						150	0.1	1.00	2.4	18.5	0.0	0.1			0.0			
BH204	10:15	1003	19			180	0.1	1.00	2.4	18.5	0.0	0.1			0.0	10.21	10.58	BAL 79.0 % (2 L removed)

Notes:

First monitoring visit: Phase 2 Boreholes

Ambient Concentration	
CH4	0.1
CO2	0.0
O2	21.0
H2S	0.0
CO	2.0

Previous weather conditions, Atmosphic pressure trend and rate, flooding, soil moisture, water draw in tube, wind direction/strength, condition of monitoring point, missing/open tap, datum level, vegetation stress, odours, bubbles, etc.

QA Checklist:	
Weather conditions logged for previous 24 hrs	N
Gas monitor calibrated	Y
All filters in place	Y
Flow reading stable and zeroed	Y

Instrument Details:	Serial No.	Hyder/other ref.
Landfill Gas Analyser		
PID		
Dip meter/ interface probe		

Project:	Otterpool - Phase 2
Job Number:	10011914

Date:	20/09/2018

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: -0.1	Peak: 0.12	Initial	0.0	0.01	0.7	16.7	0.0	0.1			0.0			
						30	0.0	0.01	0.7	16.7	0.0	0.1			0.0			
						60	0.0	0.01	0.5	17.9	0.0	0.1			0.0			
						90	0.0	0.01	0.5	18.0	0.0	0.1			0.0			
				Steady: 0.0	Steady: 0.12	120	0.0	0.01	0.4	18.2	0.0	0.1			0.0			BAL 81.3% (10 L removed,
						150	0.0	0.01	0.4	18.2	0.0	0.1			0.0			second reading after 5 min
BH206	10:25	1007	18			180	0.0	0.01	0.4	18.2	0.0	0.1			0.0	2.85	6.80	2.90m)
				Peak: -0.02	Peak: 0.0	Initial	0.0	0.00	0.0	20.9	0.0	0.0			0.0			
						30	0.0	0.00	0.0	20.9	0.0	0.0			0.0			
						60	0.0	0.00	0.0	20.5	0.0	1.0			0.0			
						90	0.1	1.00	0.0	20.5	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.1	1.00	0.0	20.5	0.0	1.0			0.0			
						150	0.0	0.00	0.0	20.5	0.0	1.0			0.0			
BH207	09:45	1007	18			180	0.0	0.00	0.0	20.5	0.0	1.0			0.0	1.98	5.42	BAL 79.5 %
				Peak: -0.14	Peak: 0.1	Initial	0.0	0.01	2.4	18.8	0.0	0.0			0.0			
						30	0.0	0.01	2.4	18.8	0.0	0.0			0.0			
						60	0.0	0.01	2.4	18.7	0.0	0.0			0.0			
						90	0.0	0.01	2.4	18.7	0.0	0.0			0.0			
				Steady: -0.14	Steady: 0.0	120	0.0	0.01	2.4	18.7	0.0	0.0			0.0			
						150	0.0	0.01	2.4	18.7	0.0	0.0			0.0			BAL 78.8% (4 L removed, 2nd
BH208	08:50	1008	18			180	0.0	0.01	2.4	18.7	0.0	0.0			0.0	4.67	6.24	reading after 10min 6.07m)
				Peak: -11.83	Peak: 0.3	Initial	0.1	1.00	0.1	20.8	0.0	1.0			0.0			
						30	0.1	1.00	1.2	20.0	0.0	2.0			0.0			
						60	0.1	1.00	1.2	19.9	0.0	2.0			0.0			
						90	0.1	1.00	1.2	20.0	0.0	2.0			0.0			
				Steady: -11.62	Steady: 0.2	120	0.1	1.00	1.2	19.9	0.0	2.0			0.0			
						150	0.1	1.00	1.2	20.0	0.0	2.0			0.0			
BH209		1009	18			180	0.1	1.00	1.2	20.0	0.0	2.0			0.0	1.40	4.67	BAL 79%
				Peak: 0.05	Peak: 0.0	Initial	0.1	1.00	0.2	20.7	0.0	1.0			0.0			
						30	0.1	1.00	4.3	17.8	0.0	0.0			0.0			
						60	0.1	1.00	4.2	17.9	0.0	0.0			0.0			
						90	0.1	1.00	4.3	17.8	0.0	0.0			0.0			
				Steady: 0.03	Steady: 0.0	120	0.1	1.00	4.3	17.8	0.0	0.0			0.0			
						150	0.1	1.00	4.3	17.8	0.0	0.0			0.0			
WS201	12:40	1004	20			180	0.1	1.00	4.3	17.8	0.0	0.0			0.0	Dry	3.92	BAL 77.8%

Notes:

First monitoring visit: Phase 2 Boreholes

Previous weather conditions, Atmosphic pressure trend and rate, flooding, soil moisture, water draw in tube, wind direction/strength, condition of monitoring point, missing/open tap, datum level, vegetation stress, odours, bubbles, etc.

ARCADIS

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	19/09/2018

Weather:	Overcast / Windy
Engineer:	AP / IT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak:	Peak: 0.1	Initial	0.1	0.00	0.0	20.9	0.0	0.0			0.0			
						30	0.1	1.00	1.9	18.8	0.0	0.0			0.0			
						60	0.1	1.00	1.8	19.0	0.0	0.0			0.0			
						90	0.1	1.00	1.9	18.7	0.0	0.0			0.0			
				Steady:	Steady: 0.1	120	0.1	1.00	1.9	18.7	0.0	0.0			0.0			
						150	0.1	1.00	2.0	18.4	0.0	0.0			0.0			
WS202	12:10	1003	19			180	0.1	1.00	2.3	17.9	0.0	0.0			0.0	Dry	5.33	BAL 79.9%
				Peak:	Peak: 0.0	Initial	0.1	1.00	2.4	18.4	0.0	0.0			0.0			
						30	0.1	1.00	2.1	19.1	0.0	0.0			0.0			
						60	0.1	1.00	2.4	18.9	0.0	0.0			0.0			
						90	0.1	1.00	2.4	19.1	0.0	0.0			0.0			
				Steady:	Steady: 0.0	120	0.1	1.00	2.3	19.0	0.0	0.0			0.0			
						150	0.1	1.00	2.4	19.1	0.0	0.0			0.0			
WS203	12:20	1003	19			180	0.1	1.00	2.4	19.1	0.0	0.0			0.0	Dry	3.13	
BH103	**No gas tap. Gas monitoring not possible.**															1.90	8.20	
				Peak: -0.29	Peak: -0.9	Initial	0.1	0.00	0.8	20.3	0.0	1.0			0.0			
						30	0.1	1.00	0.8	20.1	0.0	1.0			0.0			
						60	0.1	1.00	0.8	20.1	0.0	0.0			0.0			
						90	0.1	1.00	0.8	20.2	0.0	0.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.1	1.00	0.8	20.2	0.0	0.0			0.0			
						150	0.1	1.00	0.8	20.2	0.0	0.0			0.0			
BH104	15:30	1005				180	0.1	1.00	0.8	20.2	0.0	0.0			0.0	3.82	7.28	
BH105	**No gas tap. Gas monitoring not possible.**															2.84	6.62	
				Peak: 0.05	Peak: 0.0	Initial	0.1	1.00	0.1	20.3	0.0	0.0			0.0			
						30	0.1	1.00	4.3	16.4	0.0	0.0			0.0			
						60	0.1	1.00	4.3	16.6	0.0	0.0			0.0			
						90	0.1	1.00	4.3	16.3	0.0	0.0			0.0			
				Steady: 0.03	Steady: 0.0	120	0.1	1.00	4.3	16.4	0.0	0.0			0.0			
						150	0.1	1.00	4.4	16.2	0.0	0.0			0.0			
WS103	15:00	1002				180	0.1	1.00	4.4	16.3	0.0	0.0			0.0	Dry	5.34	BAL 79.1%
WS105	**No gas tap. Gas monitoring not possible.**															1.78	3.05	
WS107	**No gas tap. Gas monitoring not possible.**															2.23	2.89	

				Peak: 0.02	Peak: 0.0	Initial	0.1	1.00	0.2	20.6	0.0	1.0			0.0			
						30	0.1	1.00	0.7	20.2	0.0	1.0			0.0			
						60	0.1	1.00	0.9	20.2	0.0	0.0			0.0			
						90	0.1	1.00	0.9	20.2	0.0	0.0			0.0			
				Steady: 0.03	Steady: 0.0	120	0.1	1.00	0.8	20.2	0.0	0.0			0.0			
						150	0.1	1.00	0.8	20.2	0.0	0.0			0.0			
WS112		1004				180	0.1	1.00	0.8	20.2	0.0	0.0			0.0	Dry	3.70	

Notes:

First monitoring visit: Phase 1 Boreholes

Previous weather conditions, Atmosphic pressure trend and rate, flooding, soil moisture, water draw in tube, wind direction/strength, condition of monitoring point, missing/open tap, datum level, vegetation stress, odours, bubbles, etc.

ARCADIS

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	26/09/2018

Weather:	Sunny
Engineer:	IT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.03	Peak: 0.0	Initial	0.0	0.00	0.0	20.6	0.0	0.0			0.0			
						30	0.0	0.00	1.1	18.7	0.0	1.0			0.0			
						60	0.0	0.00	1.1	18.7	0.0	0.0			0.0			
						90	0.0	0.00	1.2	18.7	0.0	0.0			0.0			
				Steady: 0.03	Steady: 0.0	120	0.0	0.00	1.2	18.6	0.0	0.0			0.0			
						150	0.0	0.00	1.3	18.6	0.0	0.0			0.0			
BH201	16:20	1022	21			180	0.0	0.00	1.3	18.7	0.0	0.0			0.0	Dry	4.89	BAL 80.2%
				Peak: -0.01	Peak: 0.0	Initial	0.0	0.00	0.2	20.3	0.0	3.0			0.0			
						30	0.0	0.00	0.0	20.5	0.0	1.0			0.0			
						60	0.0	0.00	0.0	20.5	0.0	1.0			0.0			
						90	0.0	0.00	0.0	20.5	0.0	0.0			0.0			
				Steady: -0.01	Steady: 0.0	120	0.0	0.00	0.0	20.6	0.0	0.0			0.0			
						150	0.0	0.00	0.0	20.6	0.0	0.0			0.0			
BH202	16:10	1022	21			180	0.0	0.00	0.0	20.6	0.0	0.0			0.0	7.95	9.10	BAL 79.5%
				Peak: -0.0	Peak: -0.1	Initial	0.0	0.00	1.0	20.5	0.0	0.1			0.0			
						30	0.0	0.00	1.9	18.2	0.0	0.1			0.0			
						60	0.0	0.00	1.9	18.2	0.0	0.1			0.0			
						90	0.0	0.00	1.9	18.2	0.0	0.1			0.0			
				Steady: -0.0	Steady: -0.1	120	0.0	0.00	2.0	18.2	0.0	0.1			0.0			
						150	0.0	0.00	2.0	18.2	0.0	0.1			0.0			
BH203	14:30	1023	19			180	0.0	0.00	2.0	18.2	0.0	0.1			0.0	Dry	3.05	BAL 79.8%
BH204	**Not possible to monitor during this visit. Top hat damaged, screw needs replacing.**																	

Notes:

Second monitoring visit: Phase 2 Boreholes

Ambient Concentration	
CH4	0.10
CO2	0.10
O2	20.80
H2S	0.00
CO	0.00

Previous weather conditions, Atmosphic pressure trend and rate, flooding, soil moisture, water draw in tube, wind direction/strength, condition of monitoring point, missing/open tap, datum level, vegetation stress, odours, bubbles, etc.

QA Checklist:	
Weather conditions logged for previous 24 hrs	N
Gas monitor calibrated	Y
All filters in place	Y
Flow reading stable and zeroed	Y

Instrument Details:	Serial No.	Hyder/other ref.
Landfill Gas Analyser		
PID		
Dip meter/ interface probe		

ARCADIS

Project:	Otterpool - Phase 2
Job Number:	10011914

Date:	26/09/2018

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.01	Peak: -0.02	Initial	0.0	0.01	0.1	20.8	0.0	0.0			0.0			
						30	0.0	0.01	1.1	18.3	0.0	0.0			0.0			
						60	0.0	0.01	1.1	18.4	0.0	0.0			0.0			
						90	0.0	0.01	1.0	18.4	0.0	0.0			0.0			
				Steady: 0.0	Steady: -0.01	120	0.0	0.01	1.0	18.4	0.0	0.0			0.0			
						150	0.0	0.01	1.1	18.4	0.0	0.0			0.0			
BH206	09:35	1026	14			180	0.0	0.01	1.1	18.4	0.0	0.0			0.0	2.52	6.71	BAL 80.4%
				Peak: 0.09	Peak: 0.0	Initial	0.1	0.10	0.1	18.3	0.0	0.1			0.0			
						30	0.1	0.10	0.1	20.2	0.0	0.1			0.0			
						60	0.1	0.10	0.1	20.3	0.0	0.1			0.0			
						90	0.1	0.10	0.1	20.3	0.0	0.1			0.0			
				Steady: 0.09	Steady: 0.0	120	0.1	0.10	0.1	20.3	0.0	0.1			0.0			
						150	0.1	0.10	0.1	20.3	0.0	0.1			0.0			
BH207	09:10	1026	13			180	0.1	0.10	0.1	20.3	0.0	0.1			0.0	1.75	4.48	BAL 79.5%
				Peak: -0.03	Peak: 0.1	Initial	0.0	0.00	0.2	20.1	0.0	0.2			0.0			
						30	0.0	0.00	2.5	18.6	0.0	0.0			0.0			
						60	0.1	0.10	2.5	18.6	0.0	0.0			0.0			
						90	0.1	0.10	2.5	18.6	0.0	0.0			0.0			
				Steady: -0.03	Steady: 0.0	120	0.1	0.10	2.5	18.6	0.0	0.0			0.0			
						150	0.1	0.10	2.5	18.6	0.0	0.0			0.0			
BH208	12:59	1027	16			180	0.1	0.10	2.5	18.6	0.0	0.0			0.0	4.68	6.24	BAL 78.8%
				Peak: -0.03	Peak: 0.1	Initial	0.0	0.00	0.1	19.8	0.0	0.1			0.0			
						30	0.0	0.00	1.0	20.0	0.0	0.1			0.0			
						60	0.1	0.10	1.0	20.0	0.0	0.1			0.0			
						90	0.1	0.10	1.0	20.0	0.0	0.1			0.0			
				Steady: -0.03	Steady: -0.0	120	0.1	0.10	1.0	20.0	0.0	0.1			0.0			BAL 78.9% (Gas tap was
						150	0.1	0.10	1.0	20.0	0.0	0.1			0.0			found in the upright
BH209	13:58	1027	16			180	0.1	0.10	0.9	20.0	0.0	0.1			0.0	1.00	4.52	position)
				Peak: 0.02	Peak: 0.0	Initial	0.0	0.00	0.0	18.7	0.0	0.0			0.0			
						30	0.1	0.10	2.7	18.6	0.0	0.0			0.0			
						60	0.1	0.10	2.7	18.6	0.0	0.0			0.0			
						90	0.1	0.10	2.7	18.6	0.0	0.0			0.0			
				Steady: 0.02	Steady: 0.0	120	0.1	0.10	2.8	18.6	0.0	0.0			0.0			
						150	0.1	0.10	2.8	18.6	0.0	0.0			0.0			
WS201	16:30	1021	19			180	0.1	0.10	2.8	18.6	0.0	0.0			0.0	Dry	3.92	BAL 78.5%

Notes:

Second monitoring visit: Phase 2 Boreholes

Previous weather conditions, Atmosphic pressure trend and rate, flooding, soil moisture, water draw in tube, wind direction/strength, condition of monitoring point, missing/open tap, datum level, vegetation stress, odours, bubbles, etc.

ARCADIS

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	26/09/2018

Weather:	Sunny
Engineer:	IT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: -0.0	Peak: -0.0	Initial	0.0	0.00	0.0	20.4	0.0	0.1			0.0			
						30	0.0	0.00	1.8	17.7	0.0	0.0			0.0			
						60	0.0	0.00	2.7	16.5	0.0	0.0			0.0			
						90	0.0	0.00	3.5	15.3	0.0	0.0			0.0			
				Steady: -0.0	Steady: -0.0	120	0.0	0.00	3.9	14.6	0.0	0.0			0.0			BAL 81.6% (Gas tap was found in the upright position)
						150	0.0	0.00	4.1	14.3	0.0	0.0			0.0			
WS202	15:20	1022	19			180	0.0	0.00	4.1	14.2	0.0	0.0			0.0	Dry	5.33	
				Peak: 0.02	Peak: 0.0	Initial	0.0	0.00	4.0	14.6	0.0	0.1			0.0			
						30	0.0	0.00	2.1	18.3	0.0	0.0			0.0			
						60	0.0	0.00	2.1	18.3	0.0	0.0			0.0			
						90	0.0	0.00	2.1	18.3	0.0	0.0			0.0			
				Steady: 0.02	Steady: -0.0	120	0.0	0.00	2.1	18.3	0.0	0.0			0.0			
						150	0.0	0.00	2.1	18.3	0.0	0.0			0.0			
WS203	15:30	1022	19			180	0.0	0.00	2.1	18.3	0.0	0.0			0.0	Dry	3.14	BAL 79.6%
BH102	**Found in second visit. Gas tap installed. Base measured to top of install.**															Dry	9.45	
BH103	**Not possible to monitor gas due to tap missing, needs installing next visit.**															1.80	8.16	
				Peak: -0.0	Peak: -0.1	Initial	0.0	0.00	0.0	20.6	0.0	0.1			0.0			
						30	0.0	0.00	0.4	20.2	0.0	0.0			0.0			
						60	0.0	0.00	0.5	20.1	0.0	0.0			0.0			
						90	0.0	0.00	0.5	20.0	0.0	0.0			0.0			
				Steady: -0.0	Steady: -0.0	120	0.0	0.00	0.5	20.0	0.0	0.0			0.0			
						150	0.0	0.00	0.5	20.0	0.0	0.0			0.0			
BH104	14:35	1023	19			180	0.0	0.00	0.5	20.0	0.0	0.0			0.0	3.86	7.35	BAL 79.5%
BH105	**Not possible to monitor gas due to tap missing, needs installing next visit.**															3.75	6.60	
				Peak: -0.04	Peak: 0.0	Initial	0.1	0.10	0.1	20.2	0.0	0.1			0.0			
						30	0.1	0.10	3.2	17.5	0.0	0.0			0.0			
						60	0.1	0.10	3.2	17.5	0.0	0.0			0.0			
						90	0.1	0.10	3.2	17.4	0.0	0.0			0.0			
				Steady: -0.04	Steady: 0.0	120	0.1	0.10	3.2	17.4	0.0	0.0			0.0			
						150	0.1	0.10	3.3	17.3	0.0	0.0			0.0			
WS103	11:30	1024	16			180	0.1	0.10	3.4	17.3	0.0	0.0			0.0	Dry	5.34	BAL 79.2%
WS105	**Not possible to monitor. Gas tap installed in second visit.**															1.45	3.05	
WS107	**Monitoring not possible during this visit. Difficult to dig the flush cover out of the ground. Sockets are worn out and is not possible to loosen them.**																	

Notes:

Second monitoring visit: Phase 1 Boreholes

ARCADIS

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	11/10/2018

Weather:	Sunny
Engineer:	MT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	0.7	19.5	0.0	1.0			0.0			
						60	0.0	0.00	0.8	19.4	0.0	1.0			0.0			
						90	0.0	0.00	0.8	19.4	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	0.9	19.3	0.0	1.0			0.0			
						150	0.0	0.00	1.0	19.2	0.0	1.0			0.0			
						180	0.0	0.00	1.1	19.0	0.0	1.0			0.0			
BH201	13:47	1002	22			210	0.0	0.00	1.3	18.7	0.0	1.0			0.0	Dry	4.43	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	0.6	19.5	0.0	1.0			0.0			
						60	0.0	0.00	0.6	19.5	0.0	1.0			0.0			
						90	0.0	0.00	0.6	19.5	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	0.6	19.5	0.0	1.0			0.0			
						150	0.0	0.00	0.7	19.5	0.0	1.0			0.0			
BH202	13:37	1002	22			180	0.0	0.00	0.6	19.5	0.0	1.0			0.0	7.55	8.67	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	1.8	18.3	0.0	1.0			0.0			
						60	0.0	0.00	1.8	18.3	0.0	1.0			0.0			
						90	0.0	0.00	1.8	18.3	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	1.8	18.3	0.0	1.0			0.0			
						150	0.0	0.00	1.8	18.3	0.0	1.0			0.0			
BH203	14:11	1003	23			180	0.0	0.00	1.8	18.3	0.0	1.0			0.0	Dry	2.66	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	1.8	18.8	0.0	1.0			0.0			
						60	0.0	0.00	1.8	18.7	0.0	1.0			0.0			
						90	0.0	0.00	1.8	18.7	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	1.8	18.7	0.0	1.0			0.0			
						150	0.0	0.00	1.8	18.7	0.0	1.0			0.0			
BH204	15:36	1000	19			180	0.0	0.00	1.8	18.7	0.0	1.0			0.0	10.13	10.21	

Notes:

Third monitoring visit: Phase 2 Boreholes

Project:	Otterpool - Phase 2			Weather:	Sunny
Job Number:	10011914	Date:	11/10/2018	Engineer:	MT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	1.6	18.1	0.0	1.0			0.0			
						60	0.0	0.00	1.6	18.0	0.0	1.0			0.0			
						90	0.0	0.00	1.6	18.0	0.0	1.0			0.0			
				Steady: 8.18	Steady: 0.0	120	0.0	0.00	1.6	17.9	0.0	1.0			0.0			
						150	0.0	0.00	1.6	17.9	0.0	1.0			0.0			
BH206	08:48	1008	12			180	0.0	0.00	1.6	17.8	0.0	1.0			0.0	2.25	6.38	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	0.1	20.2	0.0	0.0			0.0			
						60	0.0	0.00	0.1	20.2	0.0	0.0			0.0			
						90	0.0	0.00	0.1	20.2	0.0	0.0			0.0			
				Steady: 8.49	Steady: 0.0	120	0.0	0.00	0.1	20.3	0.0	0.0			0.0			
						150	0.0	0.00	0.1	20.3	0.0	0.0			0.0			
BH207	09:13	1008	12			180	0.0	0.00	0.1	20.3	0.0	0.0			0.0	1.44	4.06	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	2.8	18.9	0.0	0.0			0.0			
						60	0.0	0.00	2.8	18.8	0.0	0.0			0.0			
						90	0.0	0.00	2.8	18.8	0.0	0.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	2.8	18.8	0.0	0.0			0.0			
						150	0.0	0.00	2.8	18.8	0.0	0.0			0.0			
BH208	10:59	1007	15			180	0.0	0.00	2.8	18.7	0.0	0.0			0.0	4.42	5.94	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	1.2	19.6	0.0	2.0			0.0			
						60	0.0	0.00	1.2	19.6	0.0	2.0			0.0			
						90	0.0	0.00	1.3	19.5	0.0	1.0			0.0			
				Steady: 0.97	Steady: 0.0	120	0.0	0.00	1.2	19.6	0.0	1.0			0.0			
						150	0.0	0.00	1.1	19.7	0.0	1.0			0.0			
BH209	11:42	1009	18			180	0.0	0.00	1.1	19.7	0.0	1.0			0.0	0.64	4.16	

Notes:

Third monitoring visit: Phase 2 Boreholes

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	11/10/2018

Weather:	Sunny
Engineer:	MT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	2.7	18.5	0.0	1.0			0.0			
						60	0.0	0.00	2.8	18.4	0.0	1.0			0.0			
						90	0.0	0.00	2.8	18.4	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	2.9	18.4	0.0	1.0			0.0			
						150	0.0	0.00	2.9	18.4	0.0	1.0			0.0			
WS201	13:19	1002	20			180	0.0	0.00	3.0	18.3	0.0	1.0			0.0	Dry	3.57	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	0.5	20.2	0.0	1.0			0.0			
						60	0.0	0.00	0.5	20.2	0.0	1.0			0.0			
						90	0.0	0.00	0.5	20.2	0.0	1.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	0.5	20.2	0.0	1.0			0.0			
						150	0.0	0.00	0.5	20.2	0.0	1.0			0.0			
WS202	16:30	999	17			180	0.0	0.00	0.6	20.2	0.0	1.0			0.0	Dry	5.00	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	2.2	18. 7	0.0	0.0			0.0			
						60	0.0	0.00	2.2	18. 7	0.0	0.0			0.0			
						90	0.0	0.00	2.2	18. 7	0.0	0.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	2.2	18.6	0.0	0.0			0.0			
						150	0.0	0.00	2.2	18.6	0.0	0.0			0.0			
WS203	16:18	999	17			180	0.0	0.00	2.2	18.6	0.0	0.0			0.0	Dry	2.81	

Notes:

Third monitoring visit: Phase 2 Boreholes

Previous weather conditions, Atmosphic pressure trend and rate, flooding, soil moisture, water draw in tube, wind direction/strength, condition of monitoring point, missing/open tap, datum level, vegetation stress, odours, bubbles, etc.

ARCADIS

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	11/10/2018

Weather:	Sunny
Engineer:	MT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
				Peak: 0.0	Peak: 0.0	Initial	0.00	0.00	1.00	21.00	0.00	0.00			0.00			
						30	0.00	0.00	2.80	18.80	0.00	1.00			0.00			
						60	0.00	0.00	2.80	18.80	0.00	0.00			0.00			
						90	0.00	0.00	2.80	18.90	0.00	0.00			0.00			
				Steady: 0.0	Steady: 0.0	120	0.00	0.00	2.80	18.90	0.00	0.00			0.00			
						150	0.00	0.00	2.70	19.00	0.00	0.00			0.00			
BH102	11:25	1007	18			180	0.00	0.00	2.80	18.90	0.00	0.00			0.00	Dry	1.02	
BH103	09:13	1008	12	**No gas tap. Gas monitoring not possible.**												1.52	7.90	
				Peak: 0.0	Peak: 0.0	Initial	0.00	0.00	1.00	21.00	0.00	0.00			0.00			
						30	0.00	0.00	0.60	19.60	0.00	1.00			0.00			
						60	0.00	0.00	0.60	19.60	0.00	1.00			0.00			
						90	0.00	0.00	0.60	19.70	0.00	1.00			0.00			
				Steady: 0.0	Steady: 0.0	120	0.00	0.00	0.50	19.70	0.00	1.00			0.00			
						150	0.00	0.00	0.50	19.80	0.00	1.00			0.00			
BH104	14:19	1003	24			180	0.00	0.00	0.50	19.70	0.00	1.00			0.00	3.54	6.61	
BH105	08:30	1008	11	**No gas tap. Gas monitoring not possible.**												3.85	6.55	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	2.9	18.4	0.0	0.0			0.0			
						60	0.0	0.00	2.9	18.4	0.0	0.0			0.0			
						90	0.0	0.00	2.9	18.4	0.0	0.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	2.9	18.3	0.0	0.0			0.0			
						150	0.0	0.00	3.0	18.3	0.0	0.0			0.0			
WS103	10:12	1008	14			180	0.0	0.00	3.1	18.2	0.0	0.0			0.0	Dry	5.00	
				Peak: 0.0	Peak: 0.0	Initial	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						30	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						60	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						90	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
				Steady: 0.0	Steady: 0.0	120	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
						150	0.0	0.00	1.0	21.0	0.0	0.0			0.0			
WS105	10:34	1007	14			180	0.0	0.00	1.0	21.0	0.0	0.0			0.0	1.29	2.62	
WS107	09:50	**Unable to dig the flush cover out of the ground.**																

Notes:

Third monitoring visit: Phase 1 Boreholes

ARCADIS

Project:	Otterpool - Phase 2		
Job Number:	10011914	Date:	11/10/2018

Weather:	Sunny
Engineer:	MT

Monitoring Point Reference	Date/ Time	Atmos. Pressure (mbar)	Temp. (°C)	Well Pressure (Pa)	Flow Rate (l/h)	Time (sec)	CH4 (% v/v)	LEL (%)	CO2 (% v/v)	O2 (% v/v)	H2S (ppm)	CO (ppm)	Hex. (%)	PID cf	VOC (ppm)	Depth to Water (m)	Depth to base (m)	Comments (all readings from GL, note datum height if different)
BH1	13:30	1003	20	**No gas tap. Gas monitoring not possible.**												9.40	12.35	
BH2	14:35	1003	20	Peak: 0.0 Steady: 6.68	Peak: 0.0 Steady: 0.0	Initial	0.00	0.00	1.00	21.00	0.00	0.00			0.00	6.92	11.70	
						30	0.00	0.00	2.60	18.00	0.00	1.00			0.00			
						60	0.00	0.00	2.70	17.90	0.00	1.00			0.00			
						90	0.00	0.00	2.70	17.90	0.00	1.00			0.00			
						120	0.00	0.00	2.70	17.90	0.00	1.00			0.00			
						150	0.00	0.00	2.80	17.90	0.00	1.00			0.00			
						180	0.00	0.00	2.70	17.90	0.00	1.00			0.00			
						210	0.00	0.00	2.70	17.80	0.00	1.00			0.00			
						240	0.00	0.00	2.90	17.70	0.00	1.00			0.00			
BH3	16:10	999	18	**No gas tap. Gas monitoring not possible.**												Dry	12.87	
BH4	15:06	1002	24	**No gas tap. Gas monitoring not possible.**												10.24	11.00	
BH5	14:50	1003	20	**No gas tap. Gas monitoring not possible.**												9.42	12.45	
BH6	15:16	1001	23	Peak: 0.0 Steady: 0.0	Peak: 0.0 Steady: 0.0	Initial	0.00	0.00	1.00	21.00	0.00	0.00			0.00	11.10	12.96	
						30	0.00	0.00	3.00	17.20	0.00	1.00			0.00			
						60	0.00	0.00	3.00	17.20	0.00	1.00			0.00			
						90	0.00	0.00	3.10	17.00	0.00	1.00			0.00			
						120	0.00	0.00	3.20	16.90	0.00	1.00			0.00			
						150	0.00	0.00	3.20	16.90	0.00	1.00			0.00			
						180	0.00	0.00	3.20	16.90	0.00	1.00			0.00			
BH7	15:32	1001	20	**No gas tap. Gas monitoring not possible.**												Dry	12.72	
BH8	16:03	999	18	**No gas tap. Gas monitoring not possible.**												Dry	12.82	
BH9	16:44	999	17	Peak: 0.0 Steady: 0.0	Peak: 0.0 Steady: 0.0	Initial	0.00	0.00	1.00	21.00	0.00	0.00			0.00	11.00	12.74	
						30	0.00	0.00	2.60	17.00	0.00	0.00			0.00			
						60	0.00	0.00	2.60	17.00	0.00	0.00			0.00			
						90	0.00	0.00	2.60	16.90	0.00	0.00			0.00			
						120	0.00	0.00	2.70	16.80	0.00	0.00			0.00			
						150	0.00	0.00	2.80	16.70	0.00	0.00			0.00			
						180	0.00	0.00	2.80	16.70	0.00	0.00			0.00			
BH10	15:56	999	19	**No gas tap. Gas monitoring not possible.**												Dry	12.81	

Notes:

Third monitoring visit: PBA Boreholes

APPENDIX F

GEOTECHNICAL LABORATORY TEST DATA

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

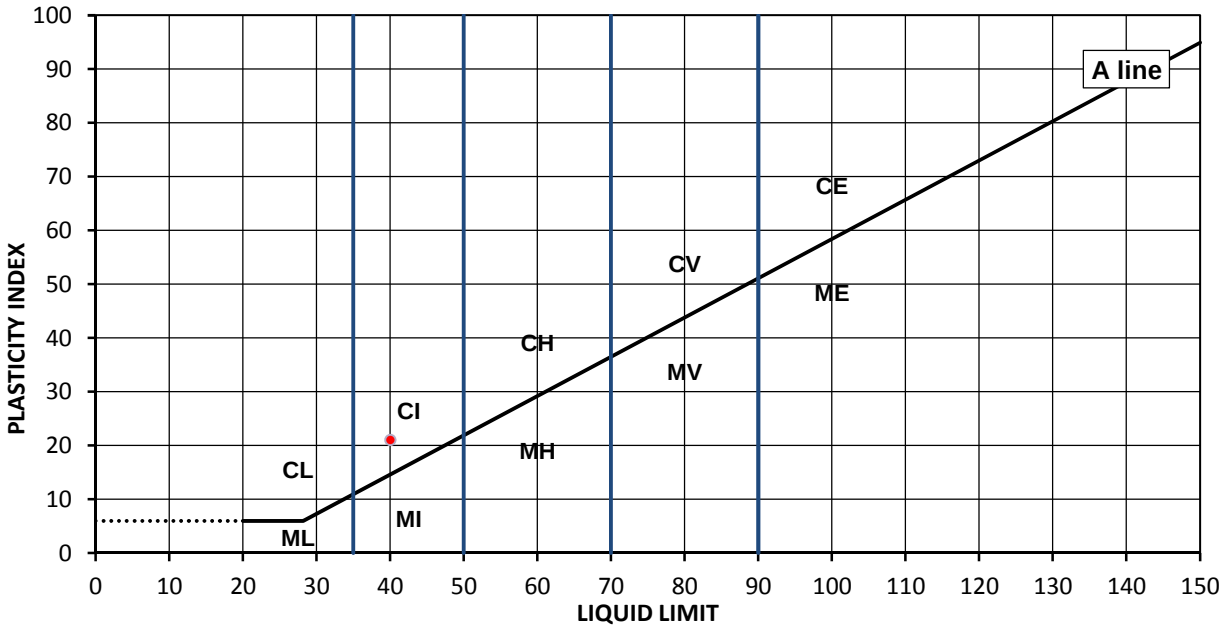
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044800	Depth Top [m]:	1.20
Hole No.:	BH206	Depth Base [m]:	1.40
Sample Reference:	10	Sample Type:	D
Soil Description:	Yellowish brown sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	40	19	21	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowsk
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical Gene Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

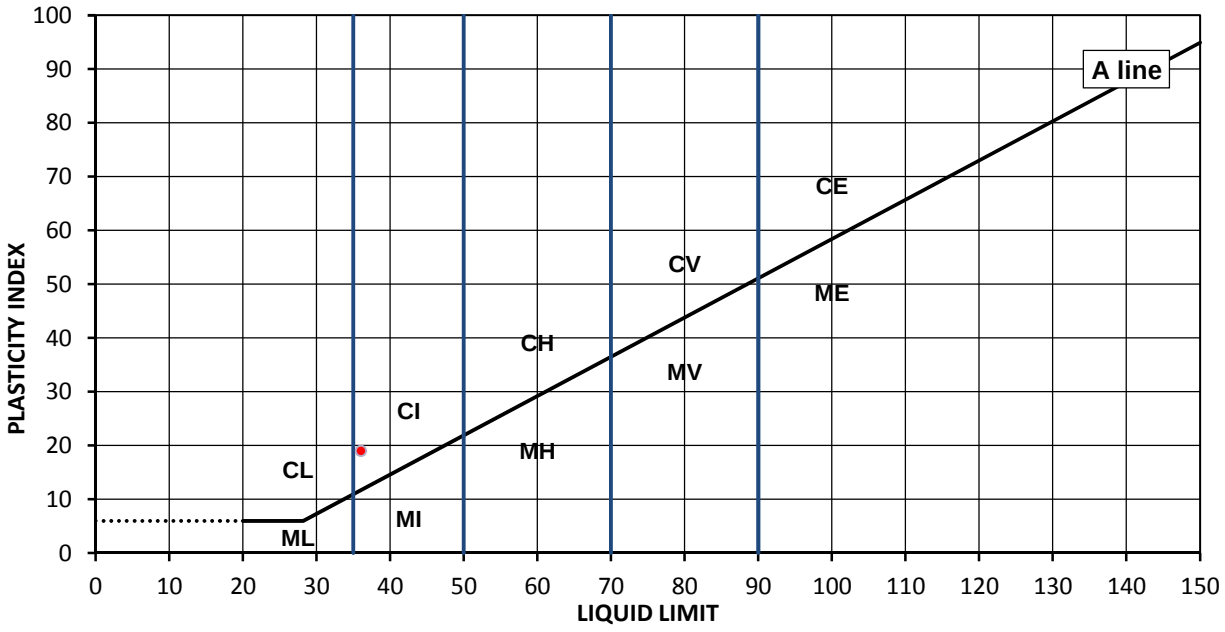
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044802	Depth Top [m]:	0.50
Hole No.:	BH207	Depth Base [m]:	1.00
Sample Reference:	3	Sample Type:	B
Soil Description:	Dark brown sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	36	17	19	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrow
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical Gener
Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

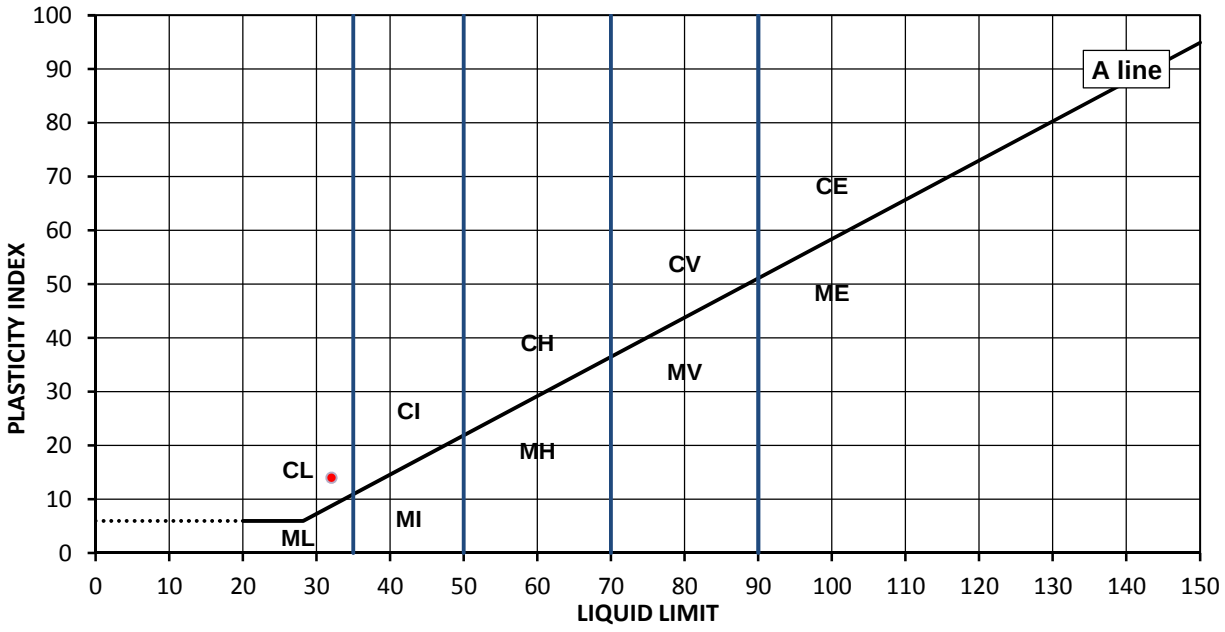
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044803	Depth Top [m]:	1.20
Hole No.:	BH207	Depth Base [m]:	1.40
Sample Reference:	15	Sample Type:	D
Soil Description:	Brown very sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	32	18	14	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrow
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical Genera
Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

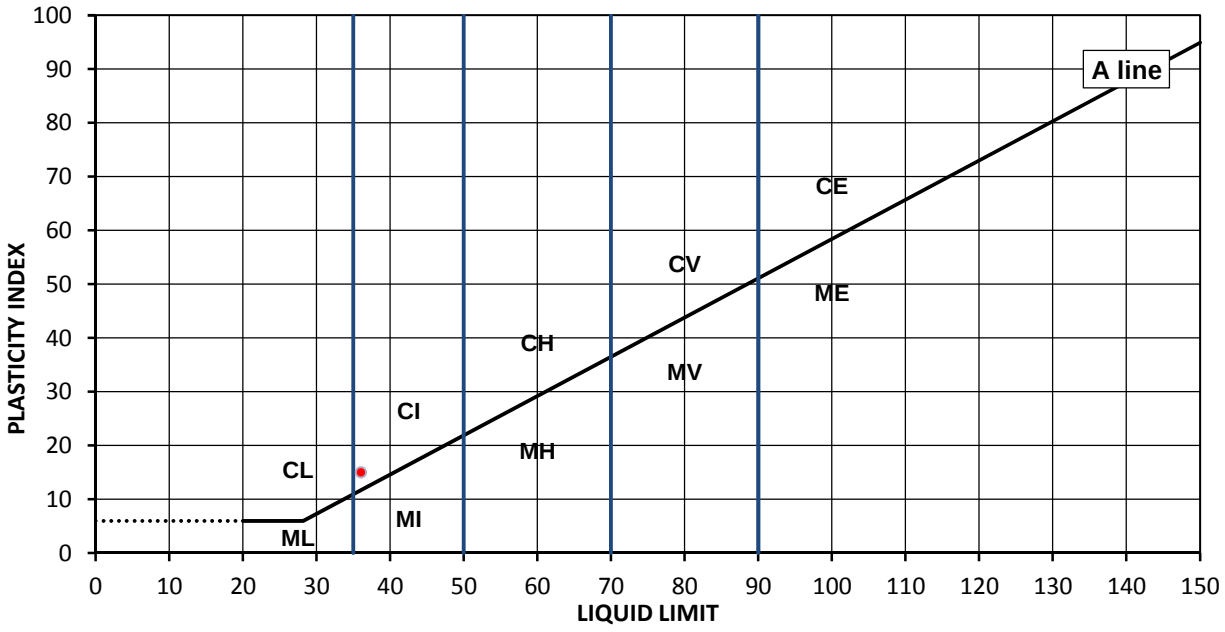
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044808	Depth Top [m]:	0.20
Hole No.:	TP202	Depth Base [m]:	0.30
Sample Reference:	1	Sample Type:	B
Soil Description:	Dark brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	36	21	15	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

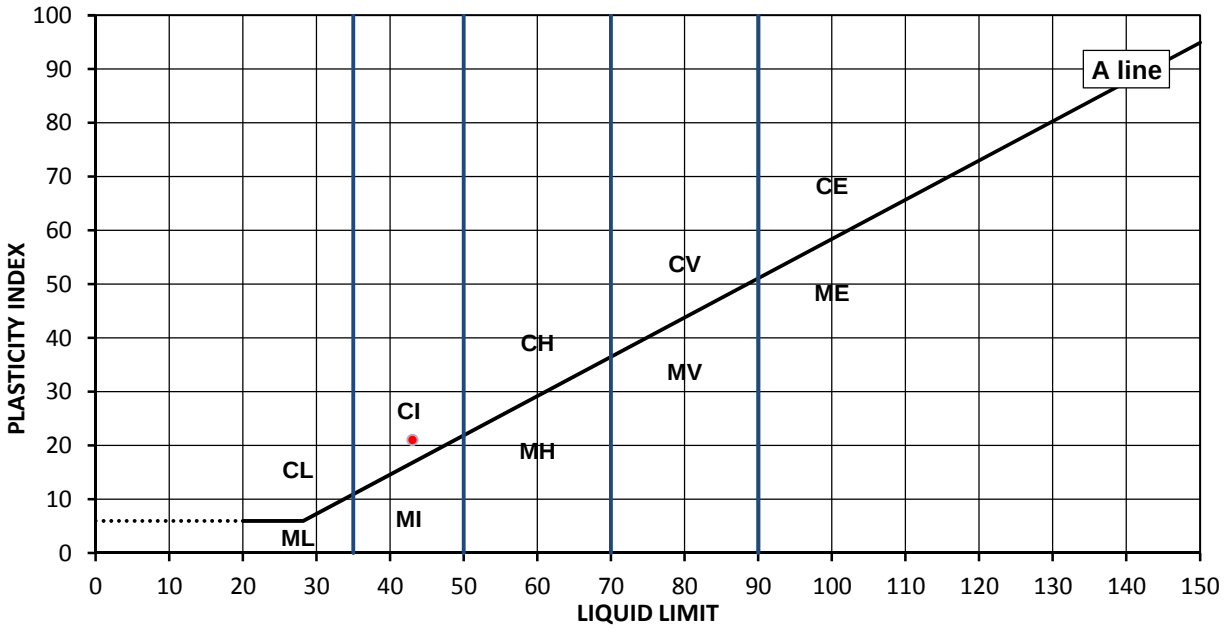
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044809	Depth Top [m]:	0.40
Hole No.:	TP202	Depth Base [m]:	0.50
Sample Reference:	3	Sample Type:	B
Soil Description:	Yellowish brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	43	22	21	83



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrows
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

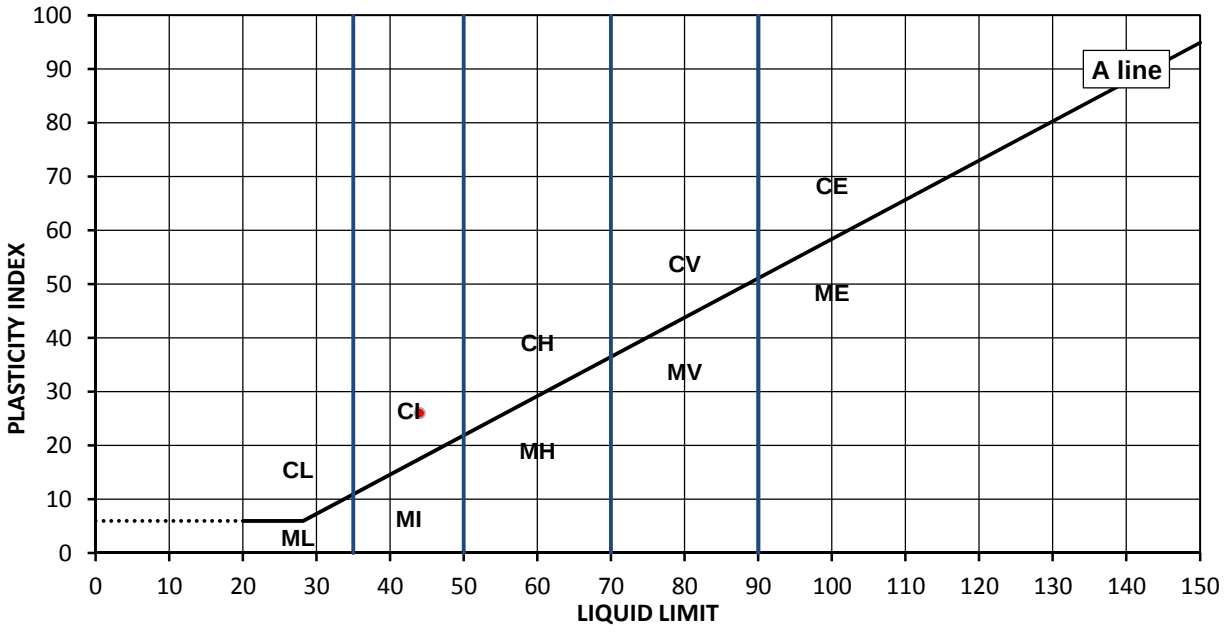
UKAS TESTING 4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044811	Depth Top [m]:	1.80
Hole No.:	TP209	Depth Base [m]:	2.00
Sample Reference:	9	Sample Type:	D
Soil Description:	Yellowish brown sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
37	44	18	26	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrows
PL Laboratory Manager
Date Reported:

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

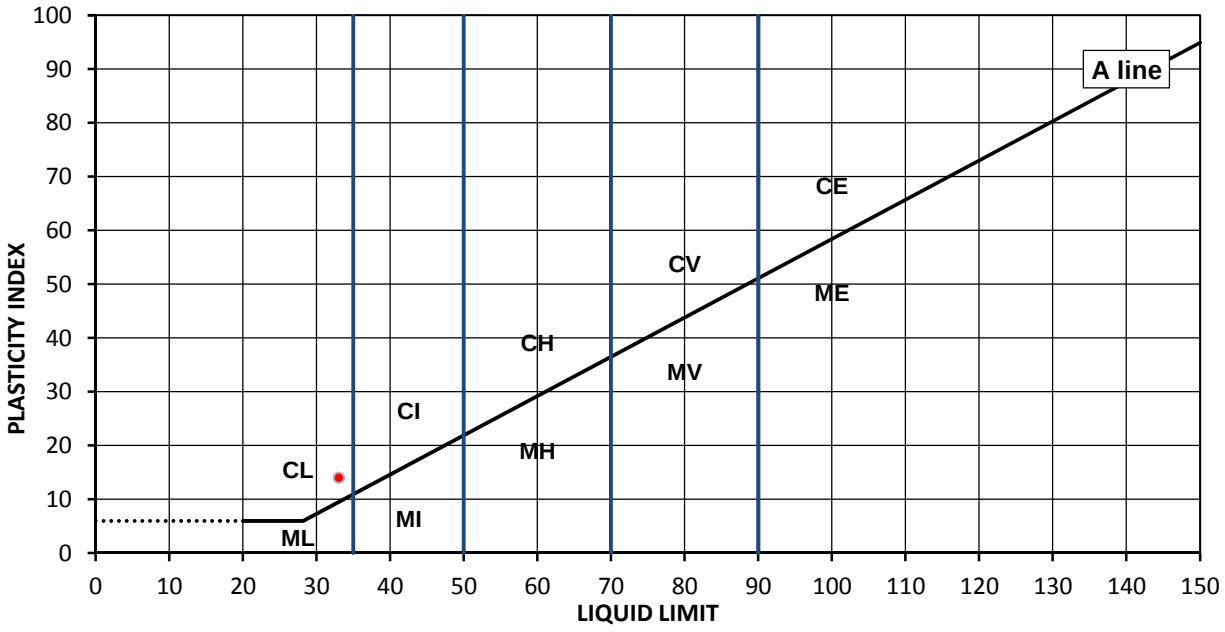
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044820	Depth Top [m]:	0.30
Hole No.:	TP221	Depth Base [m]:	0.50
Sample Reference:	3	Sample Type:	B
Soil Description:	Dark brown slightly gravelly very sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	33	19	14	88



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Signed:

Dariusz Piotrows
PL Laboratory Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

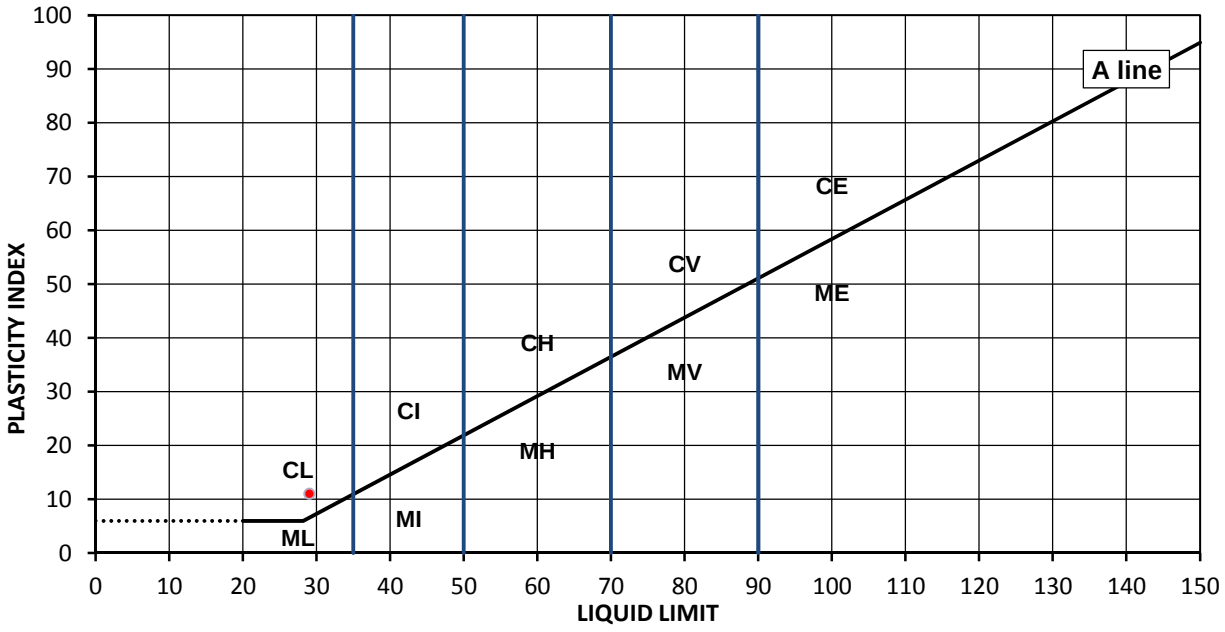
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044823	Depth Top [m]:	0.60
Hole No.:	TP223	Depth Base [m]:	0.70
Sample Reference:	4	Sample Type:	B
Soil Description:	Dark brown very sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	29	18	11	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

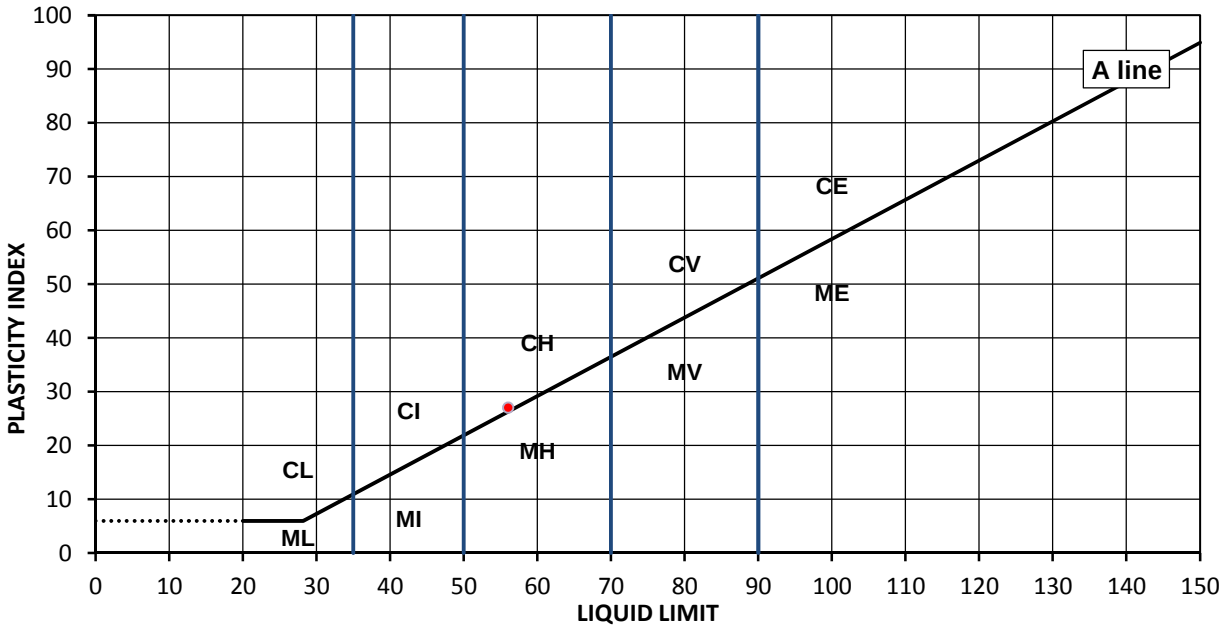
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044824	Depth Top [m]:	0.15
Hole No.:	TP226	Depth Base [m]:	0.25
Sample Reference:	2	Sample Type:	B
Soil Description:	Dark brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	56	29	27	70



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

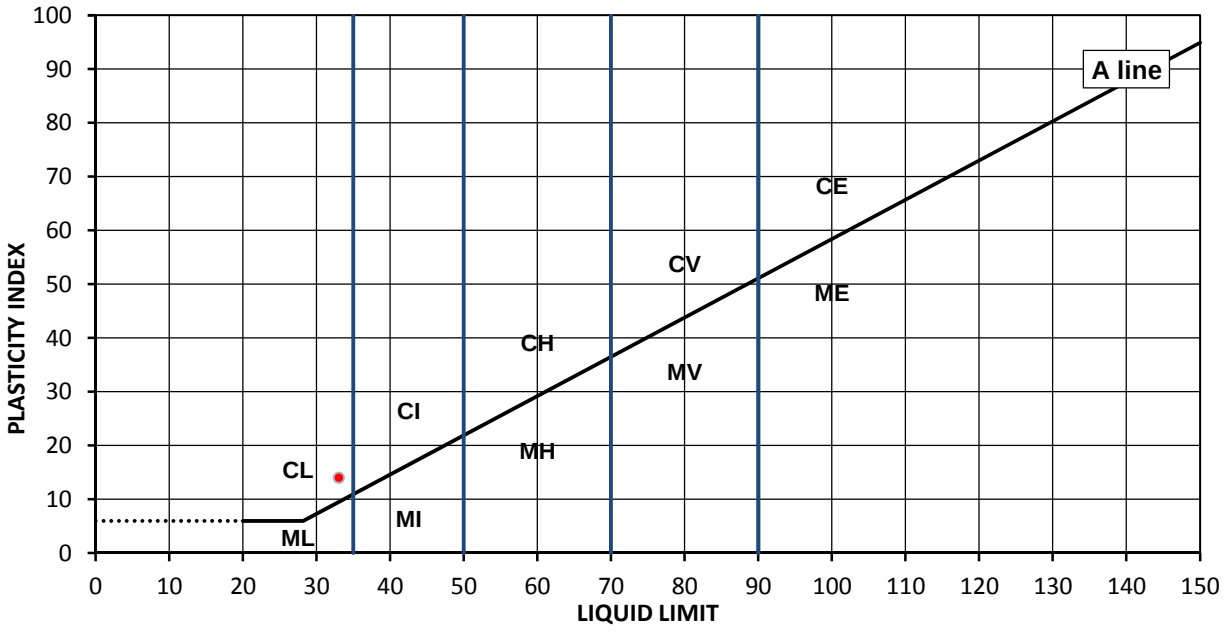
4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1044825	Depth Top [m]:	1.00
Hole No.:	WS201	Depth Base [m]:	2.00
Sample Reference:	7	Sample Type:	B
Soil Description:	Dark brown very sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	33	19	14	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrows
PL Laboratory Manager
Date Reported: 26/09/2018

Signed:

Darren Berrill
Geotechnical Genera
Manager

for and on behalf of i2 Analytical Ltd

GF 236.1

TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Arcadis Consulting (UK) Ltd
Client Address: 5th Floor
401 Faraday Street
Birchwood Park
Warrington
WA3 6GA
Contact: Karl Addison
Site Name: Otterpool Phase 2
Site Address: Not Given

Client Reference: 10011914
Job Number: 18-10187
Date Sampled: Not Given
Date Received: 05/09/2018
Date Tested: 19/09/2018
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	M/C	Atterberg				Density		Total Porosity
		Reference	Top depth [m]	Base depth [m]	Type		%	% Passing 425um %	LL %	PL %	PI %	bulk Mg/m3	PD Mg/m3	Mg/m3
1044798	BH204	5	1.20	1.55	D	Yellowish brown sandy CLAY	18							
1044800	BH206	10	1.20	1.40	D	Yellowish brown sandy CLAY	21	100	40	19	21			
1044802	BH207	3	0.50	1.00	B	Dark brown sandy CLAY	19	100	36	17	19			
1044803	BH207	15	1.20	1.40	D	Brown very sandy CLAY	20	100	32	18	14			
1044804	BH207	12	2.20	2.65	D	Greenish grey sandy CLAY	34							
1044808	TP202	1	0.20	0.30	B	Dark brown slightly gravelly slightly sandy CLAY	12	99	36	21	15			
1044809	TP202	3	0.40	0.50	B	Yellowish brown slightly gravelly sandy CLAY	21	83	43	22	21			
1044811	TP209	9	1.80	2.00	D	Yellowish brown sandy CLAY	37	100	44	18	26			
1044814	TP213	11	2.00	2.25	B	Dark brown CLAY	29							
1044815	TP214	5	0.60	0.70	D	Yellowish brown sandy CLAY	19							

Comments:

Approved: [redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 26/09/2018

Signed: [redacted]

Darren Berrill
Geotechnical General Manage

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Arcadis Consulting (UK) Ltd
Client Address: 5th Floor
401 Faraday Street
Birchwood Park
Warrington
WA3 6GA
Contact: Karl Addison
Site Name: Otterpool Phase 2
Site Address: Not Given

Client Reference: 10011914
Job Number: 18-10187
Date Sampled: Not Given
Date Received: 05/09/2018
Date Tested: 19/09/2018
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	M/C	Atterberg				Density		Total Porosity
		Reference	Top depth [m]	Base depth [m]	Type		%	% Passing 425um %	LL %	PL %	PI %	bulk Mg/m3	PD Mg/m3	Mg/m3
1044820	TP221	3	0.30	0.50	B	Dark brown slightly gravelly very sandy CLAY	17	88	33	19	14			
1044823	TP223	4	0.60	0.70	B	Dark brown very sandy CLAY	15	100	29	18	11			
1044824	TP226	2	0.15	0.25	B	Dark brown slightly gravelly slightly sandy CLAY	15	70	56	29	27			
1044825	WS201	7	1.00	2.00	B	Dark brown very sandy CLAY	20	100	33	19	14			

Comments:

Approved: [redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed: [redacted]

Darren Berrill
Geotechnical General Man

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

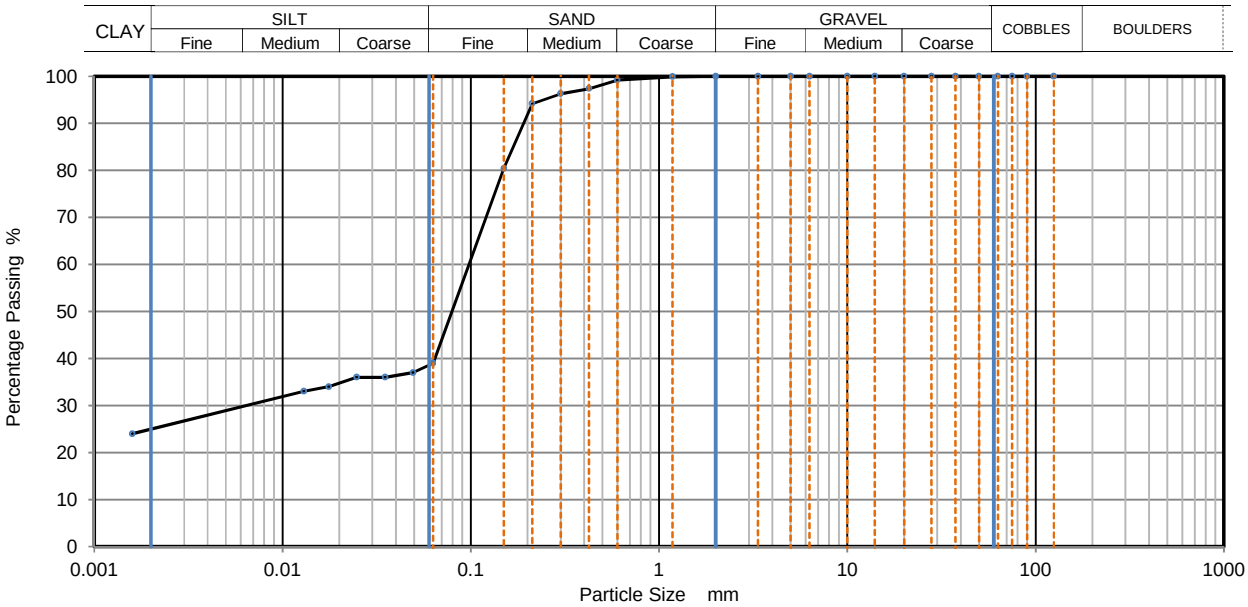
UKAS TESTING 4041

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

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044801 Sample Reference: 12

Sample description:	Brown silty clayey SAND	Sample Type:	D
Location:	BH206	Depth Top [m]:	2.20
Supplier:	Not Given	Depth Base [m]:	2.40



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	39
90	100	0.0493	37
75	100	0.0351	36
63	100	0.0248	36
50	100	0.0176	34
37.5	100	0.0130	33
28	100	0.0016	24
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99	Particle density	(assumed)
0.425	97	2.65	Mg/m3
0.3	96		
0.212	94		
0.15	80		
0.063	39		

Dry Mass of sample [g]: 141

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	61.20
Silt	14.00
Clay	24.80

Grading Analysis		
D100	mm	3.35
D60	mm	0.0981
D30	mm	0.0068
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

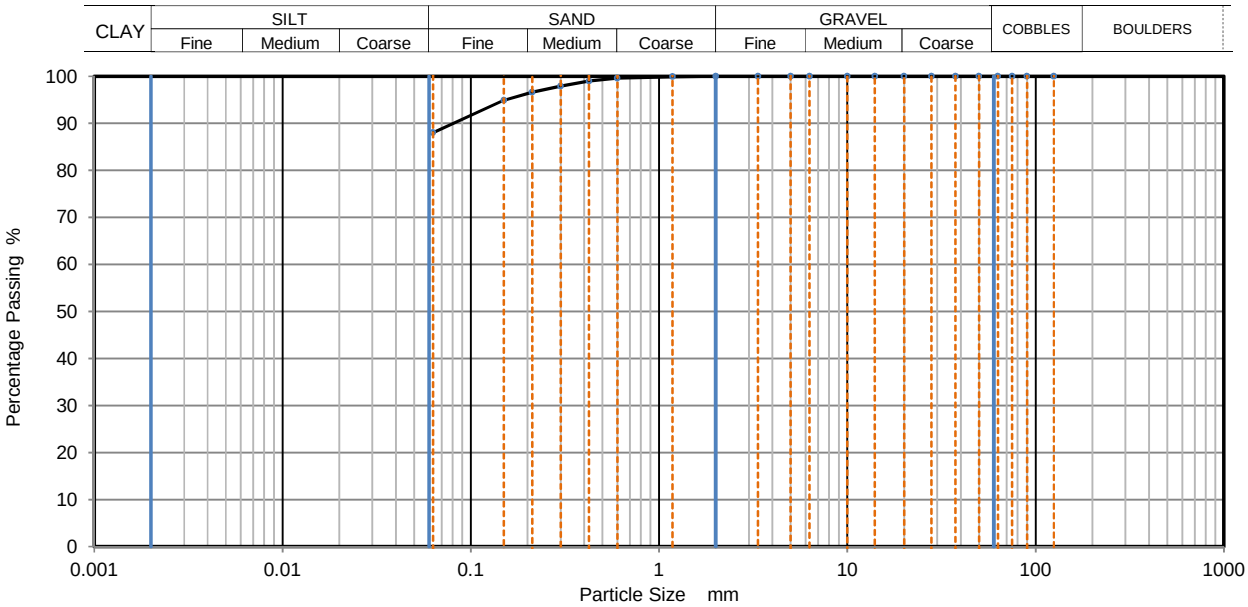
UKAS TESTING 4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044805

Sample description:	Yellowish brown slightly sandy CLAY	Sample Reference:	2
Location:	BH208	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	0.40
		Depth Base [m]:	0.60



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	98		
0.212	97		
0.15	95		
0.063	88		

Dry Mass of sample [g]: 787

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	11.60
Fines <0.063mm	88.40

Grading Analysis		
D100	mm	3.35
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manage
Geotechnical Section

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

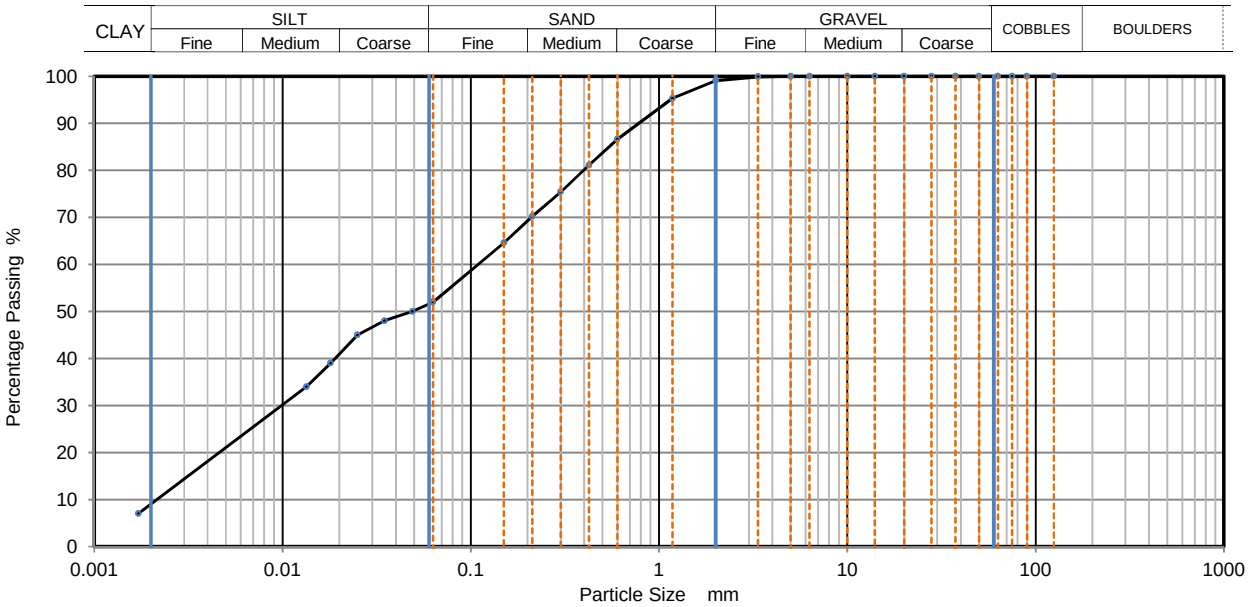
UKAS TESTING 4041

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

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044807

Sample description:	Brown clayey silty SAND	Sample Reference:	11
Location:	BH209	Sample Type:	D
Supplier:	Not Given	Depth Top [m]:	1.80
		Depth Base [m]:	2.00



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	52
90	100	0.0489	50
75	100	0.0348	48
63	100	0.0249	45
50	100	0.0180	39
37.5	100	0.0134	34
28	100	0.0017	7
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	95		
0.6	87	Particle density	(assumed)
0.425	81	2.65	Mg/m3
0.3	75		
0.212	70		
0.15	65		
0.063	52		

Dry Mass of sample [g]: 335

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.90
Sand	46.90
Silt	42.80
Clay	9.40

Grading Analysis		
D100	mm	5
D60	mm	0.109
D30	mm	0.0101
D10	mm	0.00209
Uniformity Coefficient		52
Curvature Coefficient		0.45

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

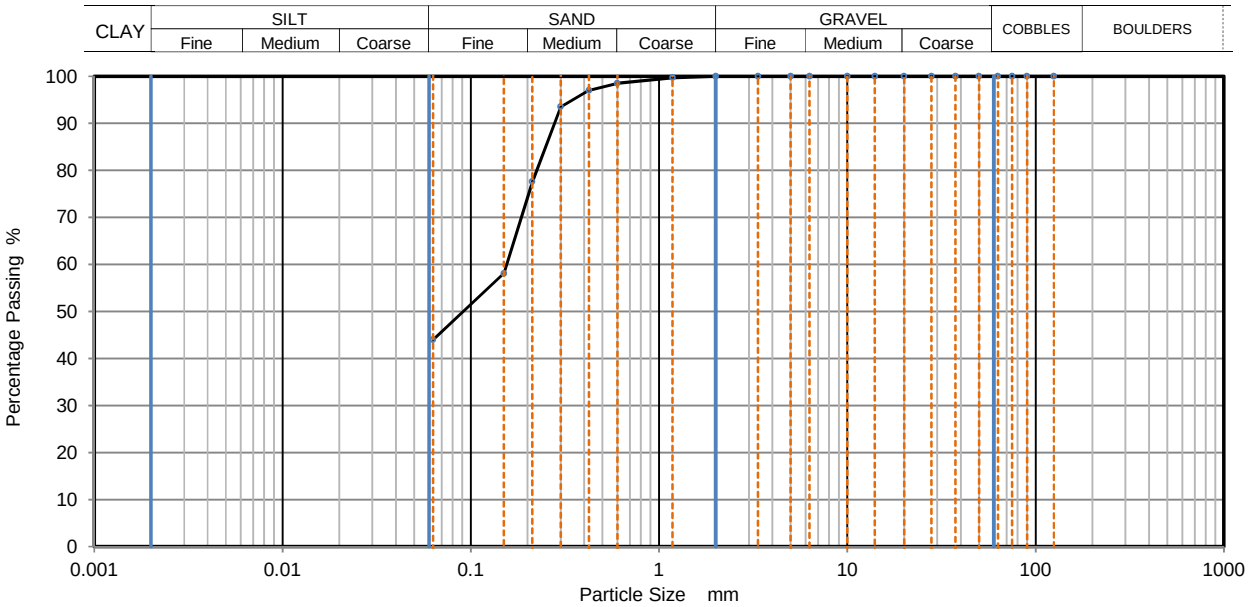
UKAS TESTING 4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044810

Sample description:	Dark brown very clayey SAND	Sample Reference:	3
Location:	TP209	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	0.20
		Depth Base [m]:	0.40



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	97		
0.3	94		
0.212	78		
0.15	58		
0.063	45		

Dry Mass of sample [g]: 561

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	55.10
Fines <0.063mm	44.90

Grading Analysis		
D100	mm	2
D60	mm	0.155
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

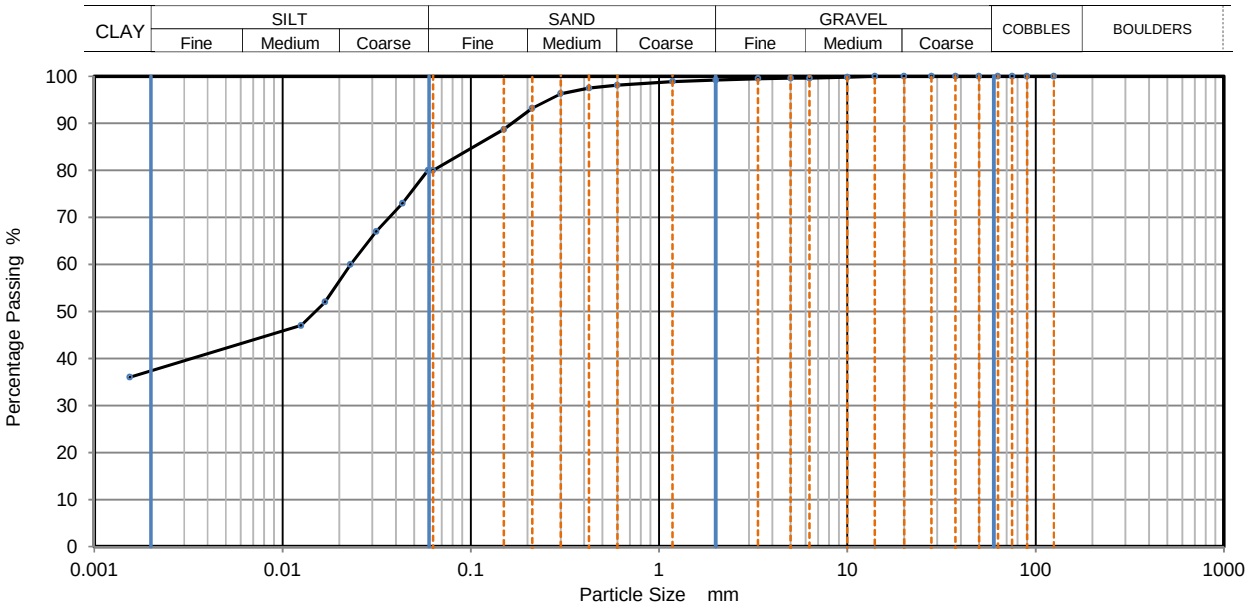
UKAS TESTING 4041

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

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044812

Sample description:	Dark brown slightly sandy clayey SILT	Sample Reference:	4
Location:	TP210	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	0.80
		Depth Base [m]:	0.90



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0592	80
90	100	0.0434	73
75	100	0.0314	67
63	100	0.0229	60
50	100	0.0168	52
37.5	100	0.0125	47
28	100	0.0015	36
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98	Particle density	(assumed)
0.425	98	2.65	Mg/m3
0.3	96		
0.212	93		
0.15	89		
0.063	80		

Dry Mass of sample [g]: 622

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.80
Sand	19.70
Silt	41.90
Clay	37.60

Grading Analysis		
D100	mm	14
D60	mm	0.0225
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

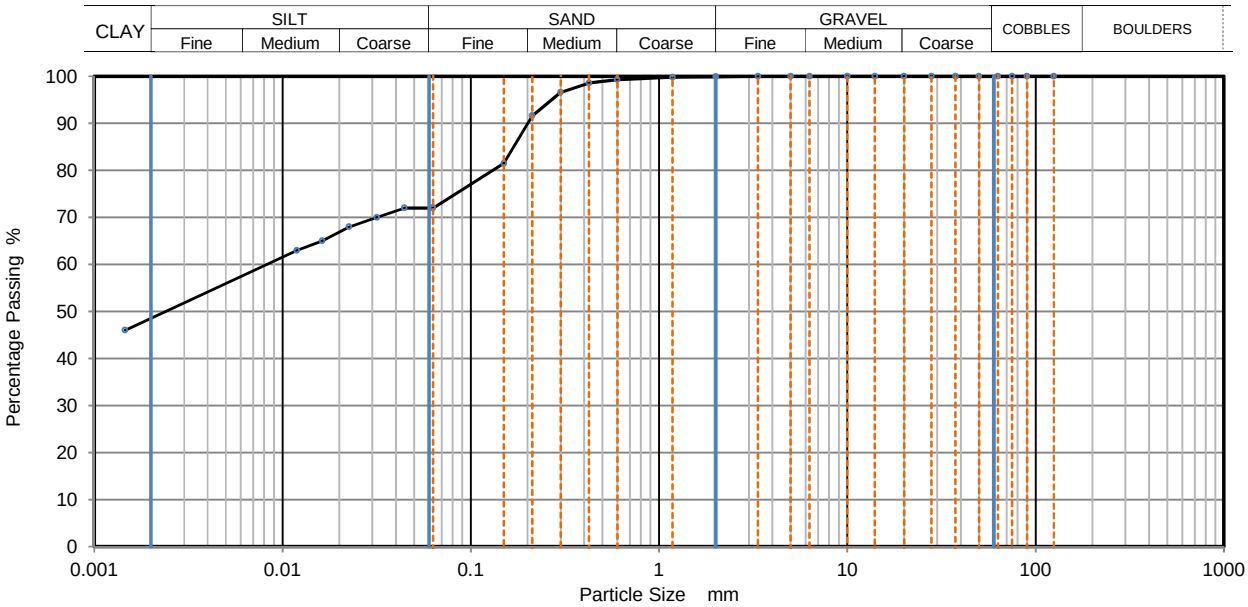
UKAS TESTING 4041

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

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044813

Sample description:	Yellowish brown slightly sandy silty CLAY	Sample Reference:	6
Location:	TP211	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	1.30
		Depth Base [m]:	1.40



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0628	72
90	100	0.0444	72
75	100	0.0317	70
63	100	0.0226	68
50	100	0.0162	65
37.5	100	0.0119	63
28	100	0.0015	46
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99	Particle density	(assumed)
0.425	99	2.65	Mg/m3
0.3	97		
0.212	92		
0.15	82		
0.063	72		

Dry Mass of sample [g]: 517

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	27.90
Silt	23.30
Clay	48.70

Grading Analysis		
D100	mm	5
D60	mm	0.0084
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

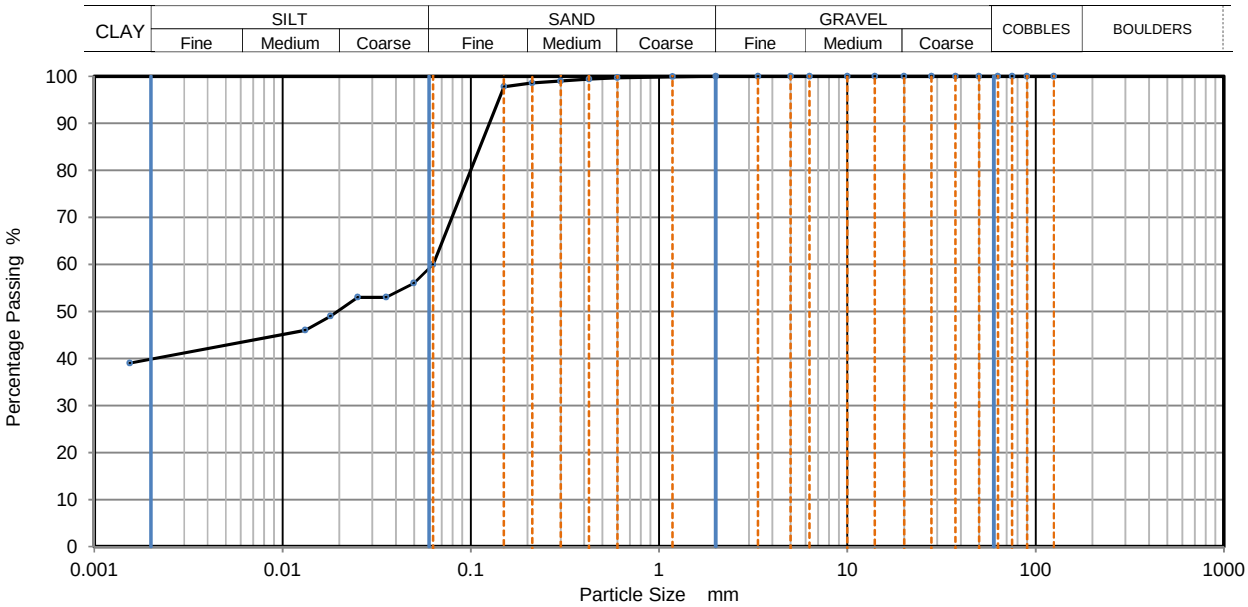
UKAS TESTING 4041

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

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044816

Sample description:	Yellowish brown sandy silty CLAY	Sample Reference:	9
		Sample Type:	B
Location:	TP217	Depth Top [m]:	1.50
Supplier:	Not Given	Depth Base [m]:	1.60



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	60
90	100	0.0498	56
75	100	0.0355	53
63	100	0.0251	53
50	100	0.0180	49
37.5	100	0.0132	46
28	100	0.0015	39
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density	(assumed)
0.425	99	2.65	Mg/m3
0.3	99		
0.212	99		
0.15	98		
0.063	60		

Dry Mass of sample [g]: 585

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	39.80
Silt	20.00
Clay	40.20

Grading Analysis		
D100	mm	3.35
D60	mm	0.0623
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

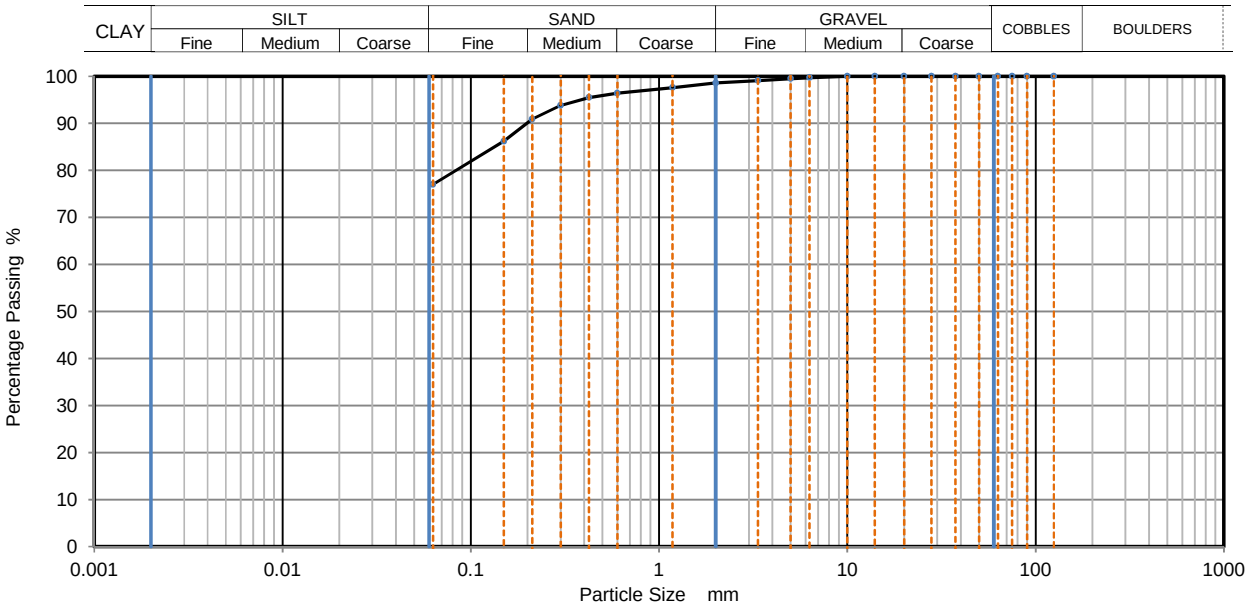
UKAS TESTING 4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044817

Sample description:	Dark brown slightly sandy CLAY	Sample Reference:	11
Location:	TP218	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	0.40
		Depth Base [m]:	0.50



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	96		
0.425	96		
0.3	94		
0.212	91		
0.15	86		
0.063	77		

Dry Mass of sample [g]: 598

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.40
Sand	21.40
Fines <0.063mm	77.20

Grading Analysis		
D100	mm	10
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

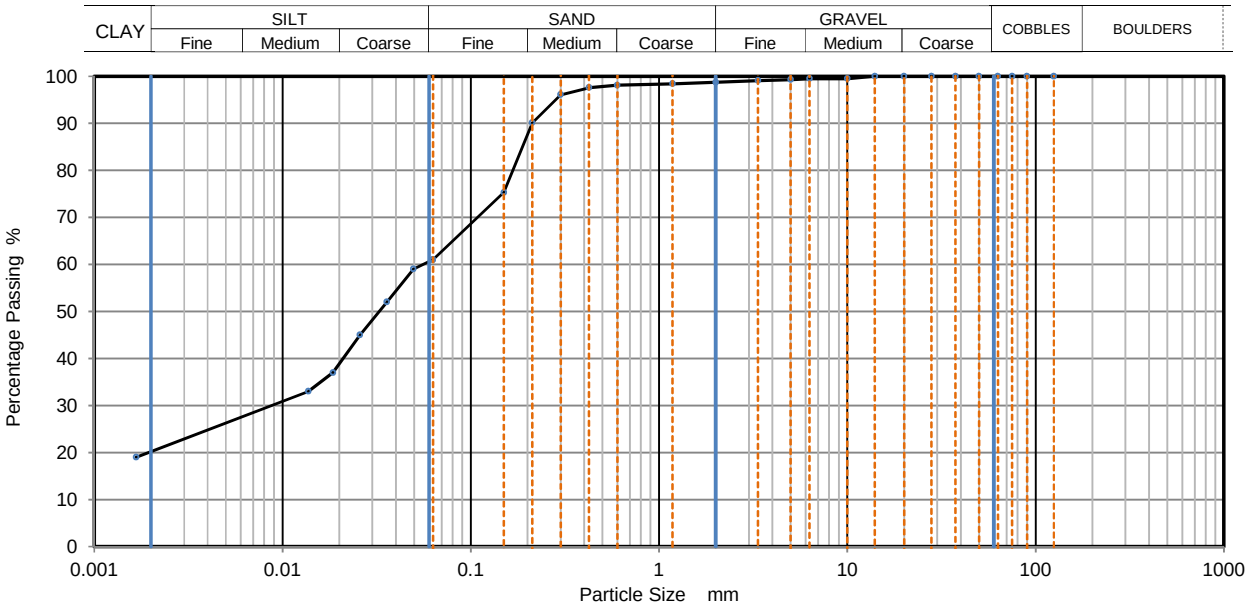
UKAS TESTING 4041

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

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044819 Sample Reference: 7

Sample description:	Brown sandy clayey SILT	Sample Type:	D
Location:	TP220	Depth Top [m]:	1.00
Supplier:	Not Given	Depth Base [m]:	1.10



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	61
90	100	0.0495	59
75	100	0.0357	52
63	100	0.0257	45
50	100	0.0185	37
37.5	100	0.0137	33
28	100	0.0017	19
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98	Particle density	(assumed)
0.425	98	2.65	Mg/m3
0.3	96		
0.212	90		
0.15	75		
0.063	61		

Dry Mass of sample [g]: 241

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.30
Sand	37.80
Silt	41.00
Clay	19.90

Grading Analysis		
D100	mm	14
D60	mm	0.0573
D30	mm	0.00902
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manag
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

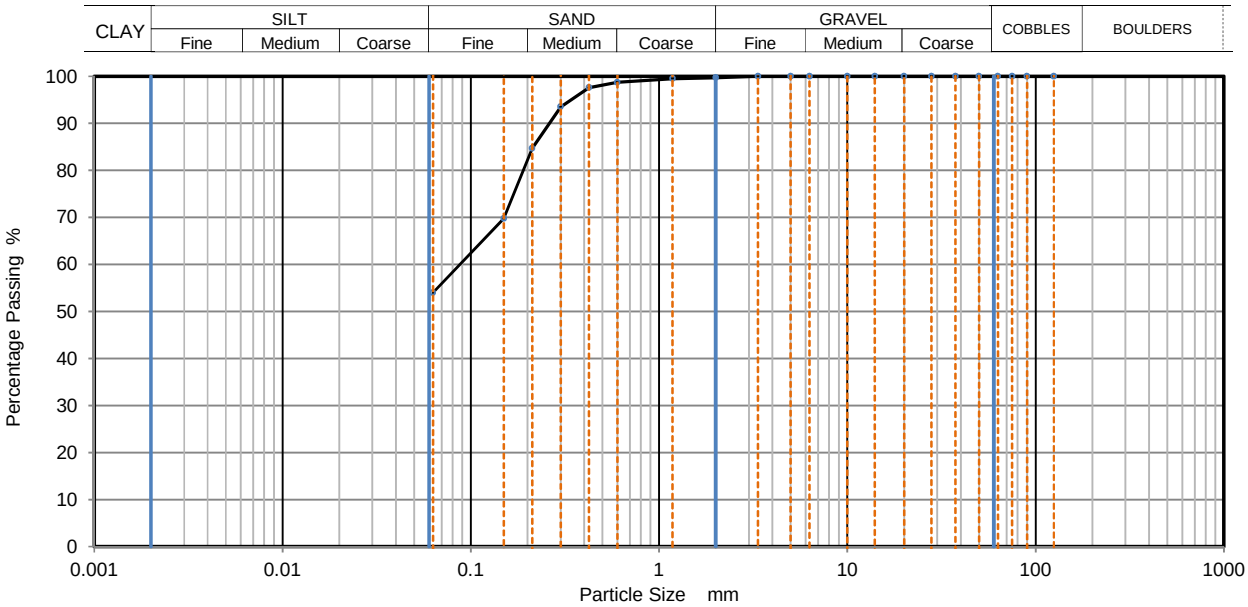
UKAS TESTING 4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1044822

Sample description:	Greyish brown sandy CLAY	Sample Reference:	7
Location:	TP221	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	1.10
		Depth Base [m]:	1.30



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	98		
0.3	94		
0.212	85		
0.15	70		
0.063	54		

Dry Mass of sample [g]: 494

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.30
Sand	45.40
Fines <0.063mm	54.40

Grading Analysis		
D100	mm	5
D60	mm	0.0864
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manage
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of California Bearing Ratio

Tested in Accordance with BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

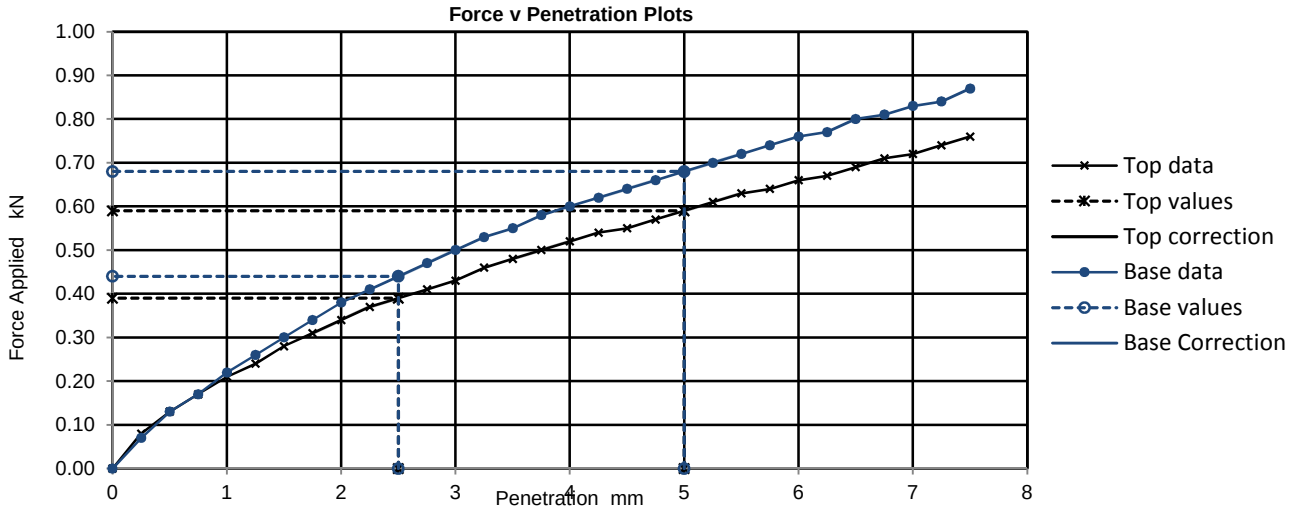
Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	22/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1044809	Depth Top [m]:	0.40
Hole No.:	TP202	Depth Base [m]:	0.50
Sample Reference:	3	Sample Type:	B

Specimen Preparation:

Condition	Remoulded			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
Sample Description:	Yellowish brown slightly gravelly sandy CLAY			Amount of swell recorded		mm
Material retained on 20mm sieve removed		0	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.08	Mg/m3	Surcharge applied	8	kg
	Dry density	1.72	Mg/m3		4.8	kPa
	Moisture content	21	%			



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	3.0	3.0	3.0	3.2	19
BASE	No	3.3	3.4	3.4		19

Remarks:

Test/ Specimen specific remarks:

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Mana
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical Genera
Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of California Bearing Ratio

Tested in Accordance with BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

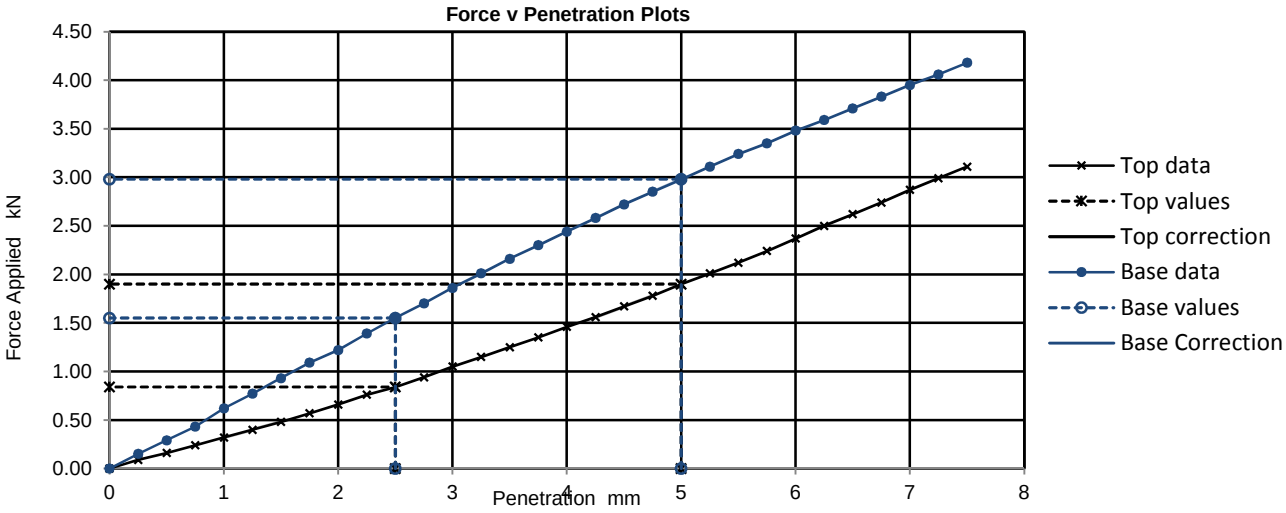
Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	22/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1044823	Depth Top [m]:	0.60
Hole No.:	TP223	Depth Base [m]:	0.70
Sample Reference:	4	Sample Type:	B

Specimen Preparation:

Condition	Remoulded			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
Sample Description:	Dark brown very sandy CLAY			Amount of swell recorded		mm
Material retained on 20mm sieve removed		0	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.06	Mg/m3	Surcharge applied	8	kg
	Dry density	1.79	Mg/m3		4.9	kPa
	Moisture content	15	%			



Results	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	6.4	9.5	9.5		14
BASE	No	12.0	15.0	15.0		15

Remarks:

Test/ Specimen specific remarks:

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Man
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical General Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Dry Density / Moisture Content Relationship
Light Compaction

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

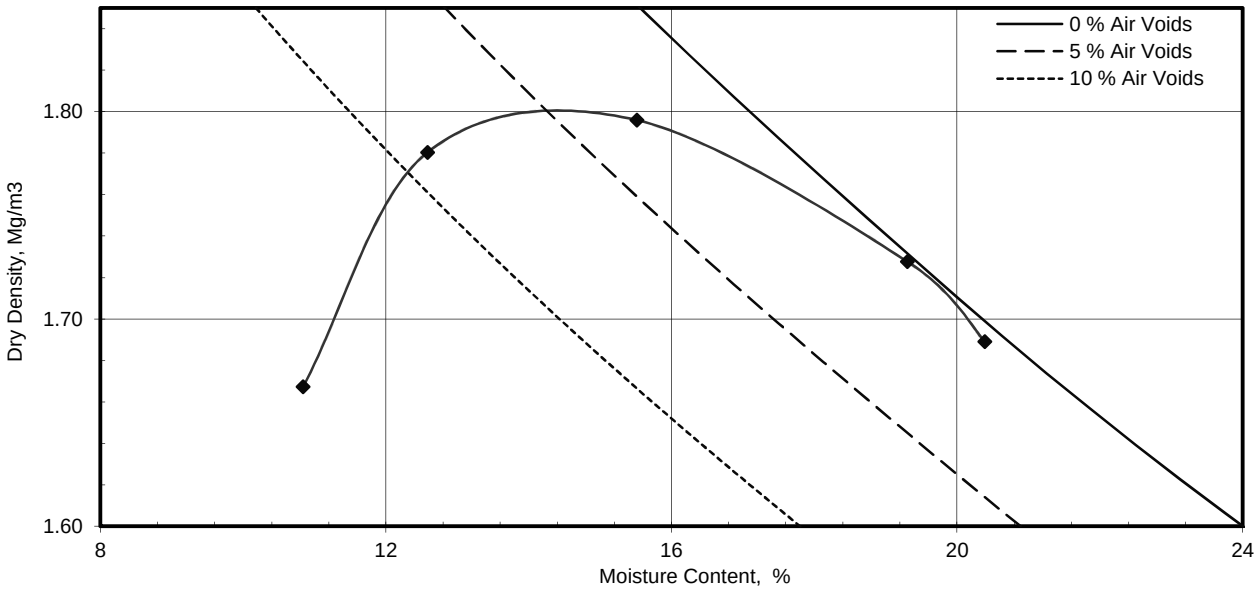
UKAS TESTING 4041

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
		Date Tested:	24/09/2018
Contact:	Karl Addison	Sampled By:	Not Given
Site Name:	Otterpool Phase 2		
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference:	1044818		
Hole No.:	TP218	Depth Top [m]:	1.34
Sample Reference:	13	Depth Base [m]:	1.80
Sample Description:	Yellowish brown sandy CLAY	Sample Type:	B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.60
As received Moisture Content	%	19
Maximum Dry Density	Mg/m³	**1.80**

Optimum Moisture Content	%	**16**

Remarks:

Approved:

[redacted]

Dariusz Piotrowsk
PL Laboratory Ma
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical Gener
Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Dry Density / Moisture Content Relationship
Light Compaction

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

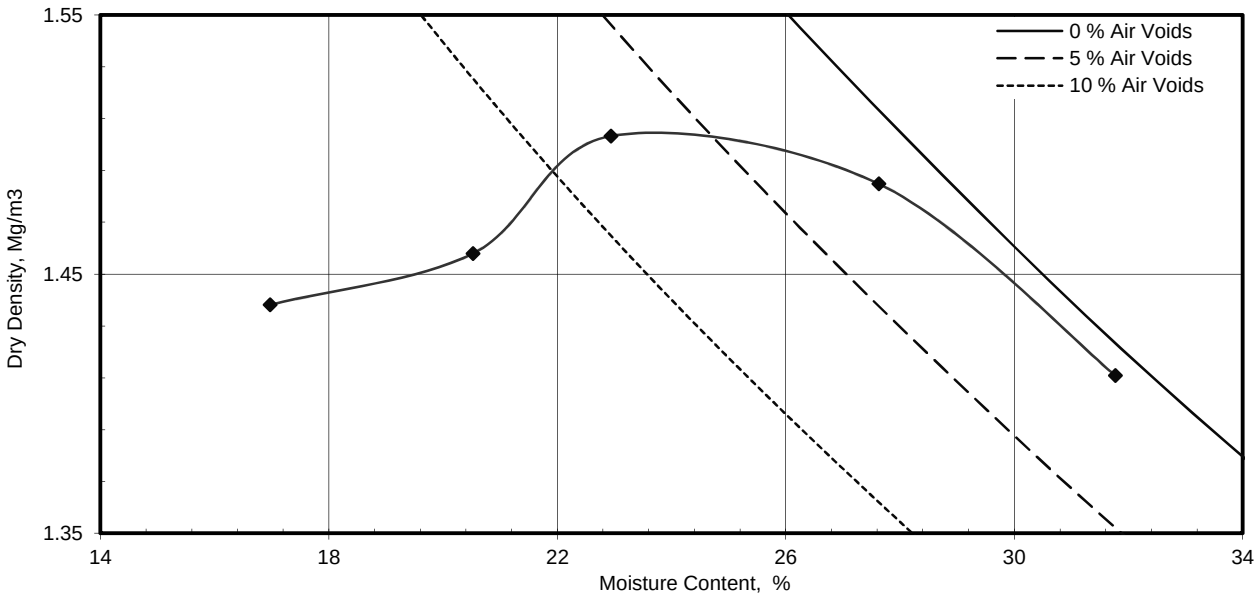
UKAS TESTING 4041

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
		Date Tested:	22/09/2018
Contact:	Karl Addison	Sampled By:	Not Given
Site Name:	Otterpool Phase 2		
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference:	1044821		
Hole No.:	TP221	Depth Top [m]:	0.70
Sample Reference:	5	Depth Base [m]:	1.00
Sample Description:	Brown CLAY	Sample Type:	B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.60
As received Moisture Content	%	28
Maximum Dry Density	Mg/m³	**1.50**

Optimum Moisture Content	%	**23**

Remarks:

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manag
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical General
Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Point Load Strength Index Tests Summary of Results

Tested in Accordance with ISRM : 2007, pages 125-132

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

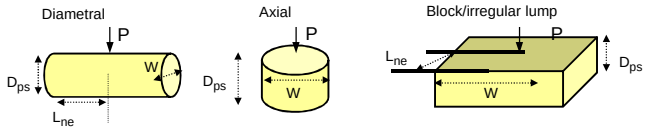
Client:	Arcadis Consulting (UK) Ltd
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA
Contact:	Karl Addison
Site Name:	Otterpool Phase 2
Site Address:	Not Given

Client Reference:	10011914
Job Number:	18-10187
Date Sampled:	Not Given
Date Received:	05/09/2018
Date Tested:	23/09/2018
Sampled By:	Not Given

Test results

Laboratory Reference	Hole No.	Sample				Specimen		Description	Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
		Reference	Depth Top [m]	Depth Base [m]	Type	Reference	Depth [m]			Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN	mm	Is MPa	Is(50) MPa	
1044796	BH202	10	3.40	3.80	U	Not Given	Not Given	Light grey LIMESTONE	LIMESTONE	A	U	YES	-	86.2	64.0	54.0	14.3	77.0	2.41	2.92	w = 1.1%
1044797	BH202	12	7.50	7.77	U	Not Given	Not Given	Light grey LIMESTONE	LIMESTONE	A	U	YES	-	85.9	37.0	35.0	3.2	61.9	0.85	0.93	w = 2.0%
1044799	BH204	10	3.20	3.43	D	Not Given	Not Given	Yellowish brown CLAY	CLAY	I	U	YES	18.9	34.6	33.0	21.0	0.1	30.4	0.13	0.10	w = 21.2%

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Comments:

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section
Date Reported: 26/09/2018

Signed:

[redacted]

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Unconsolidated Undrained Triaxial Compression - multistage test

BS1377: Part 7: 1990, clause 9, multistage test on a single specimen

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Client:	Arcadis Consulting (UK) Ltd	Client Reference:	10011914
Client Address:	5th Floor 401 Faraday Street Birchwood Park Warrington WA3 6GA	Job Number:	18-10187
		Date Sampled:	Not Given
		Date Received:	05/09/2018
Contact:	Karl Addison	Date Tested:	19/09/2018
Site Name:	Otterpool Phase 2	Sampled By:	Not Given
Site Address:	Not Given		

Test Result

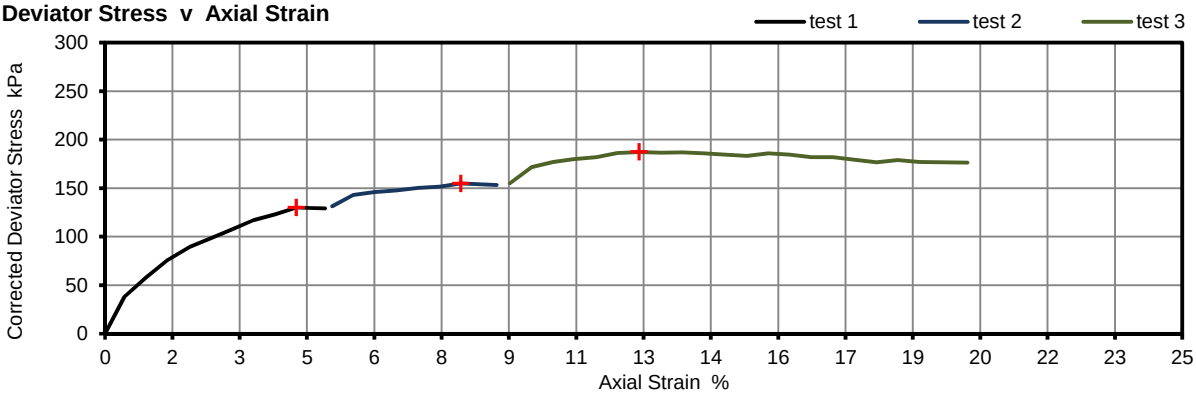
Laboratory Reference:	1044806
Hole No.:	BH208
Sample Reference:	6
Sample Description:	Yellowish brown sandy CLAY

Depth Top [m]:	1.20
Depth Base [m]:	1.65
Sample Type:	U

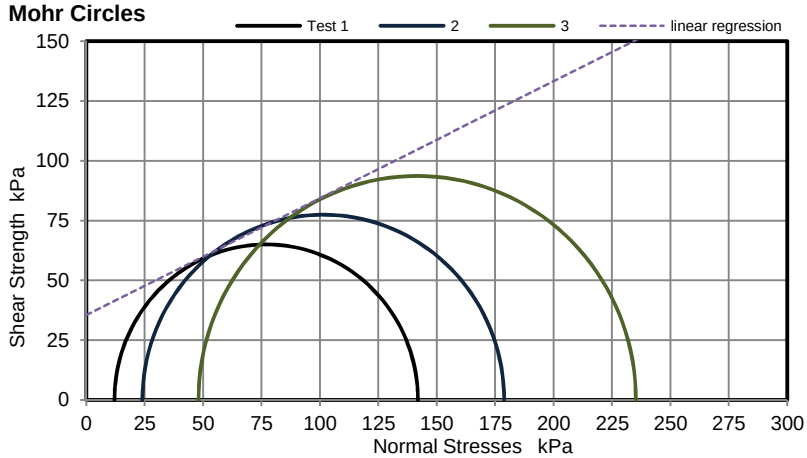
Length	135.10	mm
Diameter	69.30	mm
Bulk Density	2.09	Mg/m3
Moisture Content	19	%
Dry Density	1.76	Mg/m3
Membrane thickness	0.29	mm

Rate of Strain	2.00			%/min
Stage Number	1	2	3	
Cell Pressure	12	24	48	kPa
Axial Strain at failure	4.4	8.3	12.4	%
Deviator Stress, (σ1 - σ3)f	130	155	187	kPa
Shear strength, cu	65	77	94	kPa
Mode of failure	Compound			
Membrane Correction	0.51	0.81	1.09	kPa

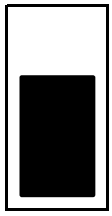
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Notes:

Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Linear Regression

ϕu	26.1	°
cu	35	kPa

Remarks

Correction values: 12kPa-6N, 24kPa-11N, 48kPa-21N

Comments:

Approved:

[redacted]

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

[redacted]

Darren Berrill
Geotechnical Gener
Manager

Date Reported: 26/09/2018

for and on behalf of i2 Analytical Ltd

Karl Addison
Arcadis Consulting (UK) Ltd
5th Floor
401 Faraday Street
Birchwood Park
Warrington
WA3 6GA

e: karl.addison@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-10193

Project / Site name:	Otterpool Phase 2	**Samples received on:**	05/09/2018
Your job number:	10011914	**Samples instructed on:**	13/09/2018
Your order number:	14015444	**Analysis completed by:**	26/09/2018
Report Issue Number:	1	**Report issued on:**	26/09/2018
Samples Analysed:	5 soil samples		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-10193

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1044850	1044851	1044852	1044853	1044854
Sample Reference				BH208	BH209	BH209	TP213	TP215
Sample Number				14	13	18	5	7
Depth (m)				2.90-3.00	2.70-3.00	5.00-5.20	1.00-1.20	1.30-1.35
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	25	19	16	7.7
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.5	0.50	1.5
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.3	7.7	8.3	4.6	6.6
Total Sulphate as SO_4	%	0.005	MCERTS	0.036	0.164	0.294	0.052	0.060
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.070	0.65	1.3	0.16	0.14
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	69.8	647	1310	155	141
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	7.4	13	100	26	8.3
Total Sulphur	%	0.005	MCERTS	0.014	0.846	0.345	0.019	0.024
Ammonium as NH_4	mg/kg	0.5	MCERTS	0.7	0.8	2.0	0.7	1.1
Ammonium as NH_4 (leachate equivalent)	mg/l	0.05	MCERTS	0.07	0.08	0.20	0.07	0.11
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Heavy Metals / Metalloids								
Magnesium (water soluble)	mg/kg	5	NONE	31	26	46	17	9.0
Magnesium (leachate equivalent)	mg/l	2.5	NONE	16	13	23	8.6	4.5

Analytical Report Number : 18-10193

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1044850	BH208	14	2.90-3.00	Light brown clay and sand.
1044851	BH209	13	2.70-3.00	Grey clay and sand with gravel and vegetation.
1044852	BH209	18	5.00-5.20	Grey clay and sand.
1044853	TP213	5	1.00-1.20	Light brown clay and sand.
1044854	TP215	7	1.30-1.35	Light brown sandy clay.

Analytical Report Number : 18-10193

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH208	14	S	18-10193	1044850	a			
BH209	13	S	18-10193	1044851	a			
BH209	18	S	18-10193	1044852	a			
TP213	5	S	18-10193	1044853	a			
TP215	7	S	18-10193	1044854	a			

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

APPENDIX G

GEO-ENVIRONMENTAL LABORATORY TEST DATA

Simon Harlow
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: Simon.Harlow@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-97448

Project / Site name:	Otterpool Phase 2	**Samples received on:**	20/08/2018
Your job number:	10011914	**Samples instructed on:**	22/08/2018
Your order number:		**Analysis completed by:**	03/09/2018
Report Issue Number:	1	**Report issued on:**	03/09/2018
Samples Analysed:	1 soil sample		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-97448

Project / Site name: Otterpool Phase 2

Lab Sample Number				1029165				
Sample Reference				TP218				
Sample Number				2				
Depth (m)				0.40-0.50				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	8.1				
Total mass of sample received	kg	0.001	NONE	1.1				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.6				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.7				
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	34				

Analytical Report Number: 18-97448

Project / Site name: Otterpool Phase 2

Lab Sample Number				1029165				
Sample Reference				TP218				
Sample Number				2				
Depth (m)				0.40-0.50				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH6 - Aliphatic (C6 - C8)	mg/kg	0.001	MCERTS	< 0.001				
TPH6 - Aliphatic (C8 - C10)	mg/kg	0.001	MCERTS	< 0.001				
TPH6 - Aliphatic (C10 - C12)	mg/kg	1	MCERTS	< 1.0				
TPH6 - Aliphatic (C12 - C16)	mg/kg	2	MCERTS	< 2.0				
TPH6 - Aliphatic (C16 - C21)	mg/kg	8	MCERTS	< 8.0				
TPH6 - Aliphatic (C21 - C35)	mg/kg	8	MCERTS	< 8.0				
TPH6 - Aliphatic (C6 - C35)	mg/kg	10	NONE	< 10				
TPH6 - Aromatic (C6 - C8)	mg/kg	0.001	NONE	< 0.001				
TPH6 - Aromatic (C8 - C10)	mg/kg	0.001	MCERTS	< 0.001				
TPH6 - Aromatic (C10 - C12)	mg/kg	1	MCERTS	< 1.0				
TPH6 - Aromatic (C12 - C16)	mg/kg	2	MCERTS	< 2.0				
TPH6 - Aromatic (C16 - C21)	mg/kg	10	MCERTS	< 10				
TPH6 - Aromatic (C21 - C35)	mg/kg	10	MCERTS	< 10				
TPH6 - Aromatic (C6 - C35)	mg/kg	10	NONE	< 10				

Analytical Report Number : 18-97448

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1029165	TP218	2	0.40-0.50	Brown sandy loam with gravel and vegetation.

Analytical Report Number : 18-97448

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH6 (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP218	2	S	18-97448	1029165	a			

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-97654

Project / Site name:	Otterpool Phase 2	**Samples received on:**	20/08/2018
Your job number:	10011914	**Samples instructed on:**	23/08/2018
Your order number:		**Analysis completed by:**	04/09/2018
Report Issue Number:	1	**Report issued on:**	04/09/2018
Samples Analysed:	1 soil sample		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-97654

Project / Site name: Otterpool Phase 2

Lab Sample Number				1030376				
Sample Reference				TP217				
Sample Number				1				
Depth (m)				0.00-0.36				
Date Sampled				15/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	11				
Total mass of sample received	kg	0.001	NONE	1.4				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.8				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.025				
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.3				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.0				
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39				

Analytical Report Number: 18-97654

Project / Site name: Otterpool Phase 2

Lab Sample Number				1030376				
Sample Reference				TP217				
Sample Number				1				
Depth (m)				0.00-0.36				
Date Sampled				15/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

Analytical Report Number : 18-97654

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1030376	TP217	1	0.00-0.36	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 18-97654

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP217	1	S	18-97654	1030376	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Simon Harlow
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: Simon.Harlow@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-97995

Project / Site name:	Otterpool Phase 2	**Samples received on:**	28/08/2018
Your job number:	10011914	**Samples instructed on:**	28/08/2018
Your order number:		**Analysis completed by:**	06/09/2018
Report Issue Number:	1	**Report issued on:**	06/09/2018
Samples Analysed:	1 soil sample		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-97995

Project / Site name: Otterpool Phase 2

Lab Sample Number				1032565				
Sample Reference				TP208				
Sample Number				4				
Depth (m)				0.20-0.40				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	5.2				
Total mass of sample received	kg	0.001	NONE	1.3				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.7				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0058				
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.5				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.6				
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	41				

Analytical Report Number: 18-97995

Project / Site name: Otterpool Phase 2

Lab Sample Number				1032565				
Sample Reference				TP208				
Sample Number				4				
Depth (m)				0.20-0.40				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

Analytical Report Number : 18-97995

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1032565	TP208	4	0.20-0.40	Light brown loam and sand with gravel and vegetation.

Analytical Report Number : 18-97995

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP208	4	S	18-97995	1032565	a			

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Simon Harlow
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: Simon.Harlow@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98103

Project / Site name:	Otterpool Phase 2	**Samples received on:**	29/08/2018
Your job number:	40011914	**Samples instructed on:**	29/08/2018
Your order number:		**Analysis completed by:**	06/09/2018
Report Issue Number:	1	**Report issued on:**	06/09/2018
Samples Analysed:	2 soil samples		

Signed [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98103

Project / Site name: Otterpool Phase 2

Lab Sample Number				1033363	1033364			
Sample Reference				TP209	TP209			
Sample Number				1	4			
Depth (m)				0.00-0.20	0.90-1.00			
Date Sampled				24/08/2018	24/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	7.0	8.2			
Total mass of sample received	kg	0.001	NONE	1.2	1.2			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.1	7.5			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0054	0.0023			
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.5	0.2			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	1.1	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	0.18	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	1.5	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	1.3	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.70	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	0.60	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.81	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.37	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.74	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.46	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.57	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	8.39	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.0	8.0			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	0.3			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	38			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	4.3			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	7.6			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	38			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	33			

Analytical Report Number: 18-98103

Project / Site name: Otterpool Phase 2

Lab Sample Number				1033363	1033364			
Sample Reference				TP209	TP209			
Sample Number				1	4			
Depth (m)				0.00-0.20	0.90-1.00			
Date Sampled				24/08/2018	24/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	< 1.0			
Toluene	µg/kg	1	MCERTS	-	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0			
o-xylene	µg/kg	1	MCERTS	-	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-	< 0.1			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10			

Analytical Report Number : 18-98103

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1033363	TP209	1	0.00-0.20	Brown sandy loam with gravel and vegetation.
1033364	TP209	4	0.90-1.00	Light brown sandy clay with vegetation.

Analytical Report Number : 18-98103

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98498

Project / Site name:	Otterpool Phase 2	**Samples received on:**	28/08/2018
Your job number:	10011914	**Samples instructed on:**	03/09/2018
Your order number:		**Analysis completed by:**	11/09/2018
Report Issue Number:	1	**Report issued on:**	11/09/2018
Samples Analysed:	2 soil samples		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98498

Project / Site name: Otterpool Phase 2

Lab Sample Number				1035823	1035824			
Sample Reference				TP201	TP201			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20-0.40	1.20-1.30			
Date Sampled				23/08/2018	23/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	8.7	14			
Total mass of sample received	kg	0.001	NONE	1.2	1.4			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9	8.3			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0068	0.013			
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.4	< 0.1			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	12			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.6			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	35			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	21			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	13			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	28			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43	53			

Analytical Report Number: 18-98498

Project / Site name: Otterpool Phase 2

Lab Sample Number				1035823	1035824			
Sample Reference				TP201	TP201			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20-0.40	1.20-1.30			
Date Sampled				23/08/2018	23/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

Analytical Report Number : 18-98498

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1035823	TP201	None Supplied	0.20-0.40	Light brown clay and sand with vegetation.
1035824	TP201	None Supplied	1.20-1.30	Light brown clay and sand.

Analytical Report Number : 18-98498

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP201		S	18-98498	1035823	c	Total cyanide in soil	L080-PL	c
TP201		S	18-98498	1035824	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98504

Project / Site name:	Otterpool Phase 2	**Samples received on:**	23/08/2018
Your job number:	10011914	**Samples instructed on:**	03/09/2018
Your order number:		**Analysis completed by:**	11/09/2018
Report Issue Number:	1	**Report issued on:**	11/09/2018
Samples Analysed:	1 soil sample		

Signed [redacted]
Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98504

Project / Site name: Otterpool Phase 2

Lab Sample Number				1035855				
Sample Reference				TP213				
Sample Number				None Supplied				
Depth (m)				0.00-0.30				
Date Sampled				21/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	11				
Total mass of sample received	kg	0.001	NONE	1.1				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	0.63				
Anthracene	mg/kg	0.05	MCERTS	0.15				
Fluoranthene	mg/kg	0.05	MCERTS	2.2				
Pyrene	mg/kg	0.05	MCERTS	2.0				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.4				
Chrysene	mg/kg	0.05	MCERTS	1.3				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.1				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.0				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.8				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.84				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.23				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	14.9				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.6				
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	29				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43				

Analytical Report Number : 18-98504

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1035855	TP213	None Supplied	0.00-0.30	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 18-98504

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP213		S	18-98504	1035855	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98557

Project / Site name:	Otterpool Phase 2	**Samples received on:**	23/08/2018
Your job number:	10011914	**Samples instructed on:**	03/09/2018
Your order number:		**Analysis completed by:**	11/09/2018
Report Issue Number:	1	**Report issued on:**	11/09/2018
Samples Analysed:	2 soil samples		

Signed [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98557

Project / Site name: Otterpool Phase 2

Lab Sample Number				1036160	1036161			
Sample Reference				TP221	TP221			
Sample Number				2	6			
Depth (m)				0.10-0.30	0.70-1.00			
Date Sampled				21/08/2018	21/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	6.4	12			
Total mass of sample received	kg	0.001	NONE	1.3	1.0			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.2	7.1			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0089	0.018			
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.6	0.2			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	33			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.8			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	49			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10	17			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	19			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	100			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	36	72			

Analytical Report Number : 18-98557

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1036160	TP221	2	0.10-0.30	Light brown loam and sand with gravel and vegetation.
1036161	TP221	6	0.70-1.00	Light brown clay and sand.

Analytical Report Number : 18-98557

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP221	2	S	18-98557	1036160	c	Total cyanide in soil	L080-PL	c
TP221	6	S	18-98557	1036161	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Jon Raven
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: jonathan.raven@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98559

Project / Site name:	Otterpool Phase 2	**Samples received on:**	28/08/2018
Your job number:	10011914	**Samples instructed on:**	03/09/2018
Your order number:		**Analysis completed by:**	11/09/2018
Report Issue Number:	1	**Report issued on:**	11/09/2018
Samples Analysed:	1 leachate sample - 1 soil sample		

Signed: [redacted]

Jordan H
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98559

Project / Site name: Otterpool Phase 2

Lab Sample Number				1036166				
Sample Reference				TP202				
Sample Number				2				
Depth (m)				0.20-0.30				
Date Sampled				23/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	8.4				
Total mass of sample received	kg	0.001	NONE	1.2				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.1				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0099				
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.6				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10				
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	45				

Analytical Report Number: 18-98559

Project / Site name: Otterpool Phase 2

Lab Sample Number				1036166				
Sample Reference				TP202				
Sample Number				2				
Depth (m)				0.20-0.30				
Date Sampled				23/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

Analytical Report Number: 18-98559

Project / Site name: Otterpool Phase 2

Lab Sample Number				1036167				
Sample Reference				TP202				
Sample Number				2				
Depth (m)				0.20-0.30				
Date Sampled				23/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.3				
Total Cyanide	mg/l	0.01	ISO 17025	< 0.010				
Free Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO_4	mg/l	0.1	ISO 17025	3.4				
Alkalinity	mgCaCO3/l	3	ISO 17025	4.6				
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	0.41				
Acenaphthylene	µg/l	0.01	ISO 17025	0.20				
Acenaphthene	µg/l	0.01	ISO 17025	0.17				
Fluorene	µg/l	0.01	ISO 17025	0.17				
Phenanthrene	µg/l	0.01	ISO 17025	1.3				
Anthracene	µg/l	0.01	ISO 17025	0.36				
Fluoranthene	µg/l	0.01	ISO 17025	3.6				
Pyrene	µg/l	0.01	ISO 17025	2.9				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	2.1				
Chrysene	µg/l	0.01	ISO 17025	1.6				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	1.2				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	0.71				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	1.1				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	0.63				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	0.19				
Benzo(ghi)perylene	µg/l	0.01	NONE	0.63				
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	NONE	17				
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1				
Boron (dissolved)	µg/l	10	ISO 17025	15				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.9				
Copper (dissolved)	µg/l	0.7	ISO 17025	18				
Lead (dissolved)	µg/l	1	ISO 17025	2.9				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.0				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Zinc (dissolved)	µg/l	0.4	ISO 17025	12				

Analytical Report Number : 18-98559

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1036166	TP202	2	0.20-0.30	Light brown loam and clay with gravel and vegetation.

Analytical Report Number : 18-98559

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Leachate	Determination of Alkalinity by discreet analyser (colorimetry).	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS

Analytical Report Number : 18-98559

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP202	2	S	18-98559	1036166	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98775

Project / Site name:	Otterpool Phase 2	**Samples received on:**	03/09/2018
Your job number:	10011914	**Samples instructed on:**	04/09/2018
Your order number:		**Analysis completed by:**	12/09/2018
Report Issue Number:	1	**Report issued on:**	12/09/2018
Samples Analysed:	1 leachate sample - 9 soil samples		

Signed [redacted]
Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98775

Project / Site name: Otterpool Phase 2

Lab Sample Number				1037363	1037364	1037365	1037366	1037367
Sample Reference				BH201	BH201	BH208	BH209	BH209
Sample Number				1	5	4	1	5
Depth (m)				0.00-0.30	1.20-1.40	0.40-0.60	0.00-0.20	0.90-1.00
Date Sampled				31/08/2018	31/08/2018	31/08/2018	22/08/2018	22/08/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	12	8.7	10	23
Total mass of sample received	kg	0.001	NONE	1.2	1.3	1.1	1.2	1.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.4	7.7	7.0	7.1	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	0.0080	0.011	0.013	0.013
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.8	0.2	0.5	1.6	0.9
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.5	9.9	7.6	15	7.0
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	0.5	0.9	1.6	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	30	30	31	38
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	16	14	8.9	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	11	11	18	9.8
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	820	710	470	1000	200
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	24	19	26	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39	49	48	42	48

Analytical Report Number: 18-98775

Project / Site name: Otterpool Phase 2

Lab Sample Number				1037363	1037364	1037365	1037366	1037367
Sample Reference				BH201	BH201	BH208	BH209	BH209
Sample Number				1	5	4	1	5
Depth (m)				0.00-0.30	1.20-1.40	0.40-0.60	0.00-0.20	0.90-1.00
Date Sampled				31/08/2018	31/08/2018	31/08/2018	22/08/2018	22/08/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	1.7	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	3.7	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	16	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	99	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	120	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

Analytical Report Number: 18-98775

Project / Site name: Otterpool Phase 2

Lab Sample Number				1037368	1037369	1037370	1037371	
Sample Reference				WS201	WS201	WS202	WS203	
Sample Number				1	8	2	1	
Depth (m)				0.00-0.20	1.20-1.30	0.50-0.60	0.00-0.20	
Date Sampled				30/08/2018	30/08/2018	30/08/2018	30/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	16	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	7.1	15	8.5	13	
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.1	1.2	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	7.6	7.3	6.9	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.011	0.0083	0.0062	0.011	
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.2	-	0.4	1.6	
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Phenanthrene	mg/kg	0.05	MCERTS	0.71	< 0.05	< 0.05	0.10	
Anthracene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	< 0.05	
Fluoranthene	mg/kg	0.05	MCERTS	1.2	< 0.05	< 0.05	0.30	
Pyrene	mg/kg	0.05	MCERTS	1.0	< 0.05	< 0.05	0.28	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.67	< 0.05	< 0.05	0.17	
Chrysene	mg/kg	0.05	MCERTS	0.76	< 0.05	< 0.05	0.24	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.91	< 0.05	< 0.05	0.29	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.64	< 0.05	< 0.05	0.16	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.89	< 0.05	< 0.05	0.28	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.55	< 0.05	< 0.05	0.17	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.64	< 0.05	< 0.05	0.22	
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	8.11	< 0.80	< 0.80	2.21	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.4	7.6	9.6	9.1	
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.6	1.4	1.5	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	33	62	36	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	17	5.1	8.1	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	26	10	8.0	20	
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	700	460	100	350	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	22	25	27	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	47	36	49	

Analytical Report Number: 18-98775

Project / Site name: Otterpool Phase 2

Lab Sample Number				1037368	1037369	1037370	1037371	
Sample Reference				WS201	WS201	WS202	WS203	
Sample Number				1	8	2	1	
Depth (m)				0.00-0.20	1.20-1.30	0.50-0.60	0.00-0.20	
Date Sampled				30/08/2018	30/08/2018	30/08/2018	30/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	< 10	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	< 10	< 10	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	35	-	< 10	< 10	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	44	-	< 10	< 10	

Analytical Report Number: 18-98775

Project / Site name: Otterpool Phase 2

Lab Sample Number				1037372				
Sample Reference				WS201				
Sample Number				3				
Depth (m)				0.20-0.40				
Date Sampled				30/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.8				
Total Cyanide	mg/l	0.01	ISO 17025	< 0.010				
Free Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO_4	mg/l	0.1	ISO 17025	2.0				
Alkalinity	mgCaCO3/l	3	ISO 17025	63				
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2				
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1				
Boron (dissolved)	µg/l	10	ISO 17025	12				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4				
Copper (dissolved)	µg/l	0.7	ISO 17025	12				
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Zinc (dissolved)	µg/l	0.4	ISO 17025	2.5				

Analytical Report Number: 18-98775

Project / Site name: Otterpool Phase 2

Lab Sample Number				1037372				
Sample Reference				WS201				
Sample Number				3				
Depth (m)				0.20-0.40				
Date Sampled				30/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10				
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	µg/l	10	ISO 17025	< 10				
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				

Analytical Report Number : 18-98775

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1037363	BH201	1	0.00-0.30	Brown clay and sand with vegetation.
1037364	BH201	5	1.20-1.40	Brown clay and sand with vegetation.
1037365	BH208	4	0.40-0.60	Brown clay and sand with vegetation.
1037366	BH209	1	0.00-0.20	Brown loam and clay with vegetation.
1037367	BH209	5	0.90-1.00	Brown clay.
1037368	WS201	1	0.00-0.20	Brown loam and clay with gravel and stones.
1037369	WS201	8	1.20-1.30	Brown clay and sand.
1037370	WS202	2	0.50-0.60	Brown loam and clay with vegetation.
1037371	WS203	1	0.00-0.20	Brown loam and clay with vegetation.

Analytical Report Number : 18-98775

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Leachate	Determination of Alkalinity by discreet analyser (colorimetry).	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE

Analytical Report Number : 18-98775

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Leachates)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	ISO 17025
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH209	1	S	18-98775	1037366	c	Total cyanide in soil	L080-PL	c
BH209	5	S	18-98775	1037367	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98910

Project / Site name:	Otterpool Phase 2	**Samples received on:**	05/09/2018
Your job number:	10011914	**Samples instructed on:**	05/09/2018
Your order number:		**Analysis completed by:**	13/09/2018
Report Issue Number:	1	**Report issued on:**	13/09/2018
Samples Analysed:	2 soil samples		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98910

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038136	1038137			
Sample Reference				BH202	BH203			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20-0.60	0.70-0.76			
Date Sampled				03/09/2018	28/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	10	11			
Total mass of sample received	kg	0.001	NONE	1.0	0.94			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.0	8.6			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.010	0.025			
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.7	0.3			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	14			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.7			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	26			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	16			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	9.8			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	45	39			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.5	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	55	43			

Analytical Report Number: 18-98910

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038136	1038137			
Sample Reference				BH202	BH203			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20-0.60	0.70-0.76			
Date Sampled				03/09/2018	28/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

Analytical Report Number : 18-98910

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1038136	BH202	None Supplied	0.20-0.60	Light brown loam and clay with gravel and vegetation.
1038137	BH203	None Supplied	0.70-0.76	Light brown clay and sand with vegetation.

Analytical Report Number : 18-98910

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH203		S	18-98910	1038137	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Irene Trujols
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: irene.trujols@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-98941

Project / Site name:	Otterpool Phase 2	**Samples received on:**	04/09/2018
Your job number:	10011914	**Samples instructed on:**	04/09/2018
Your order number:		**Analysis completed by:**	13/09/2018
Report Issue Number:	1	**Report issued on:**	13/09/2018
Samples Analysed:	1 bulk sample - 1 leachate sample - 9 soil samples		

Signed [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038323	1038324	1038325	1038326	1038327
Sample Reference				TP203	TP204	TP205	TP206	TP206
Sample Number				5	3	5	1	3
Depth (m)				0.70-0.80	0.40-0.50	0.70-0.80	0.00-0.15	0.15-0.25
Date Sampled				31/08/2018	30/08/2018	30/08/2018	30/08/2018	30/08/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.0	8.6	7.9	11	17
Total mass of sample received	kg	0.001	NONE	1.2	1.3	1.1	1.2	1.1
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Amosite- Loose Fibrous Debris	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.2	8.2	7.4	7.6	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.024	0.0098	0.012	0.011	0.0094
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.0	0.8	1.3	4.1	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23	2.2	0.50
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.24	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.18	0.82	0.17
Phenanthrene	mg/kg	0.05	MCERTS	0.34	0.47	2.5	23	2.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.11	0.71	8.1	1.3
Fluoranthene	mg/kg	0.05	MCERTS	0.69	1.4	6.2	110	15
Pyrene	mg/kg	0.05	MCERTS	0.63	1.2	5.3	92	13
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.46	1.1	4.4	89	25
Chrysene	mg/kg	0.05	MCERTS	0.42	0.91	3.5	69	17
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.50	1.3	4.7	98	25
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.22	0.61	2.0	44	18
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.46	1.2	4.1	84	26
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.27	0.82	3.4	42	16
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.18	0.94	14	5.2
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.37	1.1	4.4	44	16
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.36	10.3	42.5	718	180
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.8	10	9.7	12	19
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	0.9	0.7	1.6	1.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.4	0.5	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	34	36	18	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	14	17	12	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	35	21	62	17	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	23	27	23	41
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	61	54	150	67	62

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038323	1038324	1038325	1038326	1038327
Sample Reference				TP203	TP204	TP205	TP206	TP206
Sample Number				5	3	5	1	3
Depth (m)				0.70-0.80	0.40-0.50	0.70-0.80	0.00-0.15	0.15-0.25
Date Sampled				31/08/2018	30/08/2018	30/08/2018	30/08/2018	30/08/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.1	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	46	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	46	< 10	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	5.2	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	16	230	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	49	17	67	740	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	58	24	83	980	-

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038328	1038329	1038330	1038331	
Sample Reference				TP210	TP210	TP211	TP227	
Sample Number				1	5	5	3	
Depth (m)				0.00-0.20	0.80-0.90	0.65-0.90	0.20-0.30	
Date Sampled				28/08/2018	28/08/2018	28/08/2018	31/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	10	11	14	12	
Total mass of sample received	kg	0.001	NONE	1.1	1.1	0.87	1.4	
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.2	7.4	8.8	8.4	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0062	0.0051	0.0047	0.0050	
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.5	0.4	0.3	0.7	
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.27	
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.28	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.23	
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.23	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.28	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.20	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.29	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.27	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.35	
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	2.40	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.7	11	23	8.9	
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.7	0.9	0.5	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	36	60	27	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.4	7.7	21	13	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	11	25	15	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	24	95	18	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.2	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	40	69	46	

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038328	1038329	1038330	1038331	
Sample Reference				TP210	TP210	TP211	TP227	
Sample Number				1	5	5	3	
Depth (m)				0.00-0.20	0.80-0.90	0.65-0.90	0.20-0.30	
Date Sampled				28/08/2018	28/08/2018	28/08/2018	31/08/2018	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
o-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	< 2.0	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0	< 8.0	< 8.0	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	< 10	< 10	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	< 2.0	< 2.0	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10	< 10	< 10	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	< 10	< 10	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	< 10	< 10	

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038332				
Sample Reference				TP204				
Sample Number				5				
Depth (m)				1.00-1.20				
Date Sampled				30/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	8.0				
Total Cyanide	mg/l	0.01	ISO 17025	< 0.010				
Free Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO_4	mg/l	0.1	ISO 17025	2.5				
Alkalinity	mgCaCO3/l	3	ISO 17025	69				
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2				
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1				
Boron (dissolved)	µg/l	10	ISO 17025	28				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.8				
Copper (dissolved)	µg/l	0.7	ISO 17025	10				
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.9				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.0				

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038332				
Sample Reference				TP204				
Sample Number				5				
Depth (m)				1.00-1.20				
Date Sampled				30/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10				
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	µg/l	10	ISO 17025	< 10				
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				

Analytical Report Number: 18-98941

Project / Site name: Otterpool Phase 2

Lab Sample Number				1038333				
Sample Reference				TP203				
Sample Number				6				
Depth (m)				1.00-1.10				
Date Sampled				31/08/2018				
Time Taken				None Supplied				
Analytical Parameter (Bulk Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Asbestos Identification Name	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material				

Analytical Report Number : 18-98941

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1038323	TP203	5	0.70-0.80	Light brown loam and sand with gravel and vegetation.
1038324	TP204	3	0.40-0.50	Light brown loam and sand with gravel and vegetation.
1038325	TP205	5	0.70-0.80	Brown loam and clay with gravel and brick.
1038326	TP206	1	0.00-0.15	Brown loam and sand with gravel and vegetation.
1038327	TP206	3	0.15-0.25	Brown loam and clay with gravel and vegetation.
1038328	TP210	1	0.00-0.20	Brown loam and sand with gravel and vegetation.
1038329	TP210	5	0.80-0.90	Light brown loam and clay with gravel and vegetation.
1038330	TP211	5	0.65-0.90	Brown loam and clay with gravel and vegetation.
1038331	TP227	3	0.20-0.30	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 18-98941

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Leachate	Determination of Alkalinity by discreet analyser (colorimetry).	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE

Analytical Report Number : 18-98941

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Leachates)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	ISO 17025
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP210	1	S	18-98941	1038328	c	Total cyanide in soil	L080-PL	c
TP210	5	S	18-98941	1038329	c	Total cyanide in soil	L080-PL	c
TP211	5	S	18-98941	1038330	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Marcus Toms
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: marcus.toms@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-99442

Project / Site name:	Otterpool Phase 2	**Samples received on:**	07/09/2018
Your job number:	10011914	**Samples instructed on:**	07/09/2018
Your order number:		**Analysis completed by:**	18/09/2018
Report Issue Number:	1	**Report issued on:**	18/09/2018
Samples Analysed:	2 soil samples		

Signed: [redacted]
Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-99442

Project / Site name: Otterpool Phase 2

Lab Sample Number				1040968	1040969			
Sample Reference				BH206	BH207			
Sample Number				8	1			
Depth (m)				0.00-0.20	0.00-0.20			
Date Sampled				06/09/2018	06/09/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	7.3	11			
Total mass of sample received	kg	0.001	NONE	1.2	1.0			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.0	7.2			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0094	0.011			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	12			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	0.5			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	35			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	18			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19	11			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.5	20			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	37	41			

Analytical Report Number : 18-99442

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1040968	BH206	8	0.00-0.20	Brown loam and sand with gravel and vegetation.
1040969	BH207	1	0.00-0.20	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 18-99442

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

BAE Systems
Properties Ltd
10-11 Adlington South
Business Park
Adlington
Lancashire
PR7 4JR, England
Telephone: 03300 488680

TEST CERTIFICATE

Certificate No: BC0243/18

Site : **18-99568 (Otterpool Phase 2)** **Ref :** **43X00631**

Client :	I2 Analytical	**Date Received :**	12/09/2018
Address :	7 Woodshots Meadow Croxley Green Business Park Watford	**Date Completed :**	20/09/2018
		Date Of Report :	20/09/2018
	WD18 8YS	**Attention :**	Project Manager

Accreditation Key: **U** = UKAS **M** = UKAS & MCERTS **S** = Subcontracted Tests

Test Methods

Standard Explosives Suite	using ESAL/QC/4 parts a,j k LCMSsoils HPLCsoils, NC by l or m

Approved :

[redacted]

Mr D.C. Poole
Laboratory manager

Mr P.D. Hart
Senior Analyst

1764

BAE SYSTEMS
REAL SOLUTIONS. REAL ADVANTAGE.

TABLE OF RESULTS

Lab Code	20184376		
Client Ref A	1042012 (HD201)		
Client Ref B	0.50m-0.60m		
Client Ref C	29/08/18		
Sample Type	Soil		
Soil Type	Clay - Brown		
NC Colour	**-ve**		U
NC Colourimetric	**<5000**	**mg/kg**	U
HMX	**<2**	**mg/kg**	M
RDX	**<2**	**mg/kg**	M
EGDN	**<1**	**mg/kg**	M
Tetryl	**<1**	**mg/kg**	M
NG	**<1**	**mg/kg**	M
TNT	**<0.1**	**mg/kg**	M
2,6-DNT	**<1**	**mg/kg**	M
2,4-DNT	**<1**	**mg/kg**	M
PETN	**<5**	**mg/kg**	M
HNS	**<0.5**	**mg/kg**	M
Picrite	**<0.25**	**mg/kg**	M
Picric Acid	**<0.1**	**mg/kg**	M

COMMENTS AND DEPARTURES FROM STANDARD PROCEDURES

Lab ID	Client Descriptions	Notes

There were no comments or departures from standard procedures

NOTES

1. This test report shall not be reproduced except in full, without written approval of the laboratory.

2. All results for soil samples are reported based on dry weight of soil which has been air-dried in open, shallow trays at temperatures below 30°C and subsequently ground and sieved to pass through a nominal 710µm aperture sieve. Prior to grinding, any material which is retained on a sieve of mesh size 4.5mm is discarded. Analysis is carried out directly on these prepared soils with the exception of volatile organic compounds and petrol range organic compounds. These analyses are carried out on the soil "As Received" and corrected for the dry weight (at 105°C) prior to reporting.

3. BAE Systems does not correct results for analytical recoveries.

4. All samples were received in good condition unless otherwise stated. Results provided by the Laboratory are based on samples submitted by clients. Once submitted, samples requiring analysis are stored at below 7 °C. The Laboratory cannot be held responsible for the storage, condition or preservation of samples prior to arrival.

5. Validation studies indicate that the concentration of nitrocellulose in high organic content soils may be overestimated.

6. A value of NQ indicates that a quantitative result could not be obtained because doping trials showed that the compound was retained by the matrix.

7. Soil descriptions are given in order to provide a log of sample matrices submitted and are not intended as full geological descriptions.

8. The initials or common names used for reporting explosives relate to the following compounds: Nitrocellulose(NC); Cyclotetramethylene Tetranitramine (HMX); Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX); Ethylene Glycol Dinitrate (EGDN); 2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl); Glycerol Trinitrate (NG); 2,4,6-Trinitrotoluene (TNT); Pentaeryhritol Tetranitrate (PETN); Hexanitro-Stilbene (HNS); Nitroguanidine (Picrite); 2,4,6-Trinitro Phenol (Picric Acid); 2,4-Dinitrotoluene (2,4-DNT); 2,6-Dinitrotoluene (2,6-DNT), 2-Amino-4,6-Dinitrotoluene (2-Amino-4,6-DNT), 4-Amino-4,6-Dinitrotoluene (4-Amino-2,6-DNT).

9. Some reporting limits may be raised due to poor recovery of internal standard or dilution of highly contaminated samples.

10. In unacidified waters Tetryl, 1,3,5-TNB, 1,3-DNB and TNT are unstable decaying rapidly over a few days or less depending on the sample matrix. 2-Amino-4,6-DNT, 2,6-DNT and 2,4-DNT are generally more stable depending on the sample matrix, but are likely to show significant loss after three weeks. HMX, RDX, EGDN, PETN, NB, MNT isomers, 4-Amino-2,6-DNT, Picrite and Picric acid are relatively stable after three weeks in unpreserved water samples. These comments are based on laboratory in house trials in surface and ground waters and results from literature searches.

11. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

End of Report BC0243/18

Karl Addison
Arcadis Consulting (UK) Ltd
5th Floor
401 Faraday Street
Birchwood Park
Warrington
WA3 6GA

e: karl.addison@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Preliminary Report Number : 18-99568

Project / Site name:	Otterpool Phase 2	**Samples received on:**	03/09/2018
Your job number:	10011914	**Samples instructed on:**	07/09/2018
Your order number:	14015444	**Analysis completed by:**	Not complete
Report Issue Number:	0	**Report issued on:**	18/09/2018
Samples Analysed:	7 soil samples		

Signed [redacted]

Jordan H
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Preliminary reports provided at the request of the client should be considered as incomplete and have not been through the complete quality control procedure.

Results contained in preliminary reports may be subject to change and therefore should not be used as a basis for decision making, except at the risk of the client.

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042011	1042012	1042013	1042014	1042015
Sample Reference				HD201	HD201	TP223	TP223	TP226
Sample Number				1	2	5	9	1
Depth (m)				0.00-0.10	0.50-0.60	0.60-0.70	1.60-1.70	0.00-0.15
Date Sampled				29/08/2018	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	-	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	19	-	12	14	14
Total mass of sample received	kg	0.001	NONE	1.2	-	1.2	1.4	1.1
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Amosite- Loose Fibres	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.6	-	7.7	7.8	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.016	-	0.011	0.011	0.012
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.0	-	0.6	< 0.1	2.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.8	-	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.26	-	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	4.1	-	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	3.6	-	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.0	-	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.9	-	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.9	-	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	-	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.5	-	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.4	-	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.38	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.8	-	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	23.6	-	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	-	6.9	8.9	22
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	-	1.0	0.7	2.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.0	-	< 0.2	< 0.2	0.5
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	27	47	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	-	9.7	8.3	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	73	-	10	6.9	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	-	16	54	44
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	-	37	57	62

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042011	1042012	1042013	1042014	1042015
Sample Reference				HD201	HD201	TP223	TP223	TP226
Sample Number				1	2	5	9	1
Depth (m)				0.00-0.10	0.50-0.60	0.60-0.70	1.60-1.70	0.00-0.15
Date Sampled				29/08/2018	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	11	-	< 8.0	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	12	-	< 10	< 10	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	5.0	-	< 1.0	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	14	-	< 2.0	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	58	-	< 10	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	170	-	< 10	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	240	-	< 10	< 10	-
Subcontracted Analysis								
Explosives	Type	N/A	NONE	-	To follow	-	-	-

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042016	1042017			
Sample Reference				TP228	TP228			
Sample Number				3	5			
Depth (m)				0.20-0.40	0.50-0.70			
Date Sampled				Deviating	29/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	11	9.5			
Total mass of sample received	kg	0.001	NONE	1.2	1.2			
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.3	7.4			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.034			
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.6	0.8			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	12			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	0.9			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	25			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	12			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	17			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	18			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	36	52			

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042016	1042017			
Sample Reference				TP228	TP228			
Sample Number				3	5			
Depth (m)				0.20-0.40	0.50-0.70			
Date Sampled				Deviating	29/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
Subcontracted Analysis								
Explosives	Type	N/A	NONE	-	-			

Preliminary Report Number : 18-99568

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1042011	HD201	1	0.00-0.10	Brown loam and sand with gravel and vegetation.
1042012	HD201	2	0.50-0.60	-
1042013	TP223	5	0.60-0.70	Brown loam and sand with gravel and vegetation.
1042014	TP223	9	1.60-1.70	Brown sandy clay with gravel and vegetation.
1042015	TP226	1	0.00-0.15	Brown loam and sand with gravel and vegetation.
1042016	TP228	3	0.20-0.40	Brown loam and clay with gravel and vegetation.
1042017	TP228	5	0.50-0.70	Brown loam and clay with gravel and vegetation.

Preliminary Report Number : 18-99568

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Explosives to BAE in Soil - Subcon	Explosives analysis in Soil - Subcontracted to BAE Systems.	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS

Preliminary Report Number : 18-99568

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
HD201	1	S	18-99568	1042011	c	Total cyanide in soil	L080-PL	c
HD201	2	S	18-99568	1042012	a			
TP223	5	S	18-99568	1042013	a			
TP223	9	S	18-99568	1042014	a			
TP226	1	S	18-99568	1042015	a			
TP228	3	S	18-99568	1042016	a			
TP228	5	S	18-99568	1042017	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Karl Addison
Arcadis Consulting (UK) Ltd
5th Floor
401 Faraday Street
Birchwood Park
Warrington
WA3 6GA

e: karl.addison@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-99568

Project / Site name:	Otterpool Phase 2	**Samples received on:**	03/09/2018
Your job number:	10011914	**Samples instructed on:**	07/09/2018
Your order number:	14015444	**Analysis completed by:**	26/09/2018
Report Issue Number:	1	**Report issued on:**	26/09/2018
Samples Analysed:	7 soil samples		

Signed: [redacted]

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042011	1042012	1042013	1042014	1042015
Sample Reference				HD201	HD201	TP223	TP223	TP226
Sample Number				1	2	5	9	1
Depth (m)				0.00-0.10	0.50-0.60	0.60-0.70	1.60-1.70	0.00-0.15
Date Sampled				29/08/2018	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	19	9.9	12	14	14
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.4	1.1
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Amosite- Loose Fibres	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.6	7.5	7.7	7.8	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.016	0.010	0.011	0.011	0.012
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.0	0.6	0.6	< 0.1	2.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.8	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	4.1	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	3.6	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.0	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.9	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.5	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.4	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.38	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.8	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	23.6	< 0.80	< 0.80	< 0.80	< 0.80

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042011	1042012	1042013	1042014	1042015
Sample Reference				HD201	HD201	TP223	TP223	TP226
Sample Number				1	2	5	9	1
Depth (m)				0.00-0.10	0.50-0.60	0.60-0.70	1.60-1.70	0.00-0.15
Date Sampled				29/08/2018	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	6.2	6.9	8.9	22
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	0.8	1.0	0.7	2.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.0	< 0.2	< 0.2	< 0.2	0.5
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	20	27	47	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	16	9.7	8.3	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	73	13	10	6.9	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	13	16	54	44
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	27	37	57	62
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	11	< 8.0	< 8.0	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	12	< 10	< 10	< 10	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	5.0	< 1.0	< 1.0	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	14	< 2.0	< 2.0	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	58	< 10	< 10	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	170	< 10	< 10	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	240	< 10	< 10	< 10	-

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042011	1042012	1042013	1042014	1042015
Sample Reference				HD201	HD201	TP223	TP223	TP226
Sample Number				1	2	5	9	1
Depth (m)				0.00-0.10	0.50-0.60	0.60-0.70	1.60-1.70	0.00-0.15
Date Sampled				29/08/2018	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Subcontracted Analysis

Explosives	Type	N/A	NONE	-	See Attached	-	-	-

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042016	1042017			
Sample Reference				TP228	TP228			
Sample Number				3	5			
Depth (m)				0.20-0.40	0.50-0.70			
Date Sampled				Deviating	29/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	11	9.5			
Total mass of sample received	kg	0.001	NONE	1.2	1.2			
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.3	7.4			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.034			
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.6	0.8			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042016	1042017			
Sample Reference				TP228	TP228			
Sample Number				3	5			
Depth (m)				0.20-0.40	0.50-0.70			
Date Sampled				Deviating	29/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	12			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	0.9			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	25			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	12			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	17			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	18			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	36	52			
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

Analytical Report Number: 18-99568

Project / Site name: Otterpool Phase 2
Your Order No: 14015444

Lab Sample Number				1042016	1042017			
Sample Reference				TP228	TP228			
Sample Number				3	5			
Depth (m)				0.20-0.40	0.50-0.70			
Date Sampled				Deviating	29/08/2018			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

Subcontracted Analysis

Explosives	Type	N/A	NONE	-	-			

Analytical Report Number : 18-99568

Project / Site name: Otterpool Phase 2

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1042011	HD201	1	0.00-0.10	Brown loam and sand with gravel and vegetation.
1042012	HD201	2	0.50-0.60	Light brown loam and clay with gravel.
1042013	TP223	5	0.60-0.70	Brown loam and sand with gravel and vegetation.
1042014	TP223	9	1.60-1.70	Brown sandy clay with gravel and vegetation.
1042015	TP226	1	0.00-0.15	Brown loam and sand with gravel and vegetation.
1042016	TP228	3	0.20-0.40	Brown loam and clay with gravel and vegetation.
1042017	TP228	5	0.50-0.70	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 18-99568

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Explosives to BAE in Soil - Subcon	Explosives analysis in Soil - Subcontracted to BAE Systems.	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS

Analytical Report Number : 18-99568

Project / Site name: Otterpool Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
HD201	1	S	18-99568	1042011	c	Total cyanide in soil	L080-PL	c
HD201	2	S	18-99568	1042012	a			
TP223	5	S	18-99568	1042013	a			
TP223	9	S	18-99568	1042014	a			
TP226	1	S	18-99568	1042015	a			
TP228	3	S	18-99568	1042016	a			
TP228	5	S	18-99568	1042017	c	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Marcus Toms
Arcadis Consulting (UK) Ltd
10 Medawar Road
The Surrey Research Park
Guildford
Surrey
GU2 7AR

t: 0870 000 3005
f: 0870 000 3905
e: marcus.toms@arcadis.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 18-11353

Project / Site name:	Otterpool 1- Phase 2	**Samples received on:**	21/09/2018
Your job number:	10011914	**Samples instructed on:**	21/09/2018
Your order number:	14015444	**Analysis completed by:**	02/10/2018
Report Issue Number:	1	**Report issued on:**	02/10/2018
Samples Analysed:	7 water samples		

Signed [redacted]
Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-11353

Project / Site name: Otterpool 1- Phase 2

Your Order No: 14015444

Lab Sample Number				1051225	1051226	1051227	1051228	1051229
Sample Reference				BH208	BH207	BH206	BH204	BH202
Sample Number				1	1	1	1	1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2018	20/09/2018	20/09/2018	19/09/2018	19/09/2018
Time Taken				0856	1000	1050	1050	1300
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.0	7.7	6.7	7.1	7.3
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	ISO 17025	38900	44600	51700	21000	22100
Sulphate as SO_4	mg/l	0.045	ISO 17025	38.9	44.6	51.7	21.0	22.1
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	1.75	1.11	4.08	7.83	0.12
Alkalinity	mgCaCO3/l	3	ISO 17025	170	460	210	630	560
Phenols by HPLC								
Catechol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Resorcinol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cresols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Phenols								
Total Phenols (HPLC)	µg/l	3.5	NONE	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16

Analytical Report Number: 18-11353

Project / Site name: Otterpool 1- Phase 2

Your Order No: 14015444

Lab Sample Number				1051225	1051226	1051227	1051228	1051229
Sample Reference				BH208	BH207	BH206	BH204	BH202
Sample Number				1	1	1	1	1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2018	20/09/2018	20/09/2018	19/09/2018	19/09/2018
Time Taken				0856	1000	1050	1050	1300
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.28	0.90	0.53	6.81	< 0.15
Boron (dissolved)	µg/l	10	ISO 17025	14	16	18	55	16
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	75	100	54	130	120
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	1.9	0.8	0.7	1.0	1.7
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	0.29	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	7.9	1.3	6.8	24	2.3
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.7	1.1	< 0.6	1.0	1.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.6	2.4	5.2	2.1	1.5
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	µg/l	10	ISO 17025	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	30	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	370	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	400	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 18-11353

Project / Site name: Otterpool 1- Phase 2

Your Order No: 14015444

Lab Sample Number				1051230	1051231			
Sample Reference				BH202	BH209			
Sample Number				2	1			
Depth (m)				None Supplied	None Supplied			
Date Sampled				19/09/2018	19/09/2018			
Time Taken				1350	1420			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.3	7.2			
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO_4	µg/l	45	ISO 17025	23400	63000			
Sulphate as SO_4	mg/l	0.045	ISO 17025	23.4	63.0			
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	2.18	1.10			
Alkalinity	mgCaCO3/l	3	ISO 17025	550	490			
Phenols by HPLC								
Catechol	µg/l	0.5	NONE	< 0.5	< 0.5			
Resorcinol	µg/l	0.5	NONE	< 0.5	< 0.5			
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5			
Cresols	µg/l	0.5	NONE	< 0.5	< 0.5			
Naphthols	µg/l	0.5	NONE	< 0.5	< 0.5			
Isopropylphenol	µg/l	0.5	NONE	< 0.5	< 0.5			
Phenol	µg/l	0.5	NONE	< 0.5	< 0.5			
Trimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5			
Total Phenols								
Total Phenols (HPLC)	µg/l	3.5	NONE	< 3.5	< 3.5			
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16			

Analytical Report Number: 18-11353

Project / Site name: Otterpool 1- Phase 2

Your Order No: 14015444

Lab Sample Number				1051230	1051231			
Sample Reference				BH202	BH209			
Sample Number				2	1			
Depth (m)				None Supplied	None Supplied			
Date Sampled				19/09/2018	19/09/2018			
Time Taken				1350	1420			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	< 0.15	3.08			
Boron (dissolved)	µg/l	10	ISO 17025	17	25			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02			
Calcium (dissolved)	mg/l	0.012	ISO 17025	130	120			
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0			
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Copper (dissolved)	µg/l	0.5	ISO 17025	2.7	0.9			
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.7	1.7			
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.1	0.8			
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.9	2.8			
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	µg/l	10	ISO 17025	< 10.0	< 10.0			
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 18-11353

Project / Site name: Otterpool 1- Phase 2

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Water	Determination of Alkalinity by discreet analyser (colorimetry). Accredited matrices: SW, PW, GW.	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Phenols, speciated, in water, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	NONE
PRO (Waters)	Determination of hydrocarbons C6-C10 by headspace GC-MS. Accredited Matrices SW, PW. GW.	In-house method based on USEPA8260	L088-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH202	1	W	18-11353	1051229	c	pH at 20oC in water (automated)	L099-PL	c
BH202	2	W	18-11353	1051230	c	pH at 20oC in water (automated)	L099-PL	c
BH204	1	W	18-11353	1051228	bc	BTEX and MTBE in water (Monoaromatics)	L073B-PL	b
BH204	1	W	18-11353	1051228	bc	PRO (Waters)	L088-PL	b
BH204	1	W	18-11353	1051228	bc	pH at 20oC in water (automated)	L099-PL	c
BH206	1	W	18-11353	1051227	c	pH at 20oC in water (automated)	L099-PL	c
BH207	1	W	18-11353	1051226	c	pH at 20oC in water (automated)	L099-PL	c
BH208	1	W	18-11353	1051225	c	pH at 20oC in water (automated)	L099-PL	c
BH209	1	W	18-11353	1051231	c	pH at 20oC in water (automated)	L099-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Arcadis Consulting (UK) Limited

Ground Floor
10 Medawar Road
Guildford
GU2 7AR
United Kingdom

T: +44 (0) 1483 803000

arcadis.com

This page is intentionally left blank

APPENDIX C

Site Walkover Survey Photographs

OTTERPOOL PARK

Geo-environmental Walkover Survey October 2016

Photographs

Area 1	Photo 1: Facing south towards the racecourse
	Photo 2: Central pond at racecourse
	Photo 3: Bunded above ground fuel storage tank at racecourse
	Photo 4: Waste storage area at racecourse
	Photo 5: Electrical substation at racecourse
	Photo 6: Above ground LPG storage tank at racecourse
	Photo 7: Fuel storage area at racecourse
	Photo 8: Above ground fuel storage tank at Newingreen Industrial Estate
Area 2	Photo 9: HGV fuel station at Lympne Industrial Park
	Photo 10: Top of former quarry north of Upper Otterpool (SSSI)
	Photo 11: Waste storage and electrical substation at Lympne Industrial Park
	Photo 12: Pumping station to west of Folkestone racecourse
	Photo 13: Lorry park
	Photo 14: Fuel/oil spillage at lorry park
	Photo 15: Waste and stockpiles at lorry park
	Photo 16: Large bund north of Lympne Industrial Park
	Photo 17: Facing northwest over former landfill north of Lympne Industrial Park
	Photo 18: Former taxiway at Lympne Airport
	Photo 19: LPG tank at Newingreen
Area 3	Photo 20: Motocross racetrack off Harringe Lane
	Photo 21: Former WWII huts west of Lympne Industrial Park

Photo 1: Facing south towards the racecourse

Photo 2: Central pond at racecourse

Photo 3: Bunded above ground fuel storage tank at racecourse

Photo 4: Waste storage area at racecourse

Photo 5: Electrical substation at racecourse

Photo 6: Above ground LPG storage tank at racecourse

Photo 7: Fuel storage area at racecourse

Photo 8: Above ground fuel storage tank at Newingreen Industrial Estate

Photo 9: HGV fuel station at Lympne Industrial Park

Photo 10: Top of former quarry north of Upper Otterpool (SSSI)

Photo 11: Waste storage and electrical substation at Lympne Industrial Park

Photo 12: Pumping station to west of Folkestone racecourse

Photo 13: Lorry park

Photo 14: Fuel/oil spillage at lorry park

Photo 15: Waste and stockpiles at lorry park

Photo 16: Large bund north of Lympne Industrial Park

Photo 17: Facing northwest over former landfill north of Lympne Industrial Park

Photo 18: Former taxiway at Lympne Airport

Photo 19: LPG tank at Newingreen

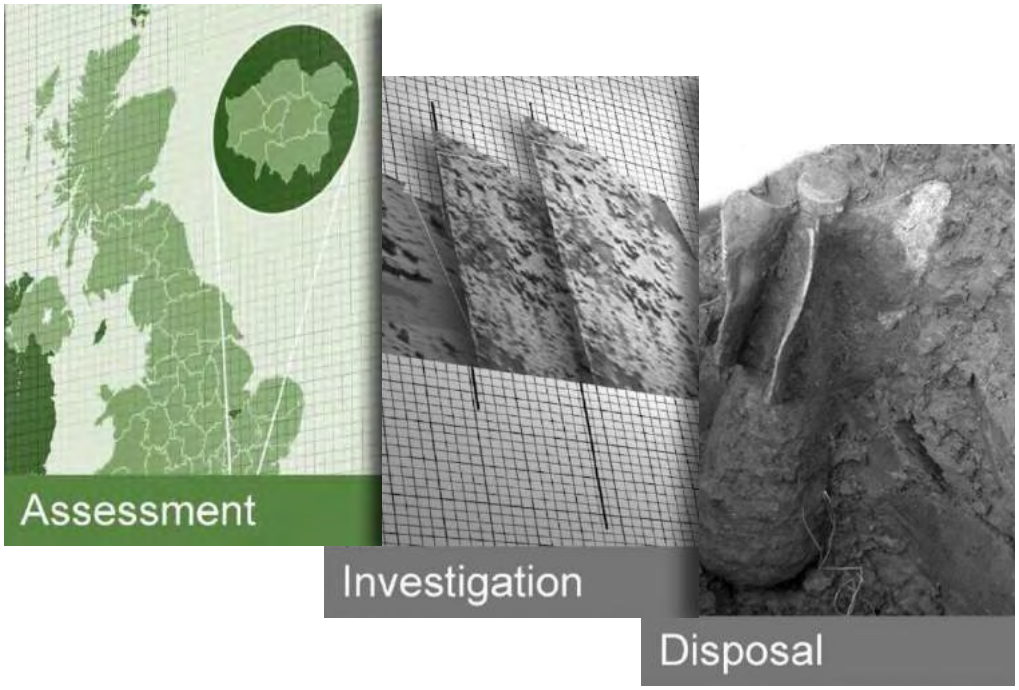
Photo 20: Motocross racetrack off Harringe Lane

Photo 21: Former WWII huts west of Lympne Industrial Park

APPENDIX D

UXO Desk Study Report

zeticauxo



Otterpool Park, Lympne, Kent - UXO Desk Study & Risk Assessment

Drafted by	**Clark Friend and Will Hazell**
Checked by	**Stefan Lang**
Authorised by	**Mike Sainsbury**

Document Title	**UXO Desk Study & Risk Assessment**
Document Ref.	**P6248-17-R1**
Revision	**B**
Project Location	**Otterpool Park, Lympne, Kent**
Client	**Arcadis**
Date	**17th May 2017**

UXO DESK STUDY & RISK ASSESSMENT

Otterpool Park, Lympne, Kent

EXECUTIVE SUMMARY

Zetica Ltd was commissioned by Arcadis to carry out an Unexploded Ordnance (UXO) Desk Study and Risk Assessment for an area of approximately 720 hectares (ha) centred on Otterpool Lane, Lympne, Kent ('the Site').

The aim of this report is to gain a fair and representative view of the UXO hazard for the Site and its immediate surrounding area in accordance with the Construction Industry Research and Information Association (CIRIA) C681 'Unexploded Ordnance (UXO), a Guide for the Construction Industry'.

Potential sources of UXO hazard have been identified on the Site:-

WWII Bombing (H1/M1)

Records have been found indicating that at least 500No. High Explosive (HE) bombs fell on the southern part of the Site during several heavy air raids against Royal Air Force (RAF) Lympne in World War Two (WWII).

Given the intensity of the bombing, it is considered possible that an Unexploded Bomb (UXB) fell on this part of the Site and remained in situ. This part of the Site is assigned a high UXO hazard level due to the possibility that UXB are present.

The parts of the Site bounding the former RAF Lympne are assigned a moderate UXO hazard level to account for the possibility of bombing overspill (M1).

Abandoned Bomb (H2)

Records have been found indicating that an abandoned bomb is located on the north-western corner of the Site.

This part of the Site is assigned a high UXO hazard level.

Pipe Mines (H3)

Records indicate that during WWII RAF Lympne was underlain with pipe mines to destroy the airfield facilities in the event of an enemy invasion.

Although a clearance certificate was issued in February 1946, further pipe mines were discovered on the Site in the 1950s and 1960s, indicating that they were not all removed at the end of WWII.

In 2002 a recommendation letter from 33 Engineer Regiment (Explosive Ordnance Disposal) concluded that there was "a high possibility of uncleared pipe mines" at the former RAF Lympne, and recommended that a full clearance should take place prior to any further development works.

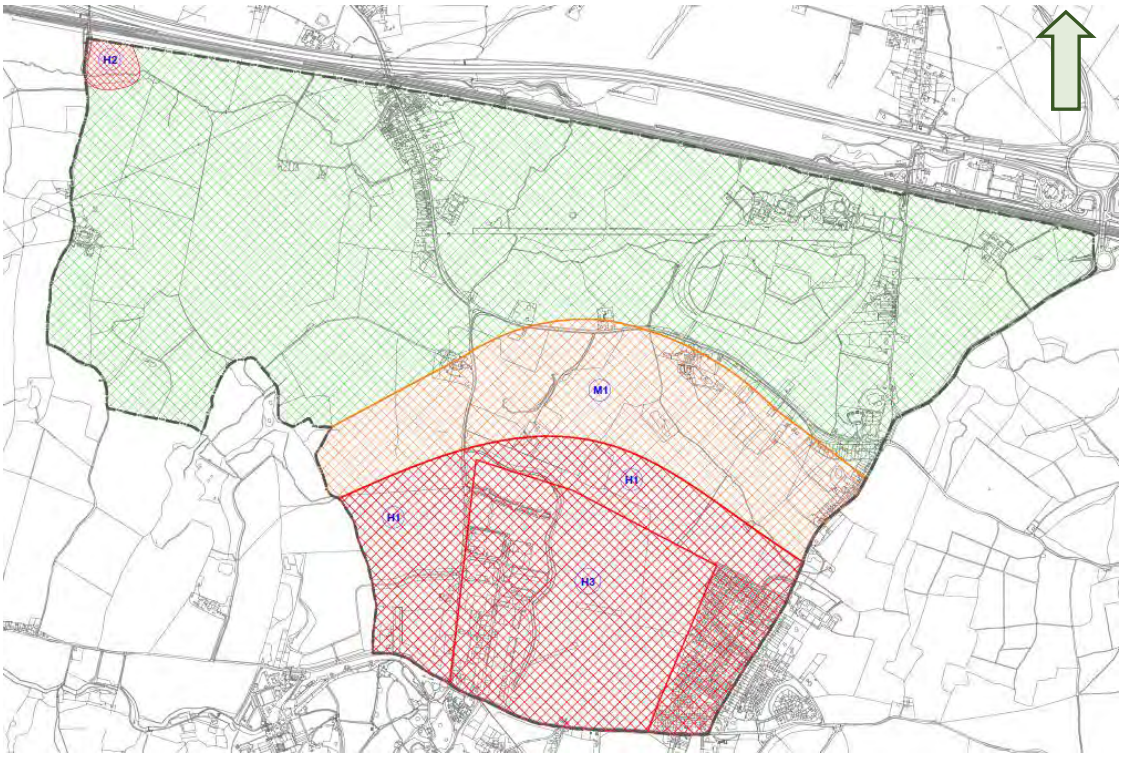
The part of the Site within the airfield boundary is therefore assigned a high UXO hazard level at shallow depths due to the potential presence of pipe mines.

Remainder of the Site

No records of any significant bombing or other sources of UXO hazard have been identified on the remainder of the Site, which is assigned a low UXO hazard level.

Given this, it is considered that the UXO hazard level on the Site can be zoned from low to high, as shown in the following Figure, reproduced as Figure 16 in the main report.

Figure	UXO hazard zone plan of the Site



Source: Zetica Ltd *Not to Scale*

Legend					
	Very Low		Low		Moderate	
	High		Very High		Site boundary	

It should be noted that the UXO hazard will have been mitigated within the depth and extents of any post-WWII excavation, such as for building foundations. Outside the footprint of post-WWII construction, between piles and below shallow raft foundations and basements, the UXO hazard level remains unchanged to the depth of the likely maximum bomb penetration.

It should also be noted that the potential for encountering Small Arms Ammunition (SAA) across any former military airfield as a result of aircraft crashes, localised disposal or spillages cannot be totally discounted.

The main findings of the report are summarised below.

- During World War One (WWI) the Site encompassed Royal Flying Corps (RFC) Lympne, which was used by training squadrons and as an Air Acceptance Park (AAP).
- On the 25th May 1917 Gotha bomber aircraft dropped 19No. HE bombs on RFC Lympne, on the southern part of the Site.
- During WWII, the Site encompassed RAF Lympne, used primarily as an Emergency Landing Ground (ELG) and Advanced Landing Ground (ALG) by fighter and bomber squadrons.
- At least 500No. HE bombs are recorded falling on RAF Lympne during WWII. Estimated average maximum bomb penetration depths vary between 3.0m and 7.5m, depending on the underlying strata and weight of the bomb.

- Airfield defences were established at RAF Lympne during WWII, including pipe mines laid beneath the landing ground.
- Multiple aircraft crashes are recorded at RAF Lympne during WWII, some of which will have resulted in SAA being scattered across the Site.
- RAF Lympne closed to military flying at the end of WWII. In the 1950s and 1960s, pipe mines were found on the Site. This resulted in at least 2No. accidental detonations.

The Table below, reproduced as Table 6 in the main report, provides a UXO risk assessment for potential work on the Site.

Further details on the methodology for the risk assessment are provided in Section 11.1 of the main report.

Table UXO risk assessment for the Site

Hazard Zone	Potential UXO Hazard	Anticipated Works	PE	PD	P = PE x PD	Likelihood	Severity	Risk Rating	UXO Risk
H1	UXB	Shallow Excavations	4	4	16	4	5	20	High
		Deep Excavations	4	4	16	4	5	20	High
		Piling/boreholes	4	4	16	4	4	16	High
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low
H2	UXB	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	5	3	15	4	5	20	High
		Piling/boreholes	4	4	16	4	4	16	High
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low

H3	UXB	Shallow Excavations	4	4	16	4	5	20	High
		Deep Excavations	4	4	16	4	5	20	High
		Piling/boreholes	4	4	16	4	4	16	High
	Pipe Mines	Shallow Excavations	4	5	20	4	5	20	High
		Deep Excavations	4	5	20	4	5	20	High
		Piling/boreholes	4	5	20	4	4	16	High
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low
M1	UXB	Shallow Excavations	3	2	6	3	5	15	Moderate
		Deep Excavations	3	2	6	3	5	15	Moderate
		Piling/boreholes	2	3	6	3	4	12	Moderate
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low
Low	UXB	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low

PE (Probability of Encounter), PD (Probability of Detonation), P (Overall Probability)

Shallow excavations defined as <1.0m below ground level (bgl).

Risk Mitigation Recommendations

Ground Investigation Works

For the proposed ground investigation works prior to the main development, the following mitigation is advised to ensure that the UXO risk is reduced to As Low As Reasonably Practicable (ALARP):-

Low Risk Areas

It is considered prudent to raise the awareness of those involved in excavations so that in the unlikely event that a suspect item is discovered, appropriate action is taken.

This can be achieved through UXO awareness briefings to site staff.

Trial Pits in Moderate/High Risk Areas

It is considered essential to raise the awareness of those involved in excavations as per low risk.

Non-intrusive UXO detection methods and intrusive investigation of identified targets is recommended where practical.

Where UXO detection is not feasible due to ground conditions, restricted access or programme, an Explosive Ordnance Clearance (EOC) Engineer can be used to supervise during excavation works.

The EOC Engineer will carry out a visual assessment on any suspect items uncovered and classify them as potential UXO or other material.

Boreholes and Window Samples in Moderate/High Risk Areas

Clearance certification for any borehole or window sample location is considered essential.

This can be achieved by advancing a magnetometer into the ground at the location in order to provide detection of ferrous metal targets such as UXB. Assuming no objects comparable to the UXB detection range are identified, then the position can be considered clear of UXB.

Pipe Mines

In the hazard zone where there is the potential to encounter pipe mines (H3), a more proactive approach to mitigation is recommended due to the increased risk of an accidental detonation.

It is proposed that a surface non-intrusive geophysical scan is undertaken over a <50m by 50m square area centred on each location within this hazard zone.

This will provide a map of shallow-buried below ground features where, subject to ground conditions, linear features such as pipe mines will be more readily identifiable.

Rather than targeting potential pipe mines, the aim of each scan is to avoid potential shallow-buried UXO at the proposed locations.

Table 7 in the main report gives recommended actions in relation to the potential UXO risk level and the anticipated Site activity.

Further advice on the mitigation methods can be provided by Zetica on request.

Future Works

Risk Mitigation Plan

It is recommended that a detailed risk mitigation plan is devised based on the information provided in this desk study and risk assessment, and the requirements of any planning conditions. This should outline the recommended risk mitigation techniques in relation to the identified UXO hazards, proposed construction methods, and intended phase of works.

These risk mitigation measures are to be discussed and confirmed with the client to ensure that the level of proposed mitigation is appropriate for the intended use and the client's risk tolerance and carefully addresses the often emotive issue surrounding UXO and residential development.

Outline Explosive Ordnance Disposal (EOD) proposals are also to be detailed to account for the type of UXO anticipated.

CONTENTS

Page

Figures, Plates, Tables & Drawings

Accompanying Drawings

Zetica Drawing P6248-17-DWG01-A (UXO Hazard Zone Plan)

Appendices

UXO DESK STUDY & RISK ASSESSMENT

Otterpool Park, Lympne, Kent

Note: To aid the reader of this report, Zetica has colour coded each paragraph. Paragraphs with black text on a white background are paragraphs that provide site-specific information or information specifically researched as part of this project.

Paragraphs in a dark green text with a green background are paragraphs containing background information or explanations which may appear as standard text in all similar reports.

1 INTRODUCTION

1.1 Project Outline

Zetica Ltd was commissioned by Arcadis to carry out an Unexploded Ordnance (UXO) Desk Study and Risk Assessment for an area of approximately 720 hectares (ha) centred on Otterpool Lane, Lympne, Kent ('the Site').

The aim of this report is to gain a fair and representative view of the UXO hazard for the Site and its immediate surrounding area in accordance with the Construction Industry Research and Information Association (CIRIA) C681 'Unexploded Ordnance (UXO), a Guide for the Construction Industry'. This hazard assessment includes:

- Likelihood of ordnance being present.
- Type of ordnance (size, filling, fuze mechanisms).
- Quantity of ordnance.
- Potential for live ordnance (UXO).
- Probable location.
- Ordnance condition.

It should be noted that some military activity providing a source of UXO hazard may not be readily identifiable and therefore there cannot be any guarantee that all UXO hazards within the Site have been identified in this report.

1.2 Historical Information

With most locations, the potential presence of UXO as a result of enemy action, unauthorised disposal or unrecorded military activity can never be totally discounted.

Detailed records of military activity are rarely released into the public domain. Even when military information is made public there may be gaps in the records because files have been lost or destroyed.

Records for periods such as WWII are only as detailed and accurate as the resources and working conditions would allow at the time. Densely populated areas tend to have a greater number of records than rural areas. Such records may be inaccurate due to the confusion surrounding continuous air raids.

Press records can supplement local information, although this source of information must be treated with caution, as inaccuracies do exist, either inadvertently or intentionally in order to confuse enemy intelligence. Classified official records can sometimes be considered inaccurate for the same reason.

Recent research indicates that England alone had 17,434No. recorded defence sites, of which 12,464No. were classified as defensive anti-invasion sites. The precise locations of many of these sites are still to be identified, illustrating the scale of the problem when establishing potential risks from limited historical data.

1.3 Sources of Information

Zetica Ltd researched the military history of the Site and its surrounding area utilising a range of information sources. The main sources of information are detailed in the following sections and referenced at the end of this report.

1.3.1 Zetica Ltd Defence Related Site Records

Zetica Ltd's in-house records were consulted, including reference books and archived materials from past work in the region. Relevant documents have been cited within the bibliography of this report.

1.3.2 Zetica Ltd Bombing Density Records and Maps

Reference has been made to the Zetica Ltd bomb risk maps located on Zetica Ltd's website (http://zeticauxo.com/downloads-and-resources/risk-maps/).

1.3.3 Ministry of Defence and Government Records

Various government departments and units within the Ministry of Defence (MoD) provided information of past and present military activity in the area. These included the Home Office records of abandoned bombs.

1.3.4 Other Historical Records, Maps and Drawings

Numerous reference documents including historical maps, aerial photographs and drawings have been consulted from sources such as the National Archives, Historic England, the Royal Air Force (RAF) Museum and the Defence of Britain Project.

The British Geological Survey (BGS) was consulted for borehole information.

1.3.5 Local Authority Records

Information was sought from Shepway Council and Kent County Council.

1.3.6 Local Record Offices and Libraries

The Kent History and Library Centre consulted for relevant records.

1.3.7 Local Historical and Other Groups

Local history groups, including the Folkestone & District History Society, were consulted.

1.4 Data Confidence Level

In general, there is a high level of confidence in the researched information sources used for this report. Exceptions to this are specifically detailed in the text of the report.

2 THE SITE

2.1 Site Location

The Site is centred at Ordnance Survey National Grid Reference (OSNGR) TR 120365. It is located between the M20 and B2067, approximately 3.2km northwest of Hythe and 9km west of Folkestone.

The Site comprises open farmland, roads, an industrial estate, the former Folkestone Racecourse and parts of the villages of Lympne, Westenhanger and Sellindge.

The Site is bounded to the north by a railway line and the M20, to the east and west by farmland and woodland, and to the south by the B2067 and the Port Lympne Wild Animal Park.

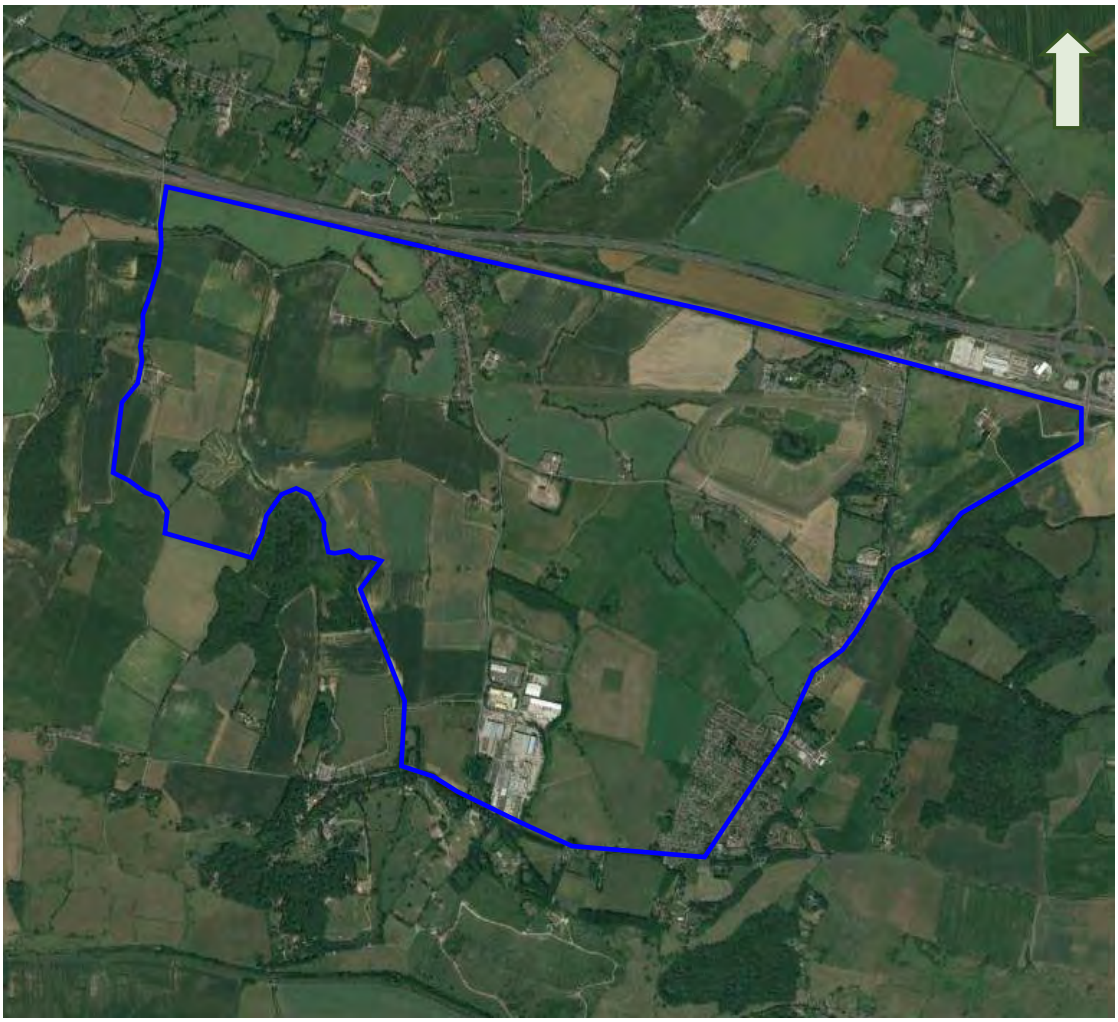
Figure 1 is a Site location map and Plate 1 is a recent aerial photograph of the Site.

Figure 1	Site location map

Source: © Crown Copyright 2017. Reproduced by permission of Ordnance Survey *Not to Scale*

Legend	Site boundary

Plate 1	Recent aerial photograph of the Site



Source: Google Earth *Not to Scale*

Legend	Site boundary

2.2 Proposed Works

It is understood that initial works on the Site include a ground investigation comprising trial pits, window samples and boreholes.

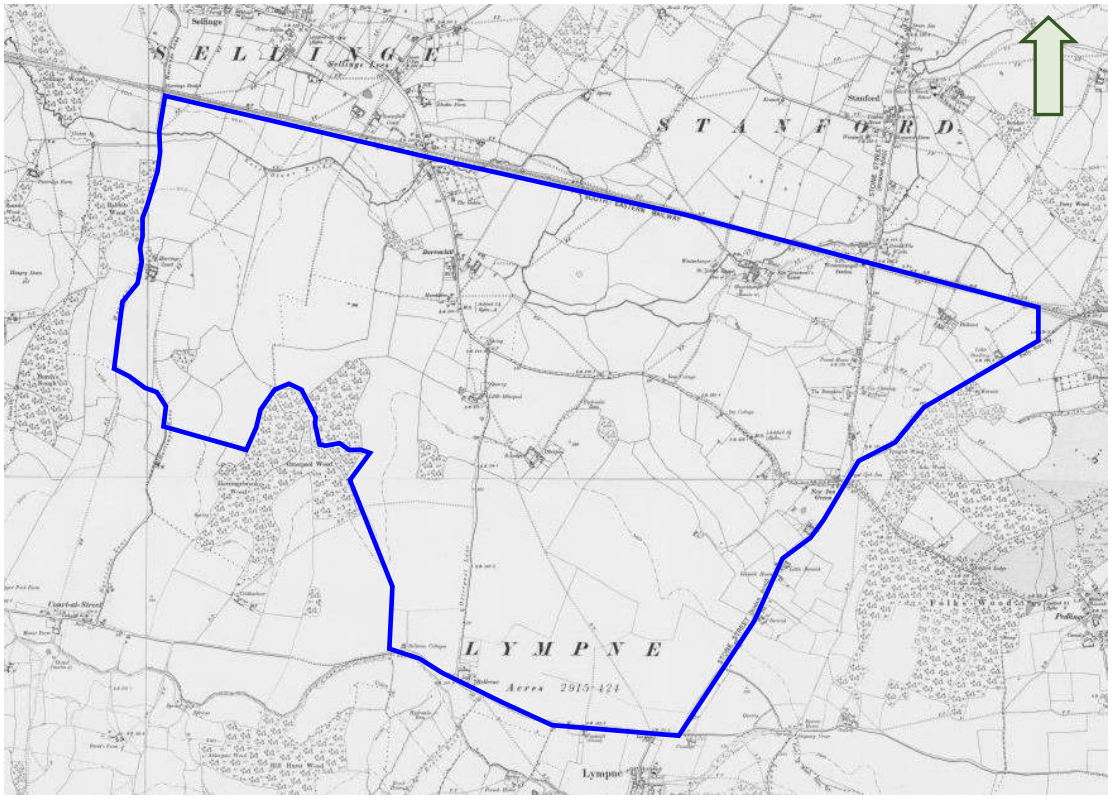
Further works on the Site are likely to include excavations and possibly piling associated with the development of Otterpool Garden Town.

2.3 Site History

The historical map of 1895 (Figure 2) shows that in the late 19th century the Site predominantly comprised agricultural land. Several associated farm buildings and roads, in addition to hamlets, were located on the Site.

The South Eastern Railway (SER) mainline ran parallel to the northern boundary of the Site.

Figure 2	Historical map, 1895



Source: © Crown Copyright 2017. Reproduced by permission of Ordnance Survey *Not to Scale*

Legend	Site boundary

During the early 20th century, no significant development occurred on the majority of the Site, which remained comprised of farmland. Folkestone Racecourse had been established on the northern part of the Site.

In 1916 the Royal Flying Corps (RFC) established an airfield on the southern part of the Site near Lympne. This was used throughout WWI for a variety of purposes, including flight training and as an Air Acceptance Park (AAP). Post-WWI, the airfield was used as a civic aerodrome and for Royal Air Force (RAF) summer camps.

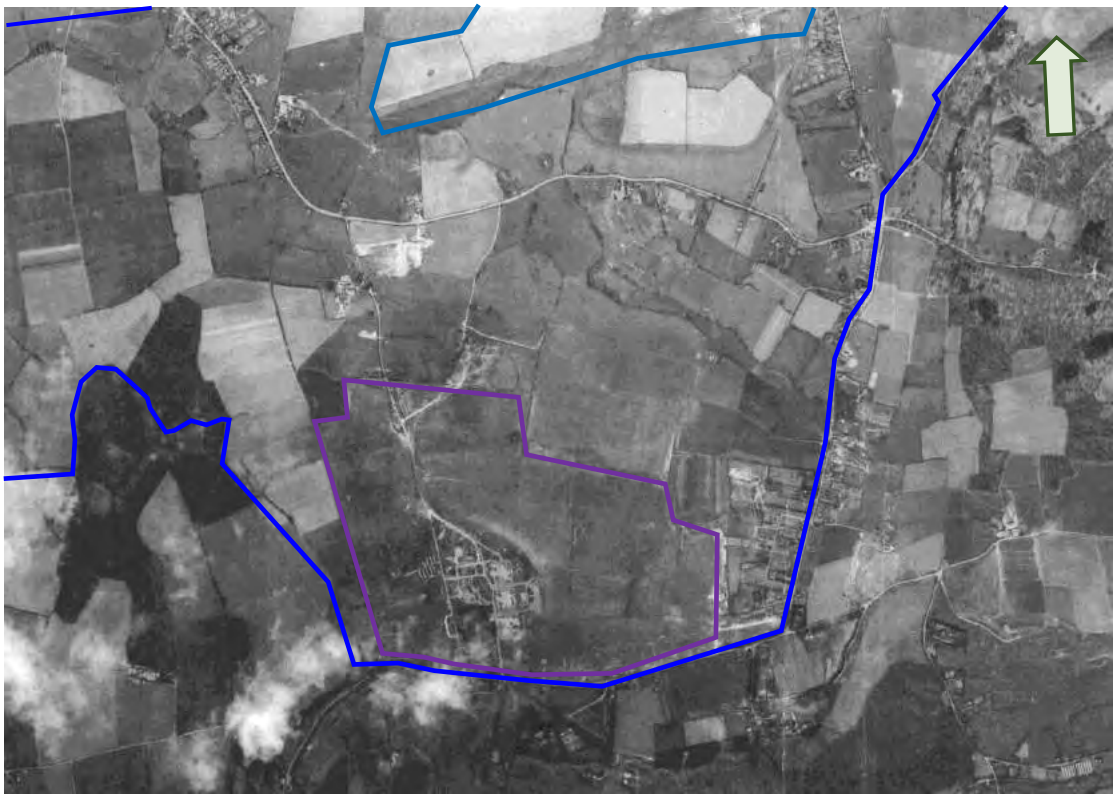
Lympne Airport was requisitioned by the RAF during WWII and was also used by the Fleet Air Arm (FAA) (see Section 5.1 for further details). The airfield was heavily bombed on multiple occasions during the Battle of Britain (see Section 3.4 for further details).

During repairs to the airfield after the heavy bombing raids, chain-link matting reinforcement was emplaced beneath the landing ground.

Plate 2 is an aerial photograph dated the 19th April 1944. It shows RAF Lympne entirely within the Site boundary.

An additional landing ground, RAF Westenhanger (TR 122368), is evident at Folkestone Racecourse on the northern part of the Site (see Section 5.2 for further details).

Plate 2	Aerial photograph, 19th April 1944



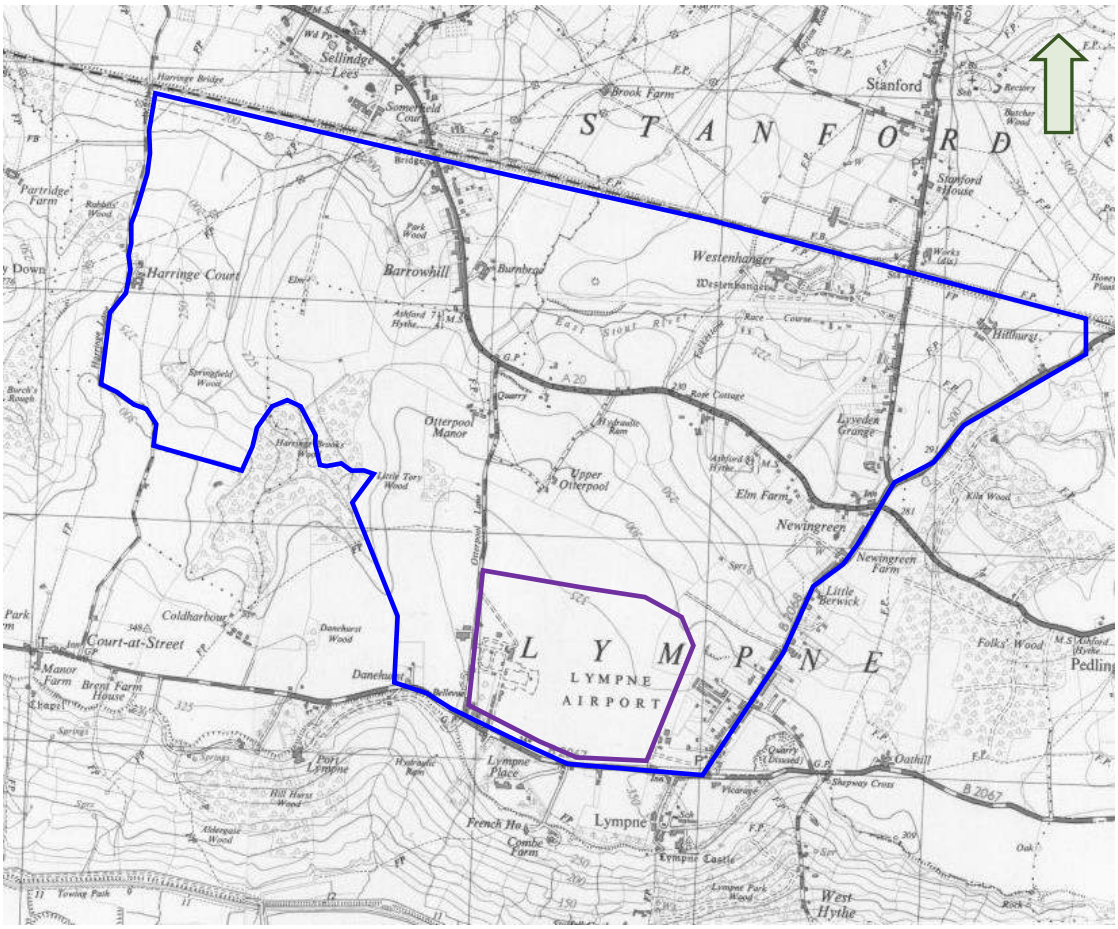
Source: Historic England *Not to Scale*

Legend	Site boundary	RAF Lympne	RAF Westenhanger

Post-WWII RAF Lympne was used as an international airport. RAF Westenhanger was closed and Folkestone Racecourse reopened.

The remainder of the Site continued to comprise farmland, as is shown on the historical map of 1960 (Figure 3).

Figure 3	Historical map, 1960



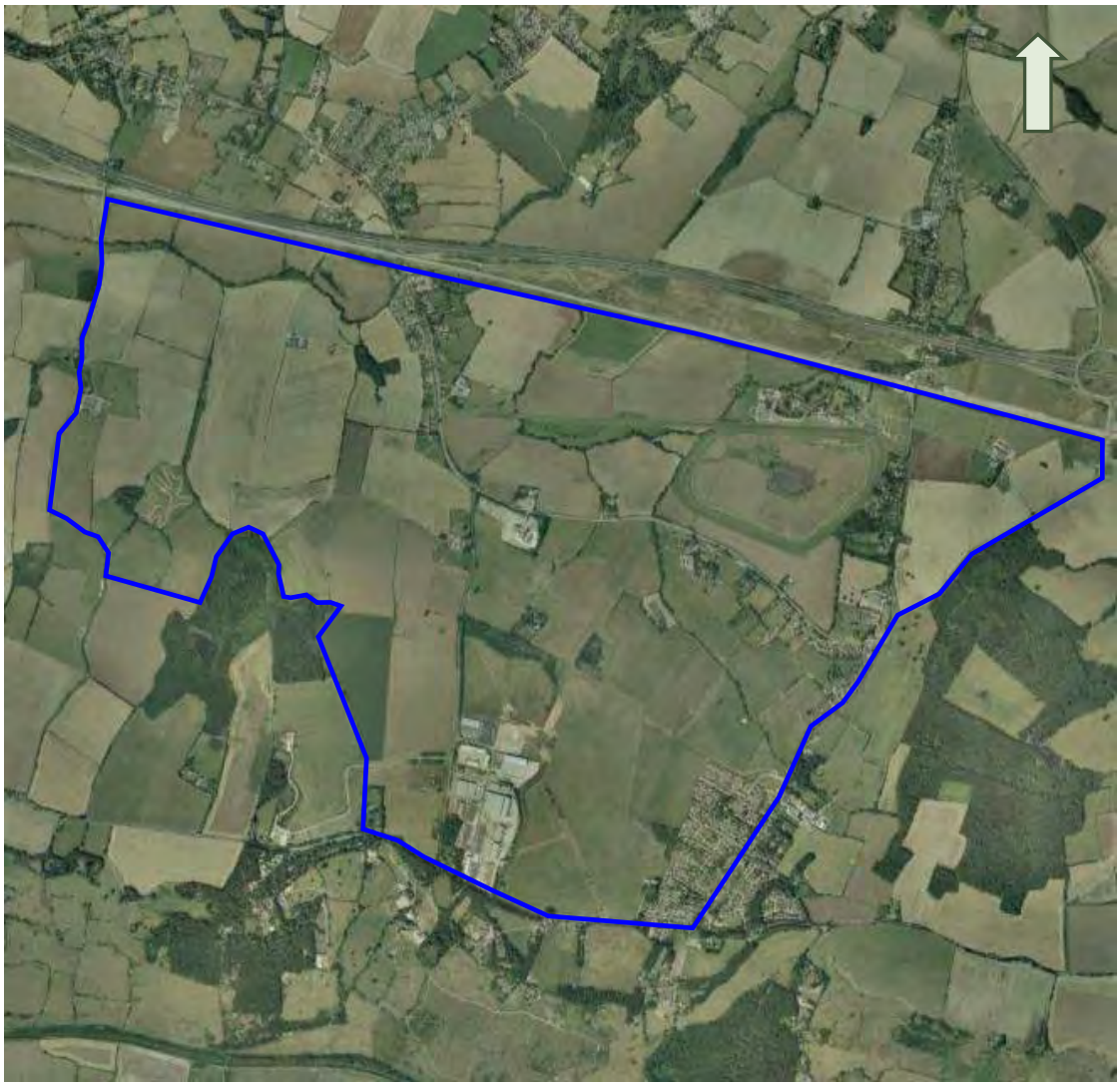
Source: © Crown Copyright 2017. Reproduced by permission of Ordnance Survey *Not to Scale*

Legend	Site boundary	Lympne Airport

In the 1980s a section of the M20 was established parallel to the northern boundary of the Site. In 1984 Lympne Airport ceased operating, and it was redeveloped as an industrial estate.

This is shown in Plate 3, an aerial photograph dating from 2003. Minor residential development had encroached upon the southern and northern boundaries of the Site.

Plate 3	Aerial photograph, 2003



Source: Google Earth

Legend	Site boundary

Since 2003 there has been no significant development on the Site (see Plate 1).

2.4 Pre-WWI Military Activity

No records of any pre-WWI military activity on or in close proximity to the Site have been found.

2.5 WWI Military Activity

In 1915 RFC Lympne was established on the Site, which was originally used as an Emergency Landing Ground (ELG) for Home Defence fighter aircraft and as a training airfield. In 1917 it was given over for use as No. 8 AAP, which assembled and delivered aircraft to France (see Section 5.1 for further details).

In 1918 the Day and Night Bombing Observation School was established at RFC Lympne. This ran until August 1919 when the airfield was transferred for use as a civilian airport.

During WWI, an estimated 9,000No. German bombs were dropped over Britain during the course of 51No. airship and 52No. aircraft raids. It was the first time that strategic aerial bombardment had been used.

Records have been found indicating that the Site was bombed during a single raid in WWI. This is described below.

24th May 1917

In the first bomber aircraft raid on Britain, 12No. Gotha aircraft attacked various targets across Kent, including RFC Lympne.

14No. 12.5kg and 3No. 50kg High Explosive (HE) bombs fell on the landing area of RFC Lympne, on the Site.

2No. 12.5kg HE bombs fell near the technical area of RFC Lympne, on the Site, causing slight damage to a hangar.

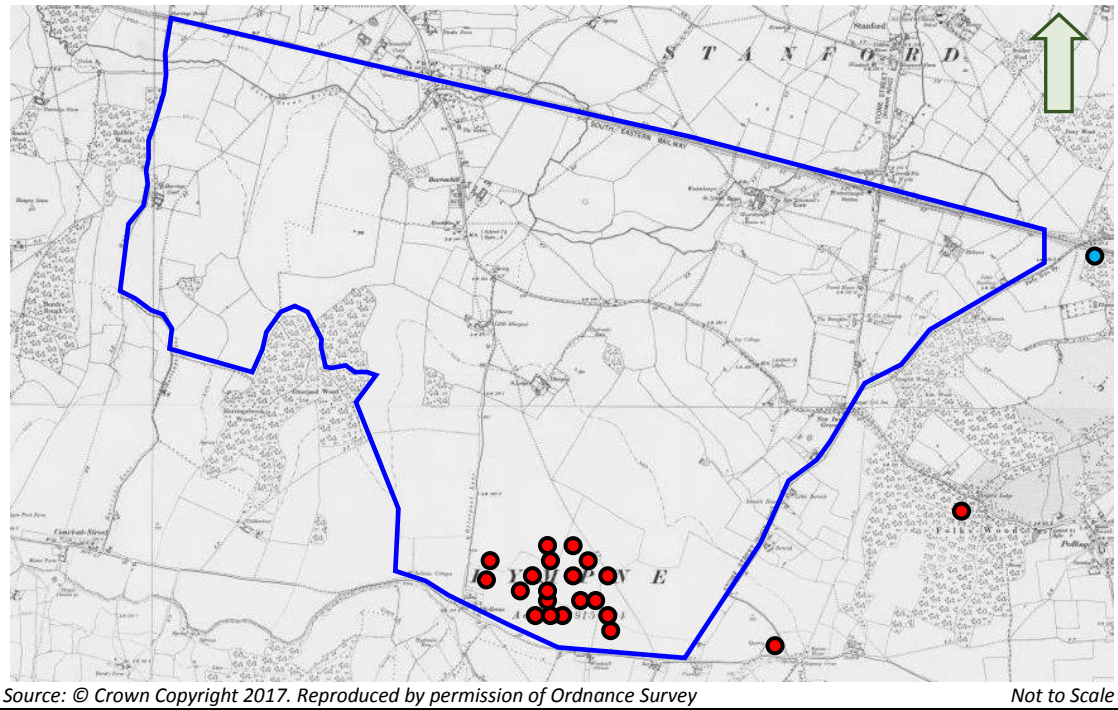
1No. 12.5kg HE bomb fell in a quarry near Oat Hill, approximately 0.1km east of the Site.

1No. 12.5kg HE bomb fell near the Sandling railway bridge, approximately 0.5km east of the Site. It was recorded as UXB and removed.

1No. 12.5kg HE bomb exploded over Folks Wood, approximately 0.7km east of the Site.

Figure 4 is a map showing the approximate location of WWI bomb impacts in the vicinity of the Site.

Figure 4 Compiled WWI bomb impact map for the vicinity of the Site



Source: © Crown Copyright 2017. Reproduced by permission of Ordnance Survey *Not to Scale*

Legend	Site boundary	HE bomb	UXB

Given that the bombing was concentrated on the landing area of RFC Lympne, a manned military establishment, it is considered unlikely that a UXB falling on the Site would have been missed.

In response to regional air raids, Anti-Aircraft (AA) guns were established. These were potential sources of Unexploded AA (UXAA) shells which could land up to 13km from the firing point, although more typically fell within 10km during WWI.

No records of any WWI AA guns within 10km of the Site have been found.

WWI military activity is not considered to provide a source of UXO hazard to the Site.

2.6 Inter-War Military Activity

During the 1930s, the RAF began to hold summer training camps at Lympne Airport. These were used to provide flight training for new recruits.

Training bi-planes and tented accommodation are evident in Plate 4, an aerial photograph of Lympne Airport dating from July 1932.

Plate 4	Aerial photograph of Lympne Airport, July 1932

Source: Britain from Above

No records have been found indicating that this training involved munitions.

Inter-war military activity is not considered to provide a source of UXO hazard to the Site.

2.7 WWII Military Activity

The Site encompassed RAF Lympne during WWII. A brief operational history of the airfield is given in Section 5 and a detailed description of the potential sources of UXO associated with activities at the airfield is provided in Section 6.

RAF Lympne was a strategically important airfield at the beginning of WWII and was heavily bombed during the Battle of Britain. Details of air raids in the vicinity of the Site are provided in Section 3 and Appendix 1.

Numerous defensive and offensive military establishments were built in preparation for and during WWII. These included lines of defences (Stop Lines), pillboxes, AA guns and bombing decoys. Details for those nearest to the Site are provided in Section 4.

Other military establishments in the vicinity of the Site are described in Sections 7 and 8.

2.8 Post-WWII Military Activity

In January 1946 RAF Lympne was relinquished by the Air Ministry and returned for use as a civilian airport.

Explosive Ordnance Disposal (EOD) tasks have been carried out on the Site. Further details are given in Section 9.

Post-WWII military activity is not considered to provide a source of UXO hazard to the Site.

3 WWII BOMBING

Bombing raids began in the summer of 1940 and continued until the end of WWII. Bombing densities generally increased towards major cities or strategic targets such as docks, industrial premises, power stations and airfields.

The German bombing campaign saw the extensive use of both High Explosive (HE) bombs and Incendiary Bombs (IBs). The most common HE bombs were the 50kg and 250kg bombs, although 500kg were also used to a lesser extent. More rarely 1,000kg, 1,400kg and 1,800kg bombs were dropped.

The HE bombs tended to contain about half of their weight in explosives and were fitted with one or sometimes two fuzes. Not all HE bombs were intended to explode on impact. Some contained timing mechanisms where detonation could occur more than 70 hours after impact.

Incendiary devices ranged from small 1kg thermite filled, magnesium bodied bombs to a 250kg 'Oil Bomb' (OB) and a 500kg 'C300' IB. In some cases the IBs were fitted with a bursting charge. This exploded after the bomb had been alight for a few minutes causing burning debris to be scattered over a greater area. The C300 bombs were similar in appearance to 500kg HE bombs, although their design was sufficiently different to warrant a specially trained unit of the Royal Engineers to deal with their disposal.

Anti-Personnel (AP) bombs and Parachute Mines (PMs) were also deployed. 2No. types of anti-personnel bombs were in common use, the 2kg and the 12kg bomb. The 2kg bomb could inflict injury across an area up to 150m away from the impact, within 25m of this, death or fatal injury could occur.

PMs (which were up to 4m in length) could be detonated either magnetically or by noise/vibration. Anti-shipping parachute mines were commonly dropped over navigable rivers, dockland areas and coastlines. The Royal Navy was responsible for ensuring that the bombs were made safe. Removal and disposal was still the responsibility of the Bomb Disposal Unit of the Royal Engineers.

WWII bomb targeting was inaccurate, especially in the first year of the war. A typical bomb load of 50kg HE bombs mixed with IBs which was aimed at a specific location might not just miss the intended target but fall some considerable distance away.

It is understood that the local Civil Defence authorities in urban areas had a comprehensive system for reporting bomb incidents and dealing with any UXO. In more rural areas, fewer bombing raids occurred. It is known that ARP records under-represent the number and frequency of bombs falling in rural and coastal areas.

Bombs were either released over targets or as part of 'tip and run' raids where bomber crews would drop their bombs to avoid Anti-Aircraft fire or Allied fighter aircraft on the route to and from other strategic targets. Bombs dropped as a result of poor targeting or 'tip and run' raids on rural, river, marsh or coastal areas were often unrecorded or entered as 'fell in open country', 'fell in the sea' or 'fell in the river' and left little evidence of the fall.

3.1 WWII Bombing in East Kent

From prior to the declaration of war in 1939, Britain was subjected to reconnaissance flights by the Luftwaffe which was building up a photographic record of potential targets.

German mine laying operations took place in the sea off the coast of East Kent.

East Kent was on the frontline of Luftwaffe air raids during WWII. During the Battle of Britain airfields in Kent, including RAF Lympne, were repeatedly targeted by German aircraft. Throughout WWII enemy bombers passed over the Kent coast on their way to London during the Blitz. Bombs were frequently released over targets as part of 'tip & run' raids, where bomber crews would drop their bombs to avoid AA fire or allied fighter aircraft, on the route to and from other strategic targets such as London.

Given the proximity of the English Channel, Kent coastal towns were also subjected to shelling from enemy warships at sea and from batteries on the French coast.

In June 1944, the V1 offensive against England began, with London the main target. Many V1s were shot down over East Kent by AA fire and by fighter aircraft. V1s caused massive blast damage (although little fire damage). The V1 offensive was all but over by September 1944, although some V1s continued to fall until March 1945.

In September 1944 the Long Range Rocket (V2) offensive began. Falling from a height of some 50 miles (80km) above the ground, these ballistic missiles caused larger craters and greater damage to underground utilities than the V1s, but their surface blast effect was generally less. Records show that in excess of 1,422No. V1s fell on Kent during WWII.

3.2 Strategic Targets

The presence of strategic targets significantly increased the likelihood of bombing within the local area. Airfields, docks, industrial facilities, transport infrastructure and anti-invasion defences were all targeted by Luftwaffe bombers. The inherent bombing inaccuracies at the time meant that areas surrounding the targets were often subjected to bombing.

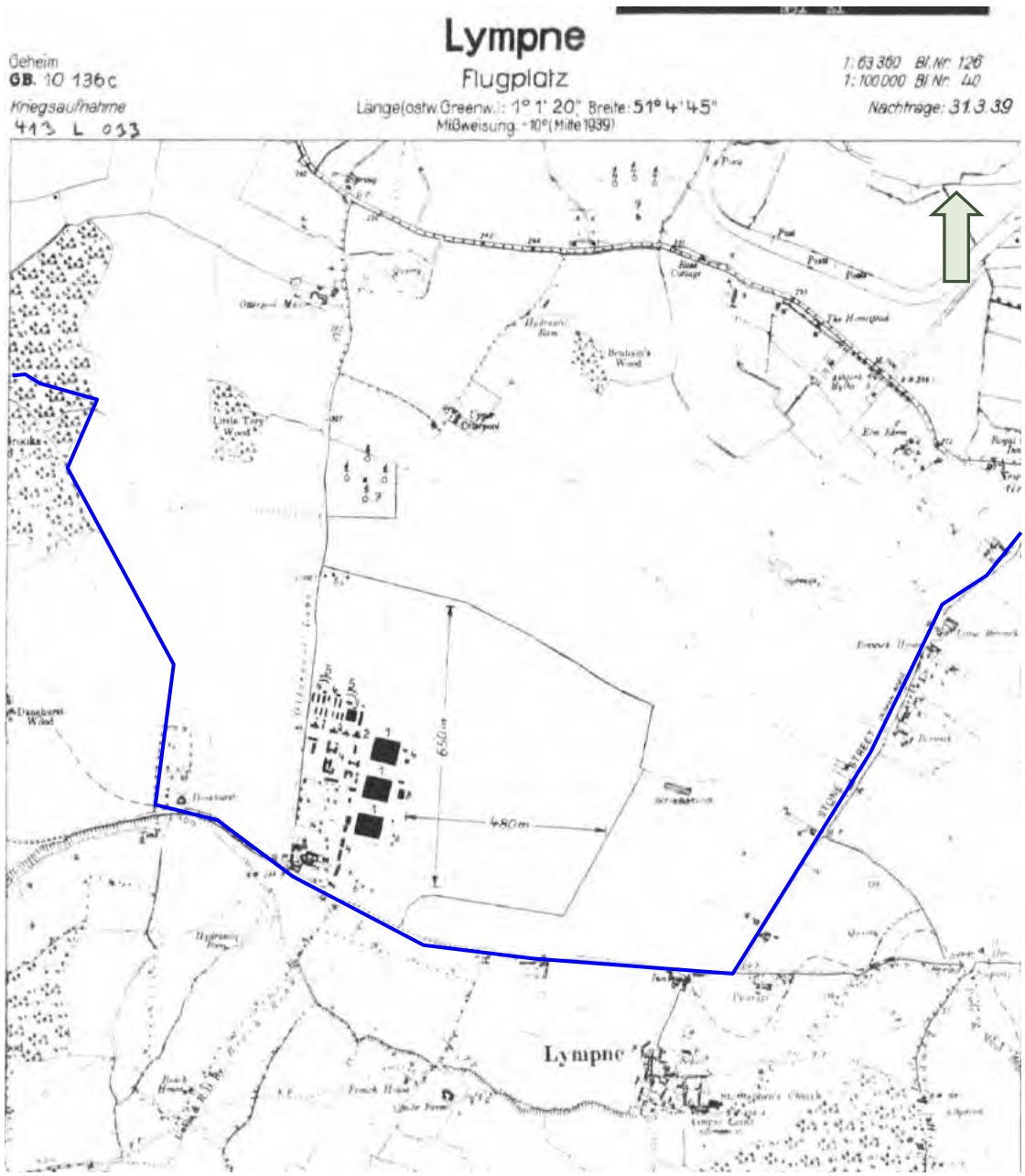
Details of potential strategic targets in the vicinity of the Site are described in the following Sections.

3.2.1 Military Targets

RAF Lympne was located on the southern part of the Site. In addition to the Technical Area and landing ground, the airfield included a series of dispersed accommodation camps and anti-invasion defences, which would have comprised secondary targets.

RAF Lympne was identified by the Luftwaffe prior to WWII, as is shown in Figure 5, a Luftwaffe target map of the airfield dating from March 1939.

Figure 5	Luftwaffe target map of RAF Lympne, March 1939



Source: Brooks

Legend	Site boundary

In 1944 RAF Westenhanger was established on the northern part of the Site. This was used to accommodate Auster Air Observation Posts (AUPs), which undertook Combined Operations training with infantry stationed in the surrounding area (see Section 5.2 for further details).

A series of additional military airfields were located within approximately 10km of the Site, including RAF Hawkinge (TR 208399), which was heavily bombed, RAF Newchurch (TR 053318) and RAF Kingsnorth (TR 026380).

Military camps associated with the Hythe Artillery Ranges (TR 148345) were located approximately 2.5km southeast of the Site.

Shorncliffe Camp (TR 196356), a major staging post for troops being transferred overseas, was located approximately 6km east of the Site.

3.2.2 Transport Infrastructure

A Southern Railway (SR) mainline ran parallel to the northern boundary of the Site, which was used to transport troops and supplies to Folkestone for embarkation to foreign theatres of war.

Westenhanger Railway Station was located adjacent to the north-western boundary of the Site.

3.3 Bombing Density and Incidents

Table 1 gives details of the overall bombing statistics recorded for the Local Authority Districts of the Site and surrounding districts. These were categorised as County Boroughs (CB), Municipal or Metropolitan Boroughs (MB), Urban Districts (UD) and Rural Districts (RD). The Site was located in Elham RD.

The figures for West Ham CB, generally considered to represent a high regional bombing density, are included for comparison.

Table 1 Bombing Statistics

Area	Bombs Recorded				
	High Explosive	Parachute Mines	Other	Total	Bombs per 405ha (1,000 acres)
Elham RD	**856**	**6**	**7**	**869**	**23.7**
Folkestone MB	391	4	4	399	99.6
Hythe MB	79	0	1	80	26.6
Romney Marsh RD	327	0	5	332	10.7
East Ashford RD	249	6	5	260	5.1
West Ham CB	1,498	45	47	1,590	334.0

Note that Table 1 excludes the figures for V1s (Pilotless Aircraft, also known as 'Doodlebugs'), V2s (Long Range Rockets), AA shells and IBs. Discrepancies between this list and other records, such as bomb clearance records, demonstrate that this data is likely to under-represent actual bombing.

RAF Lympne was a significant strategic target and recorded multiple heavy air raids during WWII. These raids, and other bombing incidents on the Site, are described below. Appendix 1 provides further details of recorded air raids in the vicinity of the Site.

3rd July 1940

30No. HE bombs fell on the landing area of RAF Lympne, on the southern part of the Site.

12th August 1940

2No. separate air raids were recorded at RAF Lympne, on the southern part of the Site. A total of 283No. HE bombs were recorded falling on the airfield, causing extensive damage to the Technical Area and landing ground. Approximately 70No. additional HE bombs were recorded falling in fields surrounding the airfield.

15th August 1940

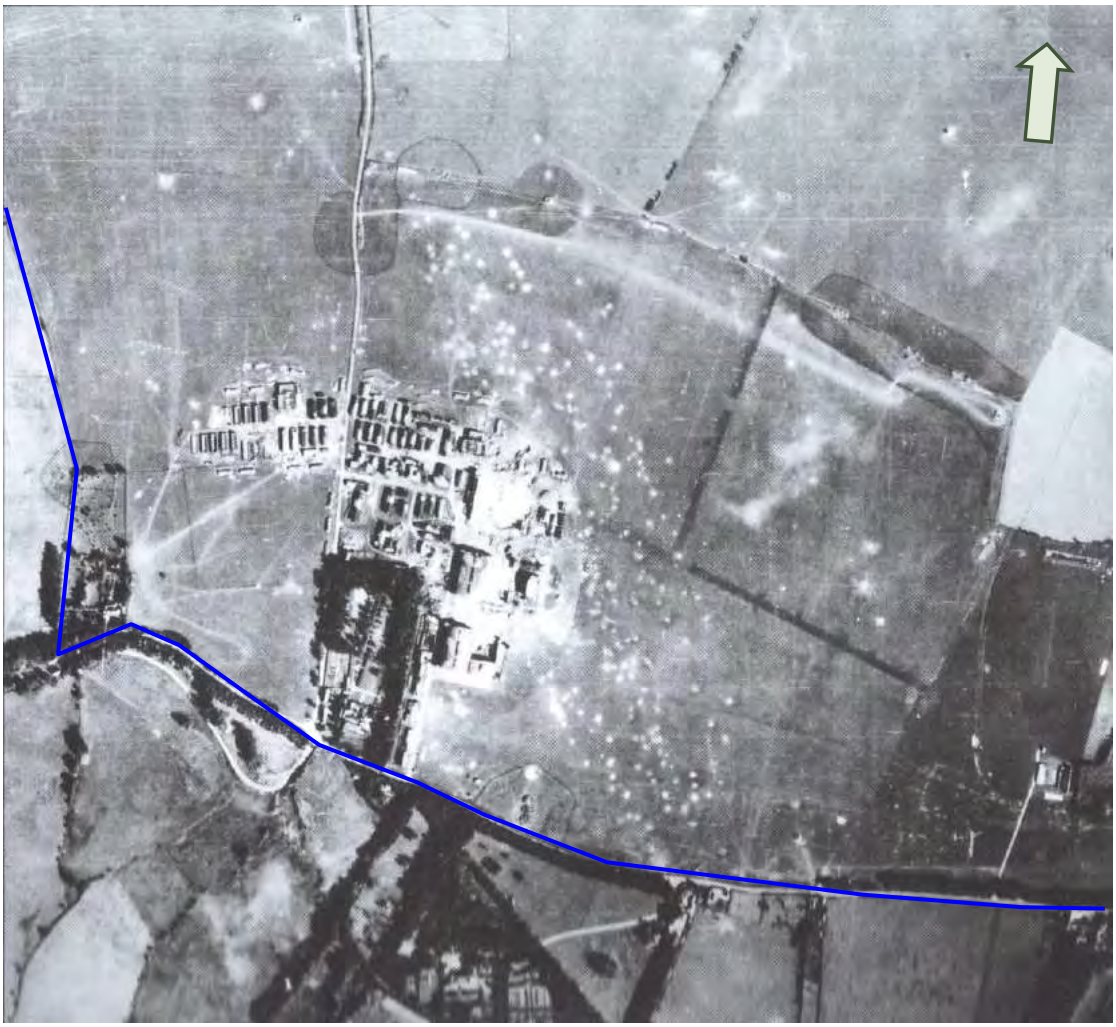
Over 50No. Junkers Ju87B dive-bomber aircraft dropped an unspecified number of HE bombs on RAF Lympne, on the southern part of the Site. This raid caused significant damage, and rendered the airfield unusable until mid-September.

30th August 1940

9No. 250kg HE bombs fell on the Technical Area of RAF Lympne, on the southern part of the Site.

Plate 5 is a Luftwaffe reconnaissance photograph dating from August 1940, showing the results of these raids. Extensive cratering is evident across the landing ground, and buildings within the technical area appear badly damaged or destroyed.

Plate 5	Luftwaffe reconnaissance photograph, August 1940



Source: Brooks

Legend	Site boundary

1st September 1940

4No. HE bombs fell on RAF Lympne, on the southern part of the Site, damaging aircraft positioned on the landing ground.

2nd September 1940

30No. HE bombs fell on RAF Lympne, on the southern part of the Site.

24th September 1940

50No. HE bombs fell on the landing area of RAF Lympne, on the southern part of the Site.

25th September 1940

1No. UXB was discovered in a field near Harringe Lane, Sellindge, on the north-western part of the Site. It was reinvestigated and abandoned on the 9th June 1941 (see Section 9.1 for further details).

26th September 1940

20No. 250kg HE bombs and 2No. OBs fell on western part of RAF Lympne, on the southern part of the Site. No significant damage was recorded.

2nd October 1940

2No. HE bombs fell near Otterpool Lane, Lympne, on the southern part of the Site.

9th October 1940

2No. HE bombs and 1No. OB fell on the north-eastern corner of the landing area of RAF Lympne, on the southern part of the Site.

28th January 1941

100No. IBs fell between Hillhurst Farm, on the north-eastern part of the Site, and Sandling Park, Saltwood, approximately 1km southeast of the Site.

26th February 1941

10No. HE bombs fell on the boundary of RAF Lympne, on the southern part of the Site.

20th March 1941

2No. separate air raids were undertaken by Messerschmitt Bf109 fighter-bomber aircraft. A total of 21No. HE bombs fell on the landing area of RAF Lympne, and the Technical Area was strafed with machine gun and cannon fire.

3No. HE bombs fell near 'Inglenook', Lympne, on the south-eastern part of the Site. These were recorded as UXB and were removed on the 24th March 1941.

24th March 1941

6No. HE bombs fell on the landing ground of RAF Lympne, on the southern part of the Site.

1No. HE bomb fell on Stone Street, Lympne, on the south-eastern part of the Site.

1No. HE bomb fell on the junction of Old London Road and Stone Street, Lympne, on the south-eastern part of the Site. This was recorded as UXB and was removed on the same day.

5th May 1941

4No. Messerschmitt Bf109 fighter-bomber aircraft strafed RAF Lympne with machine gun fire, destroying 1No. Supermarine Spitfire (R7294) fighter aircraft.

6th May 1941

10No. Messerschmitt Bf109 fighter-bomber aircraft dropped several HE bombs (number unspecified) on RAF Lympne, on the southern part of the Site, and strafed the Technical Area with machine gun fire.

11th May 1941

2No. HE bombs fell on RAF Lympne, on the southern part of the Site.

16th May 1941

4No. HE bombs fell on RAF Lympne, on the southern part of the Site.

9th June 1941

RAF Lympne, on the southern part of the Site, was strafed with machine gun fire during 4No. separate air raids.

Plate 6 is an aerial photograph of the northern part of the technical area of RAF Lympne, dated the 6th August 1941. Widespread damage, including demolished and roofless buildings, is evident.

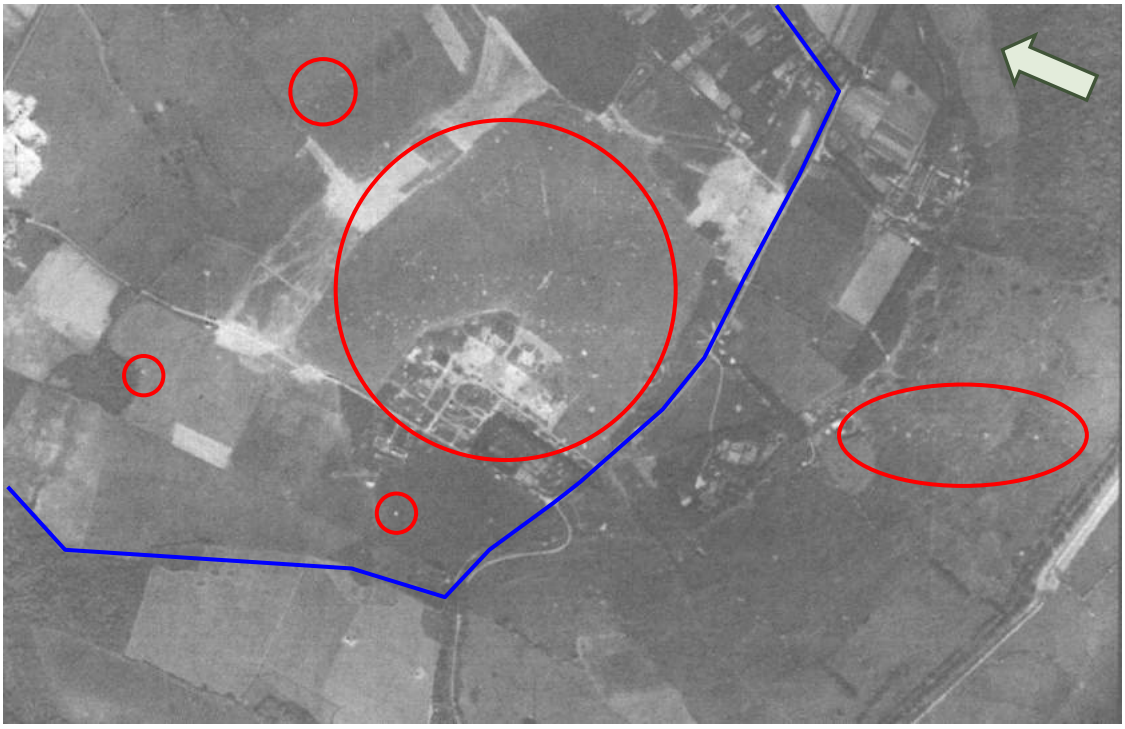
Plate 6	Aerial photograph, 6th August 1941

Source: Historic England

Plates 7 - 9 are aerial photographs dated the 2nd June 1942. Areas of heavy cratering and bomb damage are still evident at RAF Lympne, on the southern part of the Site.

The photographs indicate that no significant overspill from raids on the airfield occurred on the Site.

Plate 7	Aerial photograph, 2nd June 1942 (TR 112356)



Source: Historic England

Legend	Site boundary	Possible bomb damage

Plate 8	Aerial photograph, 2nd June 1942 (TR 118366)

Source: Historic England

Legend	Site boundary	Possible bomb damage

Plate 9	Aerial photograph, 2nd June 1942 (TR 106358)

Source: Historic England

Legend	Site boundary	Possible bomb damage

21st January 1944

1No. 50kg HE bomb fell on the junction of Aldington Road and Stone Street, Lympne, on the southern-eastern part of the Site.

28th June 1944

1No. V1 was shot down by fighter aircraft and crashed near Upper Otterpool Farm, on the central part of the Site.

23rd July 1944

1No. V1 was shot down by LAA fire and fell on stores on the eastern side of RAF Lympne, on the south-eastern part of the Site.

27th July 1944

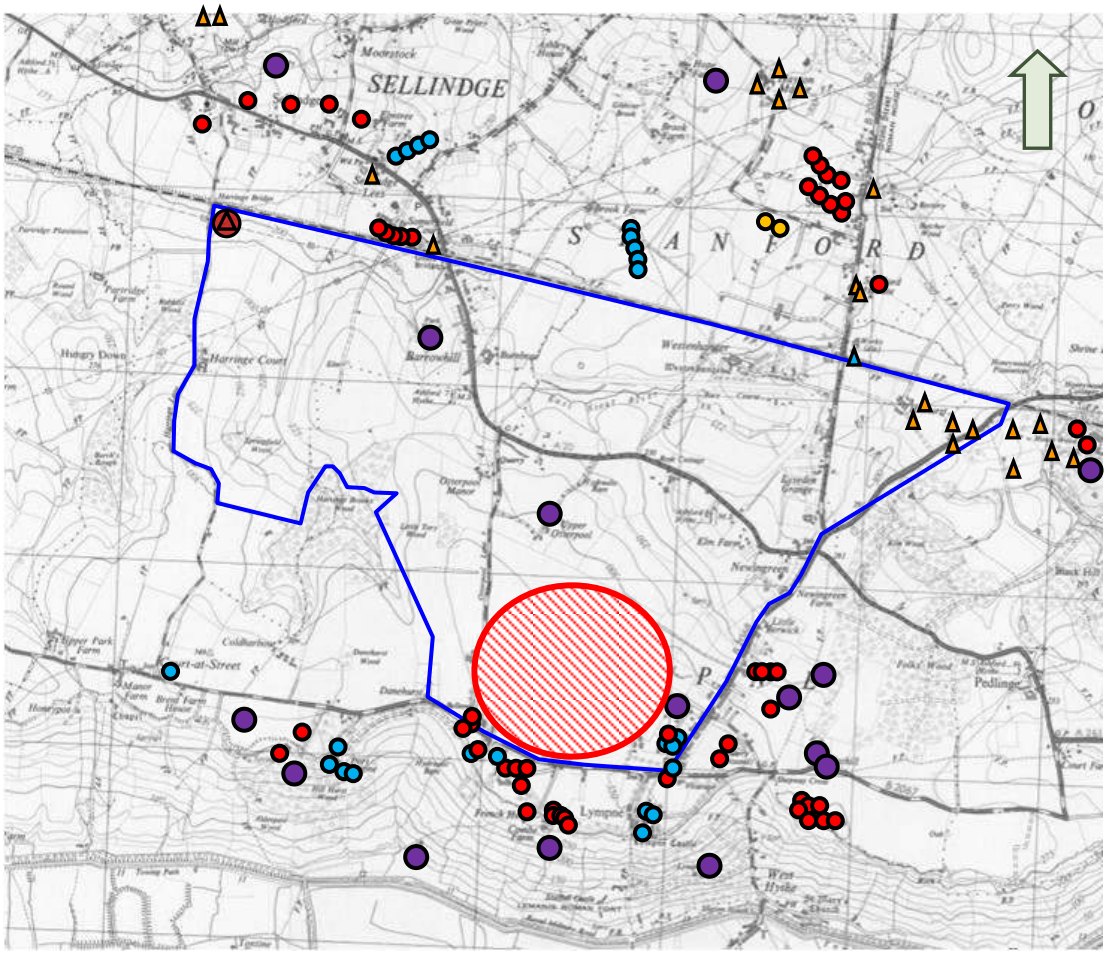
1No. V1 fell on a field near Barrow Hill, Sellindge, on the northern part of the Site.

It should be noted that during WWII, many UXB were mapped and subsequently removed as and when conditions and demands on Bomb Disposal teams allowed. Their removal was not always accurately recorded and sometimes records were later destroyed. In practice, most UXB were probably removed and only a much smaller number were actually registered as officially abandoned bombs.

Figure 6 is a compiled bomb map for the vicinity of the Site. IBs shown are indicative of larger numbers of similar devices that fell within the given area. The map has been compiled from a number of different sources, including air raid incident reports, bomb census maps and historical aerial photographs.

Please note that for clarity a hatched circle is used to represent the more than 500No. HE bombs recorded as falling on RAF Lympne.

Figure 6 Compiled bomb impact map for the vicinity of the Site



Source: © Crown Copyright 2017. Reproduced by permission of Ordnance Survey *Not to Scale*

Legend	Site boundary	HE bomb	UXB	Abandoned bomb
	OB	IBs	V1	

Plates 10 – 14 are aerial photographs dated the 12th January 1946. They show that the cratering resulting from the heavy air raids at RAF Lympne had largely been infilled and repaired. No significant bomb damage or cratering is evident on the parts of the Site away from the airfield boundary.

Plate 10	Aerial photograph, 12th January 1946 (TR 108358)

Source: Historic England *Not to scale*

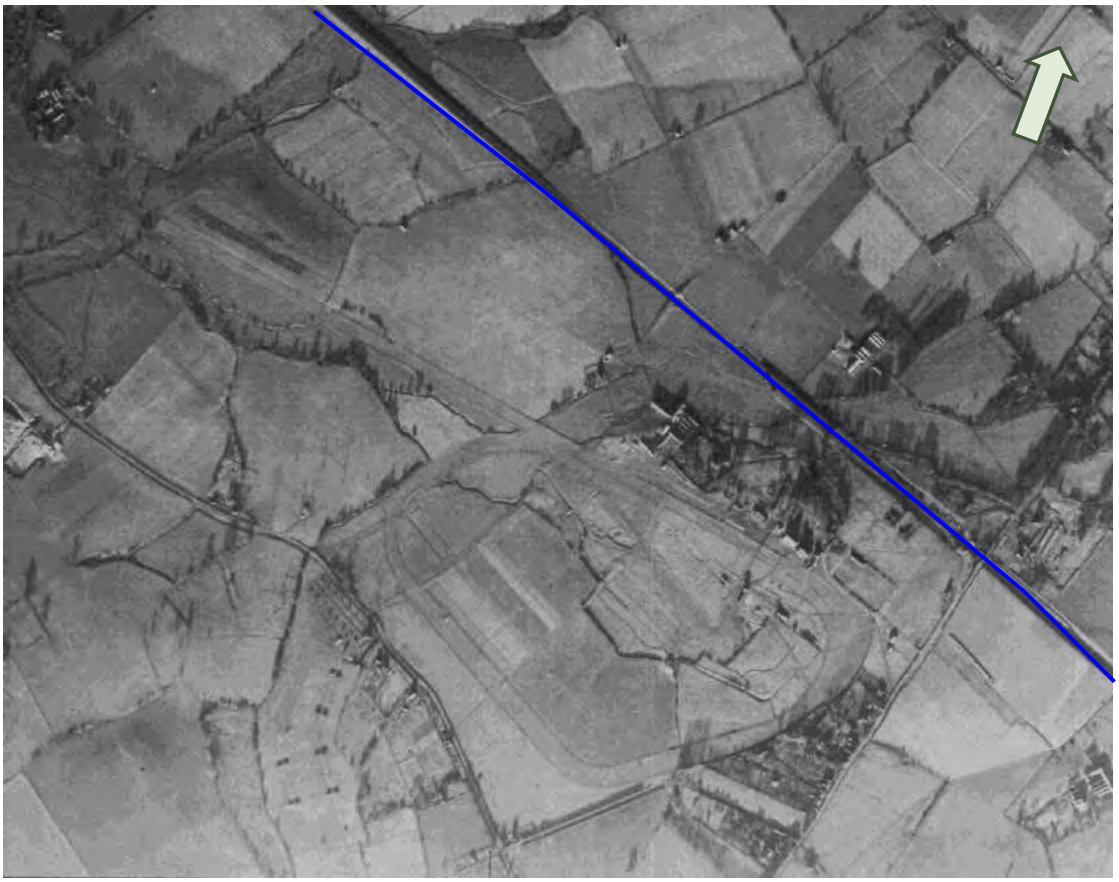
Legend	Site boundary	Potential bomb crater

Plate 11	Aerial photograph, 12th January 1946 (TR 127361)

Source: Historic England *Not to scale*

Legend	Site boundary

Plate 12	Aerial photograph, 12th January 1946 (TR 119367)



Source: Historic England *Not to scale*

Legend	Site boundary

Plate 13	Aerial photograph, 12th January 1946 (TR 104374)

Source: Historic England *Not to scale*

Legend	Site boundary

Plate 14	Aerial photograph, 12th January 1946 (TR 105364)

Source: Historic England *Not to scale*

Legend	Site boundary

Between July 1940 and March 1941, at least 500No. HE bombs fell on RAF Lympne, on the southern part of the Site, during several heavy air raids.

Given the intensity of the bombing, it is considered possible that a UXB falling on the Site may have been missed and remain in situ. This is supported by the fact that a UXB was found on the Site post-WWII (see Section 9.2).

Records indicate that the heavy raids on RAF Lympne were carried out by dive-bombers in low-level attacks meaning that the bombing was fairly concentrated on the airfield. Some limited overspill is evident the north of the airfield on historical aerial photographs, with heavier cratering to the south of the airfield.

No significant bombing has been identified for parts of the Site away from the boundary of RAF Lympne.

WWII bombing is considered to provide a possible source of UXO hazard to the southern part of the Site.

3.4 Geology and Bomb Penetration Depths

It is important to consider the geological materials present on the Site at the time that a bomb was dropped in order to establish its maximum penetration depth. British Geological Survey (BGS) 1:50,000 Sheets 305 and 306, Folkestone & Dover A (Solid & Drift) were consulted, in addition to BGS borehole records.

During WWII the geology of the Site comprised patchy deposits of Head over the Sandgate Beds and Hythe Beds of the Lower Greensand.

Table 2 provides an estimate of average maximum bomb penetration depths for the Site assuming WWII ground conditions of 1m of stiff clay over more than 20m of weak rock.

Table 2 Estimated average maximum bomb penetration depths

Estimated average bomb penetration depths for anticipated geology		
Bomb Weight	50kg	3.0m
	500kg	6.5m
	1,000kg	7.5m

The estimated bomb penetration depths given in Table 2 are from the WWII ground level and are based on the following assumptions:

a) High level release of the bomb resulting in an impact velocity of 260m/s (>5,000m altitude).

b) A strike angle of 10 to 15 degrees to the vertical.

c) That the bomb is stable, both in flight and on penetration.

d) That no retarding units are fitted to the bomb.

e) That the soil type is homogenous.

A high altitude release of a bomb will result in ground entry at between 10° and 15° to the vertical with the bomb travelling on this trajectory until momentum is nearly lost. The bomb will then turn abruptly to the horizontal before coming to rest. The distance between the centre of the entry hole and the centre of the bomb at rest is known as the 'offset'. A marked lateral movement from the original line of entry is common.

Low-level attacks may have an impact angle of 45° or more, which will frequently lead to a much greater amount of offset movement during soil penetration.

In low level attacks over deep water bodies, the offset distances from the point of entry at the water surface may be considerably enhanced due to hydrodynamic effects before the bomb penetrates or settles on the sea bed. Shallow water has little effect on bomb penetration depths during high level attacks.

4 WWII DEFENCES

4.1 Bombing Decoys

In order to draw enemy aircraft away from towns and other strategically important targets, a series of decoys were developed between 1940 and 1941.

They were estimated to have drawn at least 5% of the total weight of bombs away from their intended targets. Approximately 792No. static decoy sites were built at 593No. locations in England. In addition, numerous temporary and mobile decoys were deployed.

Several different types of decoy were devised:

- Night time dummy airfields (Q sites).
- Daytime dummy airfields (K sites).
- Diversionary fires to simulate successful bombing raids on airfields (QF sites), petroleum depots (P sites) and major towns and cities (Starfish or SF sites).
- Simulated urban lighting (QL sites).
- Dummy Heavy Anti-Aircraft (HAA) batteries, factories and buildings (C series).
- Mobile decoys representing 'hards' for troop embarkation (MQLs), tanks and other vehicles.

Machine gun emplacements and Light Anti-Aircraft (LAA) guns were used to prevent possible enemy landings at decoy airfields.

By their nature, decoy sites provide a potential risk from Unexploded Bombs (UXB), both within the decoy site boundary and in the surrounding areas.

Between 1940 and 1941 a decoy airfield, intended to draw bombing away from RAF Lympne, was established on Folkestone Racecourse, on the north-eastern part of the Site. No records have been found indicating that this decoy was successful.

Between February 1941 and May 1942 dummy aircraft were erected on the landing area of RAF Lympne when the airfield was not in use. No records have been found indicating that this was successful in attracting bombing raids from nearby airfields.

Table 3 is a list of recorded bombing decoys within 5km of the Site.

Table 3 WWII bombing decoys within 5km of the Site

Grid Reference	Serial No.	Location	Type	Approximate Distance and Direction from the Site
TR 125378	-	Folkestone Racecourse	RAF Q Airfield Decoy	On the Site
TR 091328	Q189a	Burmarsh B	ASQL for Operation Starkey	2.9km SW
TR 147334	NC653	Dover Comand	Naval Coast MQL	3.0km SE
TR 086326	Q189a	Burmarsh	RAF Q Airfield Decoy	3.5km SW
TR 109428	C14a	Brabourne	Civil QL/QF	5km NE
TR 109428	SF65a	Brabourne	Civil Starfish	5km NE

Bombing decoys are not considered to provide a source of UXO hazard to the Site.

4.2 Anti-Aircraft Defences

Anti-Aircraft (AA) gun batteries were targeted by the Luftwaffe. They were also a source of Unexploded AA (UXAA) shells which could land up to 27km from the firing point during WWII, although more typically fell within 15km. These could be distributed over a wide area.

AA batteries present a potential source of UXO hazard as a result of the storage, use and disposal of ordnance associated with the armaments used. They may have a risk from small caches of ammunition buried locally to them. 3No. types of AA batteries existed:

- Heavy Anti-Aircraft (HAA) batteries of large guns designed to engage high flying bomber aircraft. These tended to be relatively permanent gun emplacements.
- Light Anti-Aircraft (LAA) weaponry, designed to counter low flying aircraft. These were often mobile and were moved periodically to new locations around strategic targets such as airfields.
- Rocket batteries (ZAA) firing 3" or 3.7" AA rockets with a maximum altitude of 5,800m and a ground range of 9km were also relatively permanent emplacements.

Many AA batteries were associated with searchlights and consequently 'visible' at night, providing clear targets to the Luftwaffe bombers and a potential for UXB.

During WWII the Site was within the range of guns deployed in the Hawkinge, Dover and Folkestone Gun Defended Areas (GDAs).

Table 4 is a list of recorded HAA batteries within 10km of the Site.

Table 4 WWII HAA batteries within 10km of the Site

Grid Reference	Serial No.	Location	Armament	Approximate Distance and Direction from Site
TR 137353	D15	Pedlinge Court	2 x 3" guns	1.5km SE
TR 119331	FO6	West Hythe	Unknown	1.9km S
TR 179363	FO5	Frogholt	Unknown	4.3km E
TR 047400	AD1	Mersham	Unknown	5.1km NW
TR 191368	D16	Arpinge Farm	2 x 3" guns	5.7km ENE
TR 211352	FO1	Morehall Foord	Unknown	7.6km ESE
TR 212353	FO4	Morehall Foord	Unknown	7.7km ESE
TR 214367	FO2	Folkestone	Unknown	7.7km E
TR 215368	FO3	Capel Court	Unknown	7.8km E
TR 207420	D12	Ridge Row, Hawkinge	3 x 3" guns	8.7km NE
TR 234380	D11/FO2	Hope Farm	4 x 3" then 4 x 3.7" guns	9.8km E

It should be noted that the lack of official records of HAA batteries or armaments cannot be taken to imply their absence because many units were mobile and were moved around as operational requirements dictated.

RAF Lympne was also defended by a series of LAA guns, which included Bofors guns, Hispano cannon and .303" Browning machine guns. These also operated as ground-defence gun emplacements, and are described in Section 6.8.

In 1944, additional LAA and HAA gun batteries were established in southern England as part of 'Operation Diver', tasked with countering the V1 threat against London.

Table 5 is a list of recorded 'Operation Diver' gun batteries in the immediate vicinity of the Site. The LAA batteries were manned by No. 71 AA Battalion and the HAA batteries by No. 40 AA Battalion.

Table 5 WWII 'Operation Diver' Batteries in the immediate vicinity of the Site

Grid Reference	Serial No.	Armament	Approximate Distance and Direction from Site
TR 120368	DL1	40mm LAA guns	On the Site
TR 126371	LS6	8 x 3.7" HAA guns + No. 3 Mark IIc radar	On the Site
TR 130367	10A	Unknown	On the Site
TR 127360	DL2A	40mm LAA guns	On the Site
TR 130374	DL3 (ii)	40mm LAA guns	0.2km N
TR 113347	DIM1	Unknown	0.2m S
TR 094357	LS7	8 x 3.7" HAA guns + No. 3 Mark IIc radar	0.5km SW

Given the number of gun batteries in the surrounding area, the potential for a UXAA shell to have fallen unnoticed on the Site cannot be discounted.

4.3 Barrage Balloons and Anti-Landing Obstacles

Balloon barrages were flown in many British towns and cities to protect against air raids. Their presence deterred low flying aircraft, making it more difficult for bombs to reach their intended targets. Barrage balloon sites can be a source of UXO as they were targeted by the Luftwaffe. They also often had a small explosive charge fitted with tilt fuzes attached approximately 50m from each end of the balloon cables and designed to detonate if the cables were hit by an aircraft.

Measures were also taken to prevent enemy aircraft landing in the event of invasion. Obstructions were constructed around airfields and on other open sites deemed fit for use as landing grounds. Solid obstructions (such as concrete blocks), posts or stakes, felled trees, haystacks, scaffolding with wire and trenching were the main measures used.

No records of barrage balloons or anti-landing obstacles on in close proximity to the Site have been found.

4.4 Anti-Invasion Defences

Defence structures are a potential source of UXB as they were especially targeted by low flying enemy aircraft, particularly during 'tip and run' raids which were common in industrialised regions. These defences may also be associated with small caches of UXO in the form of small arms, used by the troops manning the emplacement.

The rapid advance of German Troops into France, Holland and Belgium after the start of WWII prompted the War Office to review the vulnerability of the UK to invasion and a decision was taken to begin work on a national plan of anti-invasion defences. Static defences were built to interrupt and delay the progress of any invading force.

Coastal defences were strengthened (the 'Coastal Crust'). These defences included barbed wire entanglements and minefields, which were often combined to give defence in depth.

Inland, lines of defence structures were constructed along 'Stop Lines' in order to impede enemy progress for long enough to allow mobile defending forces to counter-attack.

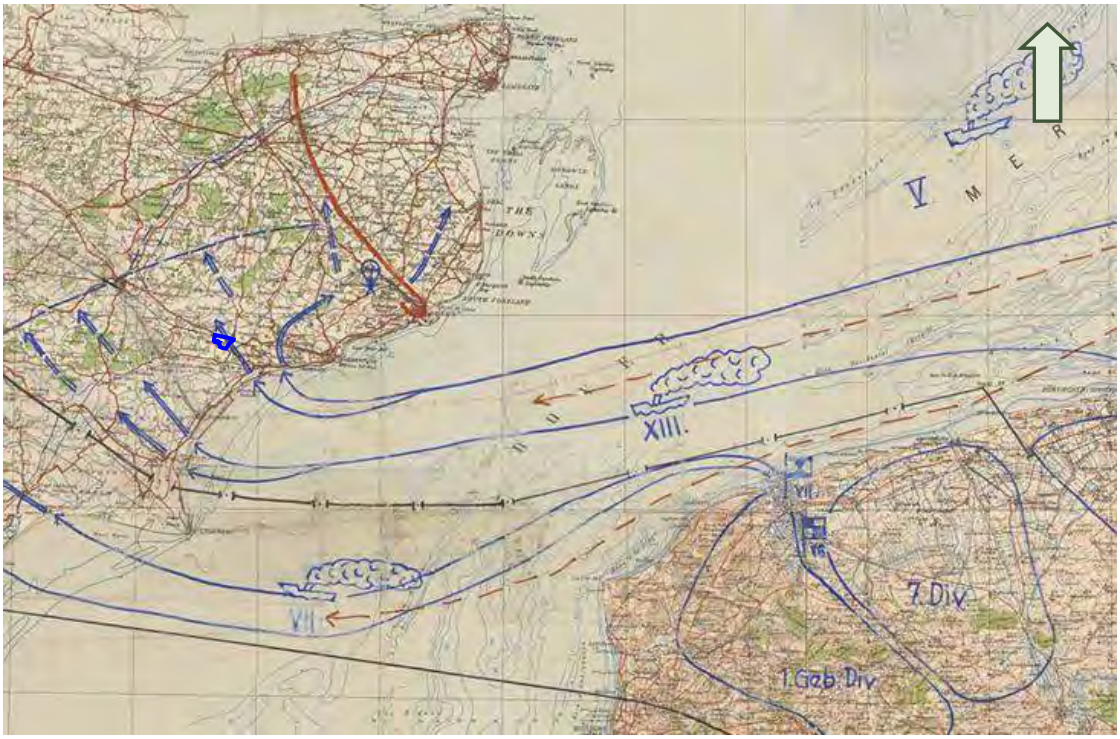
Stop Lines included the fortification of key 'centres of resistance', such as river crossings and important road or rail junctions that could seriously hamper the enemy's advance across country. Bridges were mined for demolition and tank traps installed.

Stop Lines were further integrated into a network of fortified nodal points and 'Anti-Tank (AT) Islands'.

During the early part of WWII, the Kentish coastline was designated by the German military for a planned amphibious invasion as part of 'Operation Sea Lion'.

This is shown in Figure 7, a German invasion plan of Kent dating from 1940.

Figure 7	Extract of the German invasion plan for Kent, 1940



Source: IWM *Not to scale*

Legend	Site boundary

Due to its perceived vulnerability to an enemy invasion, the Kentish coast and the approaches inland were heavily defenced. The defences established in the vicinity of the Site are described in the Sections below.

RAF Lympne had its own network of anti-invasion defences, which are described in Section 6.8.

4.5 Pillboxes, Mortar and Gun Emplacements

Defences also included spigot mortar positions and gun emplacements.

Spigot mortars, also known as Blacker Bombards, were used primarily in an anti-tank role at road blocks or to defend airfields. Typically they fired a 20 pound (lb) HE mortar bomb. The fixed positions, in weapons pits with ammunition lockers, were frequently positioned near pillboxes.

Spigot mortar positions could be either fixed or mobile.

LAA guns based at RAF Lympne are described in Section 6.2.

Railway guns were operated on the SR mainline adjacent to the northern boundary of the Site. The railway tunnel at Grove Bridge, Sellindge (TR 106376), adjacent to the Site, was used to store a 12" gun when not in position.

Pillboxes provide a potential UXO hazard both from the storage, use and disposal of ordnance associated with them and from UXB because they were targeted by enemy aircraft.

Pillboxes were common along Stop Lines, perimeters of airfields, potential land invasion sites and around important civil sites. Several different designs existed including Seagull Trenches (semi-buried structures), Alan Williams and Tett Turrets (small prefabricated pillboxes). Fortified sites, buildings or loop-holed walls also functioned as pillboxes.

Records indicate that at least 18No. pillboxes were located within 2km of the Site. These were concentrated along the Royal Military Canal, which ran approximately 0.8km south of the Site.

Pillboxes and gun emplacements are not considered to provide a source of UXO hazard to the Site.

4.6 Home Guard and Auxiliary Units

Local Defence Volunteers (LDV) units, later known as the Home Guard, were located in all cities, towns and large villages. Anti-invasion defences were to be defended by the Home Guard and regular Army troops for as long as possible in the event of an invasion. The troops were issued with 'No Withdrawal' orders.

Important elements of the ordnance supply for the use of the Home Guard included substantial supplies of Mills bombs (fragmentation grenades) and Self Igniting Phosphorus (SIP) grenades as well as machine gun and small arms ammunition.

In addition to the regular Home Guard, Auxiliary Units existed which were made up of guerrilla troops trained in sabotage and assassination in case of invasion. Sites used by these Units were Top Secret and many locations are still unknown.

No records have been found indicating that Home Guard activity occurred on the Site.

The 8th Kent (Cinque Ports/Folkestone) and 1st (Ashford) Kent Home Guard Battalions operated in the surrounding area, manning anti-invasion defences and undertaking patrols near Vulnerable Points (VP) such as docks, industrial works and transport infrastructure.

Records have been found indicating that local Home Guard troops assisted in construction and repair work at RAF Lympne in Autumn 1940, and are likely to have been involved in the airfield's defence scheme throughout WWII.

The Home Guard often took part in mock 'invasions' of airfields to test their defences. There is no indication that such activity occurred at RAF Lympne and these exercises did not typically include the use of live munitions.

Records have been found indicating that the Aldington 'Fungus' Auxiliary Unit had an Operational Base (OB) located within Harringe Brooks Wood (TR 099361), within approximately 0.2km west of the Site. The OB contained explosives stores, which would have been used to destroy strategically important infrastructure in the event of a successful enemy invasion. It is likely that RAF Lympne would have comprised one of the main targets.

Records of Home Guard and Auxiliary Unit activities are rarely preserved. Storage and disposal of munitions by the Home Guard was poorly documented and surplus supplies were either buried or dumped in lakes and ponds.

Given the irregular nature of this activity, the possibility of items of UXO being discovered at any locations occupied by the Home Guard or Auxiliary Units can never be totally discounted.

4.7 Minefields and Mined Locations

Minefields were laid along the coast, in estuaries and along the banks of major rivers to deter infantry invasion. Strategic points such as bridges and gaps in cliffs were mined to impede enemy advance. Most of the mined locations in the UK have been cleared and the risk of finding UXO in these areas is considered to be low.

Records have been found indicating that pipe mines were installed at RAF Lympne, as described in Section 6.1.

No other records of minefields or mined locations on or in close proximity to the Site have been found.

5 MILITARY AIRFIELDS

Military airfields offer the potential for significant UXO hazards due to the use, storage and disposal of ordnance and as a result of enemy bombing during WWI and WWII.

Airfields active during WWII were targeted by the Luftwaffe, providing a potential source of UXB on the airfield.

As bombing accuracy was so poor during WWII, it is likely to find UXB in the surrounding areas. Aircraft crashes are also associated with operational airfields.

The Site encompasses the former RAF Lympne. A brief operational history of the airfield is provided below.

5.1 RFC/RAF Lympne (HMS Buzzard)

In March 1916 Royal Flying Corps (RFC) Lympne was established on the southern part of the Site. This was used primarily as a base for No. 1 Auxiliary Air Gunnery School, which trained pilots in aerial combat, and as an Emergency Landing Ground (ELG) by Home Defence fighter aircraft.

In January 1917 the airfield was expanded for use as No. 8 Air Acceptance Park (AAP), which assembled and tested military aircraft, before delivering them to squadrons in France. Crated aircraft were delivered to the airfield by a spur railway line which ran across the central part of the Site.

After an air raid in May 1917, Home Defence squadrons were also positioned at the airfield to combat enemy aircraft and airships. RFC Lympne was used by the military until August 1919, when it was transferred for civilian use.

During the 1920s and 1930s Lympne Airport operated a variety of domestic and international routes.

Plate 15 is an aerial photograph showing the airfield during this period.

Plate 15	Aerial photograph of Lympne Airport, 1930s

Source: Airfield Exchange Group

In the early 1930s the RAF began holding summer camps for new recruits at Lympne Airport. They trained using obsolete biplanes. In 1936 the RAF requisitioned the airfield, which was used to accommodate several bomber squadrons.

Figure 8 is a plan of RAF Lympne dating from 1938.

Figure 8	Plan of RAF Lympne, 1938

Source: RAF Museum *Not to scale*

Legend	Site boundary

In October 1938 RAF Lympne was briefly placed under Care and Maintenance, before being transferred to the Fleet Air Arm (FAA) in July 1939. The FAA designated the airfield as HMS Buzzard. This was used as a supplementary facility for engineers based at the Air Mechanics School at HMS Daedalus (SU 563020).

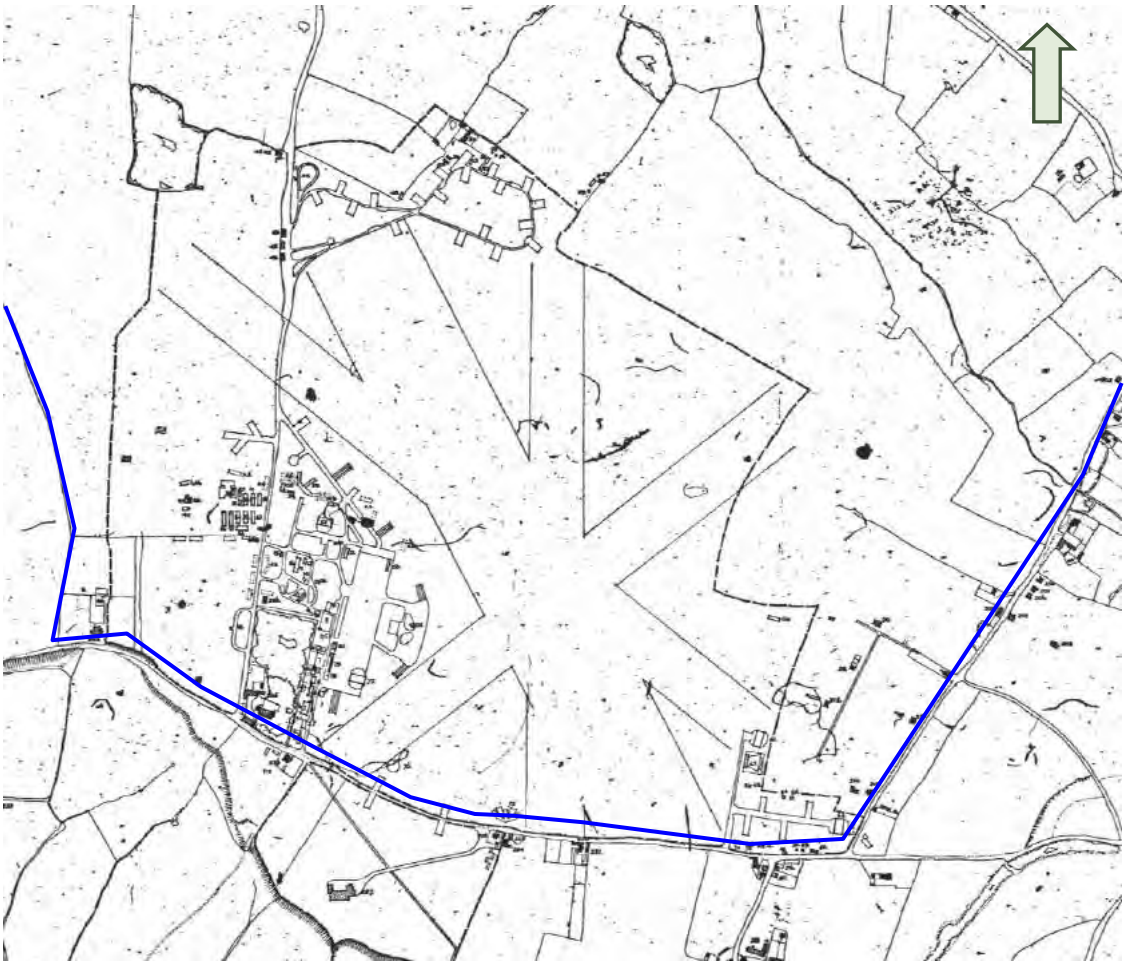
The airfield was transferred back to the RAF in May 1940, and accommodated fighter and bomber squadrons engaged in supporting British troops during the Battle of France.

During the Battle of Britain the airfield was used as a satellite by No. 11 Group RAF. The proximity of RAF Lympne to the south coast rendered it particularly vulnerable to enemy air raids, and it was consequently only used intermittently as a landing ground rather than accommodating a permanent squadron.

In May 1942 the facilities at RAF Lympne were expanded for use by a series of fighter squadrons, engaged in Home Defence and anti-shipping duties. Between 1943 and 1944 the airfield was designated as an Advanced Landing Ground (ALG), used by a succession of squadrons primarily supporting ground-operations in France.

Figure 9 is a plan of RAF Lympne dating from 1945.

Figure 9	Plan of RAF Lympne, 1945



Source: RAF Museum *Not to scale*

Legend	Site boundary

In 1945 RAF Lympne was downgraded to ELG status and in January 1946 it was returned to civilian use as an international airport.

Plate 16 is an aerial photograph of the airfield dated the 5th November 1946.

Plate 16	Aerial photograph of Lympne Airfield, 5th November 1946

Source: RAF Museum *Not to scale*

Legend	Site boundary

Lympne (Ashford) Airport operated until 1984, when it was closed. The Technical Area has subsequently been developed as an industrial estate.

Details of potential sources of UXO hazard at RAF Lympne are given in Section 6.

5.2 RAF Westenhanger

Between 1940 and 1941, a dummy airfield was established on Folkestone Racecourse, on the north-eastern part of the Site. This was designed to attract bombing away from RAF Lympne, but no records have been found indicating that it was successful.

In 1944 the dummy airfield was allocated for active use, and was designated as RAF Westenhanger (TR 123367). It was used during April 1944 to accommodate No. 660 Squadron, an Air Observation Post unit, which flew Auster AOP 4 renaissance aircraft used for artillery spotting and intelligence gathering.

These aircraft took part in Army Co-Operation exercises with infantry formations in the surrounding area, before being transferred to France in July 1944.

Records indicate that RAF Westenhanger just comprised a landing strip, with no permanent facilities, munition stores or ranges.

RAF Westenhanger is not considered to provide a source of UXO hazard to the Site.

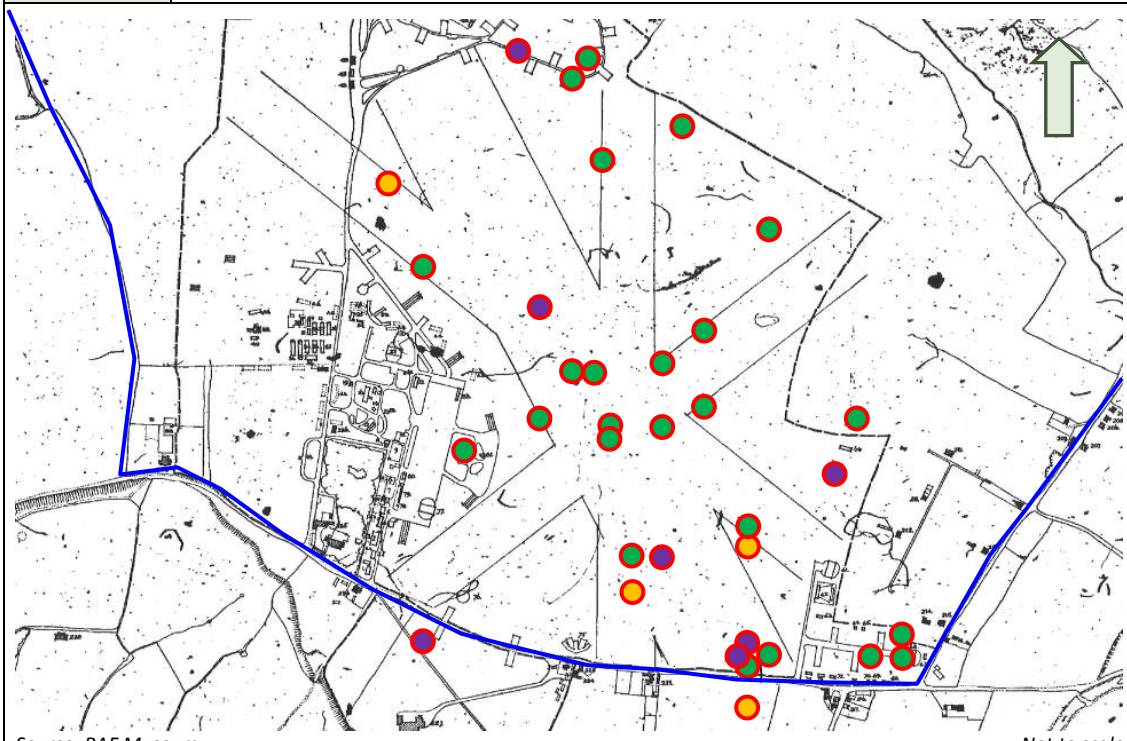
5.3 Aircraft Crashes

Aircraft crash sites are a known UXO hazard. The MoD advises that if crashed aircraft are found, the safest policy is to leave them alone where possible. Unless disturbed there is no statutory requirement for the MoD to clear such sites.

Numerous aircraft crashes were recorded at RAF Lympne during WWII. Appendix 2 provides an indicative list of identified aircraft crashes on the Site.

Figure 10 is a plan showing the approximate locations of recorded aircraft crashes on the Site.

Figure 10 Plan of RAF Lympne showing approximate location of aircraft crashes



Source: RAF Museum *Not to scale*

Legend	Site boundary	Fighter	Bomber	Fighter-bomber

Some of these crashes may have resulted in Small Arms Ammunition (SAA) from the aircraft guns being scattered across a wide area, including the Site.

6 AIRFIELD ACTIVITIES AT RAF LYMPNE

Those airfields active during WWI and WWII or with long operational histories will have the greatest potential for UXO.

Practically any operational military airfield requires an ordnance disposal facility. This is usually in the form of a burning or burial pit. The amount of ordnance disposed of naturally relates to the type and amount of activity. Other sources of UXO may have resulted from practice activities on or around the airfield. Such practice would usually take place on a designated firing or bombing range.

6.1 Pipe Mines

Pipe mines laid beneath critical infrastructure such as runways were designed to be detonated in the event of an invasion to prevent enemy use of the airfield.

Given its strategic vulnerability to an enemy invasion, RAF Lympne had pipe mines installed by 1941.

Canadian pipe mines (MacNaughton Tubes) comprise a steel tube filled with explosive that extend underneath the object to be destroyed (see Appendix 4.13).

No records have been found indicating where the pipe mines were originally laid at RAF Lympne. It is likely that the pipe mines were arranged in a square grid pattern, as typical of other airfields. These would have extended beneath the landing area.

Records have been found indicating that in early 1943 meetings with the Royal Engineers were held at RAF Lympne to discuss the removal of the pipe mines. Evidence has been found indicating that Canadian troops were engaged in removing the pipe mines in 1943, which resulted in several accidents.

In 1945, the Royal Engineers (RE) attempted to clear the airfield of pipe mines. A clearance certificate was issued on the 2nd February 1946, which refers to the discovery of 119No. more pipe mines than were originally recorded as being laid at the airfield.

In September 1953 pipe mines were discovered in a former 'submerged bomb store' (see Section 6.2.1) on the eastern part of Lympne Airport. Records indicate that 1No. workman was injured by an explosion during their removal. In 1960, further pipe mines were discovered by contractors working at Lympne Airport. This resulted in an accidental detonation which caused a fatality.

Anecdotal records have been found indicating that between 1962 and 1963, a chain-link matting reinforcement located beneath the landing ground was removed using armoured bulldozers in order to access any further remaining mines.

In October 2002, a recommendation letter from 33 Engineer Regiment (Explosive Ordnance Disposal) concluded that, "As there are more mines found than declared as laid then the only way forward, due to the lack of detailed laying information, is to subject all areas of proposed redevelopment to 100% clearance." The full recommendation letter has been included as Appendix 3.

Pipe mines are considered to provide a possible source of UXO hazard to the Site.

6.2 Bomb Stores

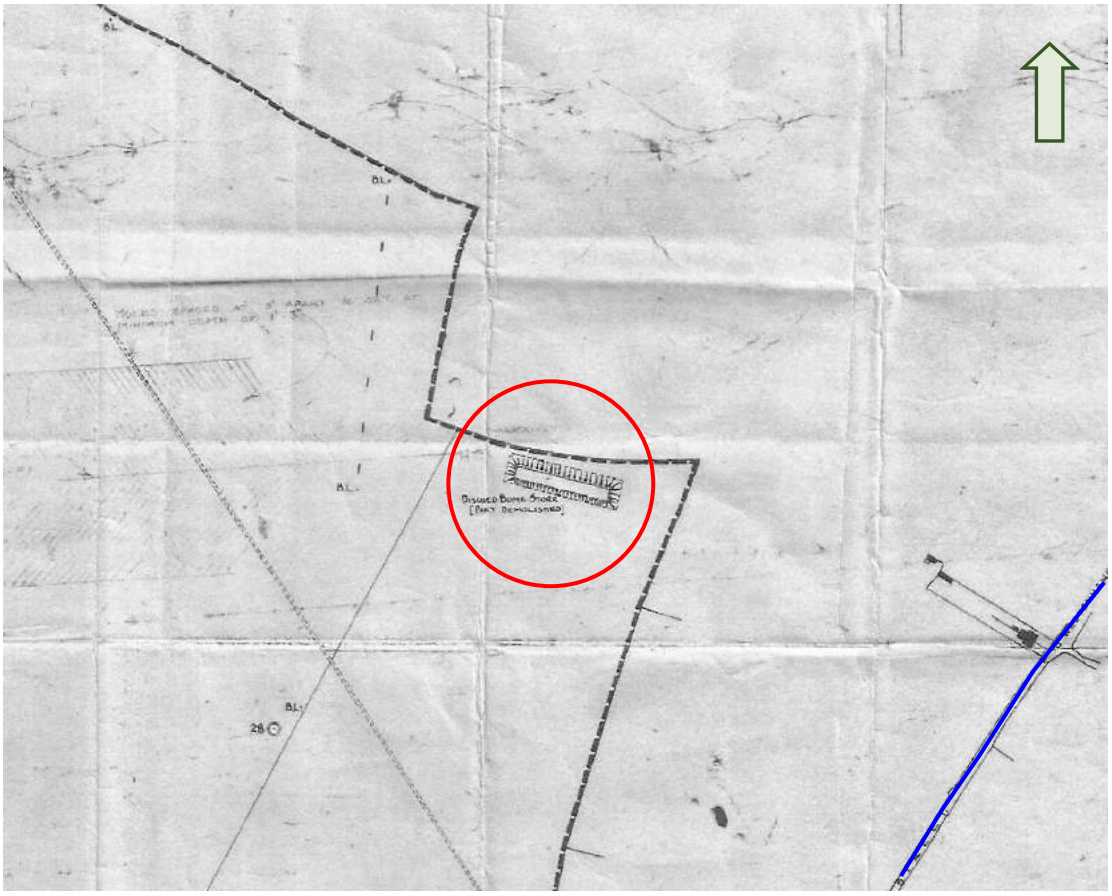
Bomb and ammunition stores were typically constructed in a remote area of an airfield, linked to the perimeter track by a service road. Bomb stores often contained a combination of both practice and live ordnance.

6.2.1 Pre-WWII Bomb Store

Between 1936 and 1938 RAF Lympne was used to accommodate a series of squadrons, including Nos. 21 and 34 Squadron, equipped with light-bomber aircraft. A submerged bomb store was established on the eastern part of the airfield (TR 118353) to store munitions for these squadrons.

When RAF Lympne was transferred away from Bomber Command in 1938, the bomb store became disused. The location of the disused bomb store is shown in Figure 11, a plan of RAF Lympne dating from 1938.

Figure 11 Plan of RAF Lympne showing the location of disused bomb stores, 1938



Source: MoD *Not to Scale*

Legend	Site boundary	Disused bomb store

Evidence has been found indicating that the store was subsequently used as a salvage dump. In 1953 live pipe mines were discovered in the store, which resulted in an accidental detonation (see Section 9.2 for further details).

Plate 17 is an aerial photograph showing the location of the bomb store today.

Plate 17	Recent aerial photograph showing the location of disused RAF Lympne bomb store

Source: Google Earth *Not to Scale*

Legend	Site boundary	Disused bomb store

6.2.2 WWII Bomb Stores

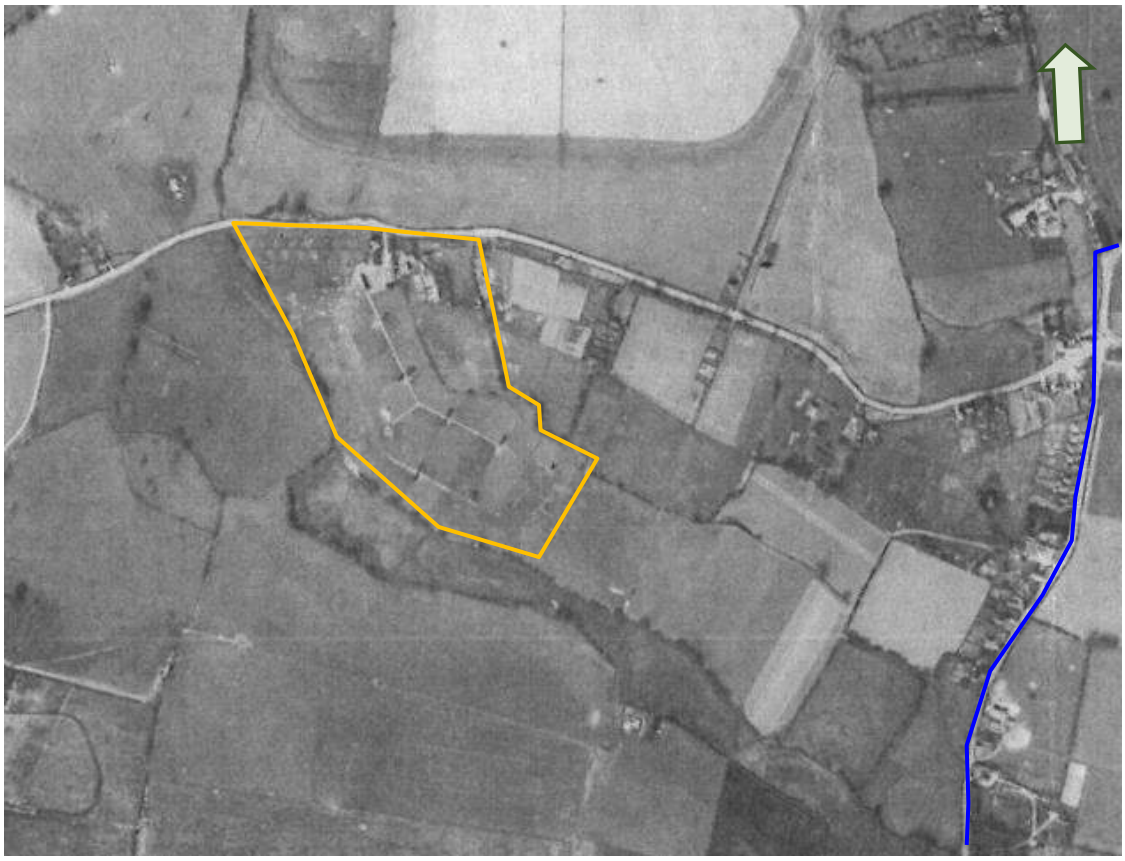
Given that RAF Lympne was used as an ALG by fighter-bomber aircraft during the later years of WWII, it is considered likely that the airfield had temporary bomb stores.

WWII airfield plans for RAF Lympne do not depict any active dedicated bomb stores. It is considered possible that bombs were stored in the open-air in the vicinity of the landing ground.

In aerial photography dating from 1942, a series of huts (TR 119365) have been identified under construction near the northern boundary of the airfield. Given the layout of the huts, it is considered possible that this was used as a bomb and munitions storage area.

Plate 18 is an aerial photograph, dated the 19th April 1944, showing the completed huts.

Plate 18	Aerial photograph showing potential munitions store, 19th April 1944



Source: Historic England *Not to Scale*

Legend	Site boundary	Possible munitions store

The buildings were removed by the 1960s, and the land partially redeveloped.

Typically, any bombs stores were emptied at the conclusion of WWII, although the possibility of localised disposal in their immediate vicinity cannot be totally discounted (see Section 6.6).

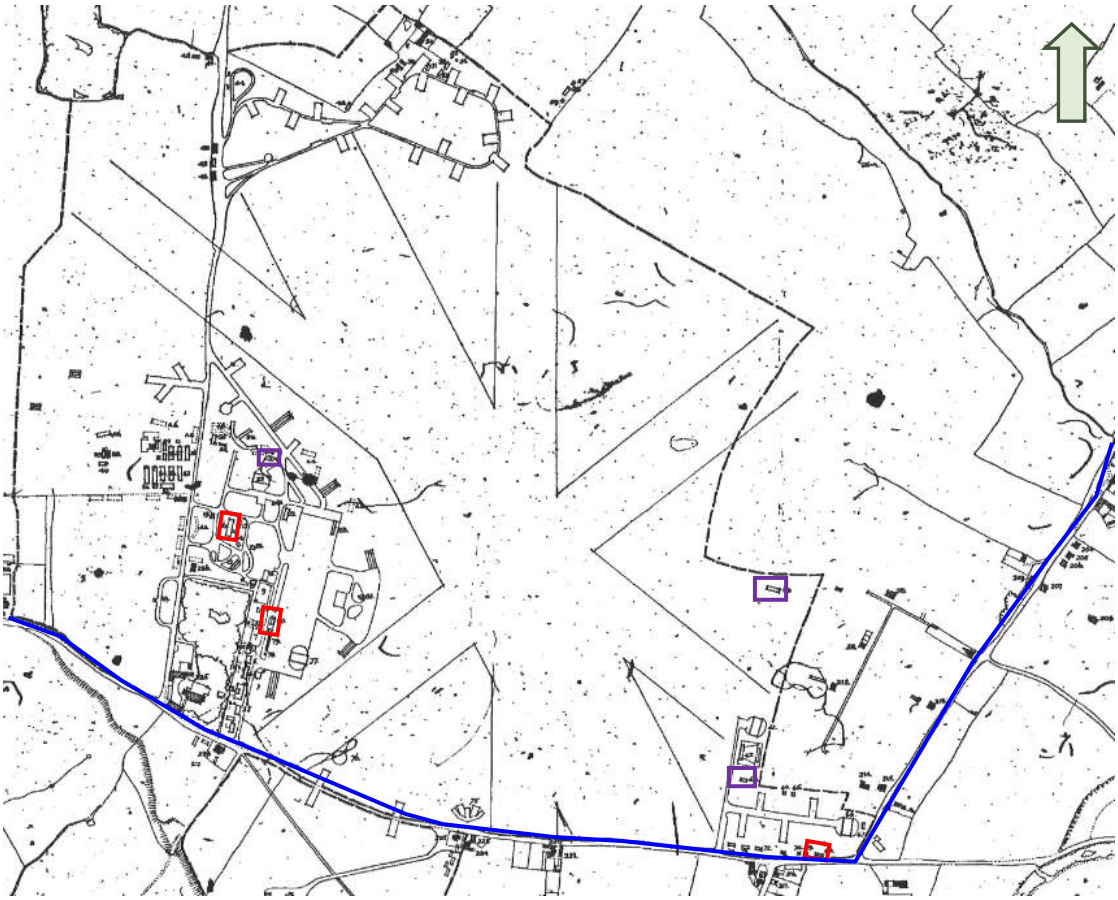
6.3 Munitions Stores

Munitions and pyrotechnics stores were typically constructed in small bunded magazines, often adjacent to airfield defence emplacements, machine gun ranges or dispersal areas, and linked to the perimeter track by a service road.

Records have been found indicating that armouries and SAA stores were located at RAF Lympne.

Figure 12 is a plan of RAF Lympne, showing the locations of these stores.

Figure 12	Plan of RAF Lympne showing the location of SAA stores, 1945



Source: RAF Museum *Not to Scale*

Legend	Site boundary	Armoury	SAA store

Typically, any munitions stores were emptied at the conclusion of WWII, although the possibility of localised disposal and spillage cannot be totally discounted in their immediate vicinity (see Section 6.6).

6.4 Machine Gun Test Butts and Firing Ranges

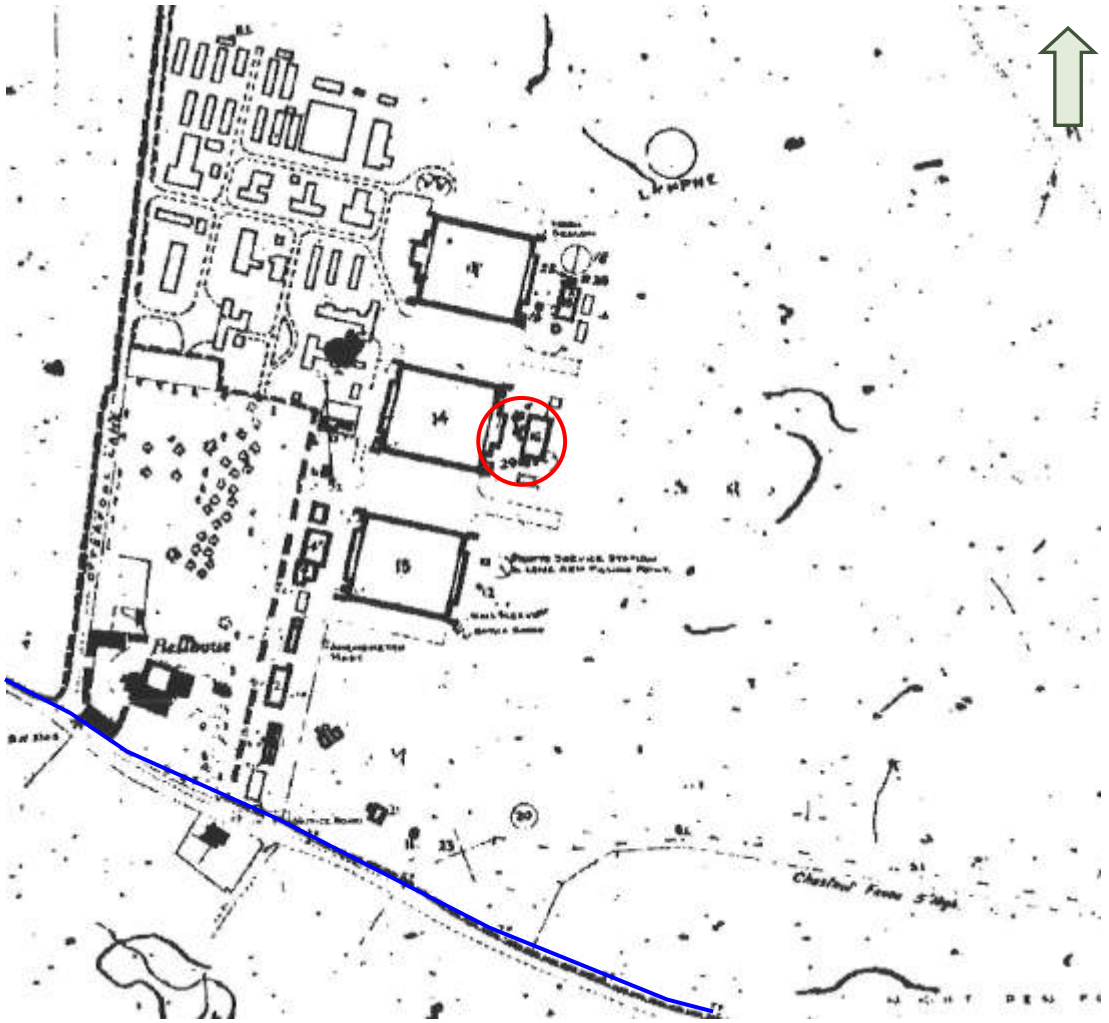
On an airfield, the machine gun and test butts are a designated area where aircraft test their guns. The butts are often at the end of access runways or dispersals and incorporate a mound of Made Ground or soil which is fired into.

Small arms ranges (such as rifle ranges) and close combat ranges (such as mortar and grenade ranges) are likely to provide a significant source of UXO. It should be noted that even on small arms ranges, larger munitions such as mortars or grenades cannot be discounted.

No records have been found indicating that test butts were located at RAF Lympne. Records have been found indicating that RAF Lympne was equipped with a machine gun range.

Prior to WWII, the range was located near the Technical Area (TR 112353), as is shown in Figure 13, a plan of RAF Lympne dating from 1938.

Figure 13	Plan of RAF Lympne showing the location of the machine gun range, 1938



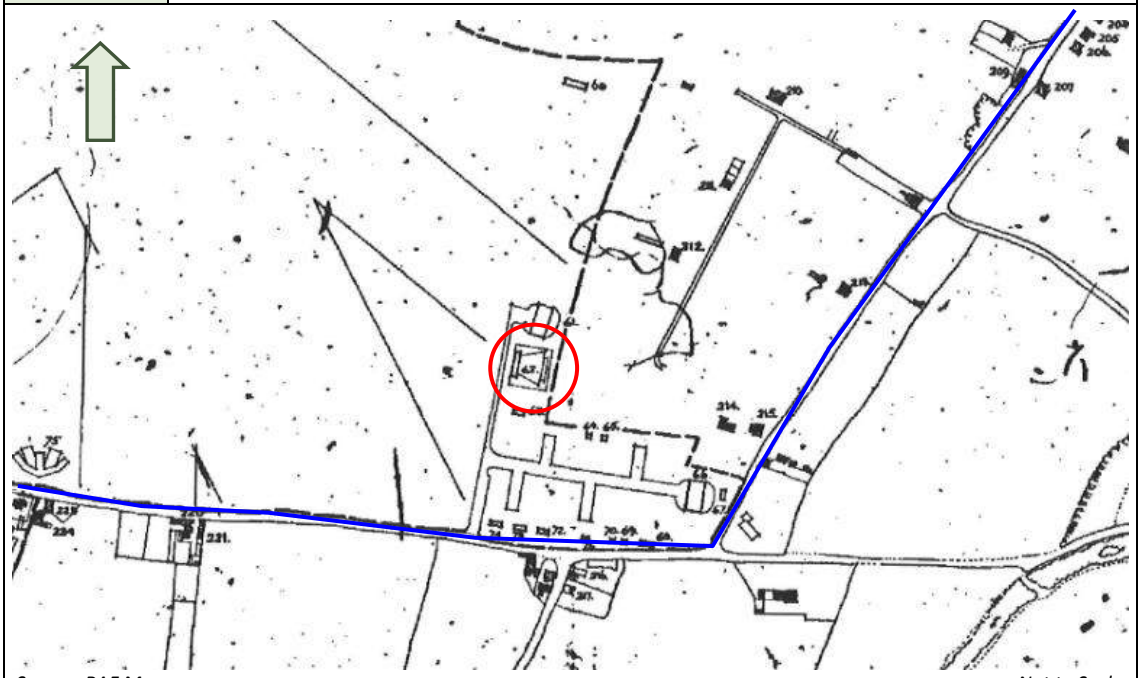
Source: RAF Museum *Not to Scale*

Legend	Site boundary	Machine gun range

The range was destroyed during an air raid in 1940, and a new machine gun range was established on the eastern part of the Site.

This is shown in Figure 14, a plan of RAF Lympne dating from 1945.

Figure 14	Plan of RAF Lympne showing the location of the machine gun range, 1945

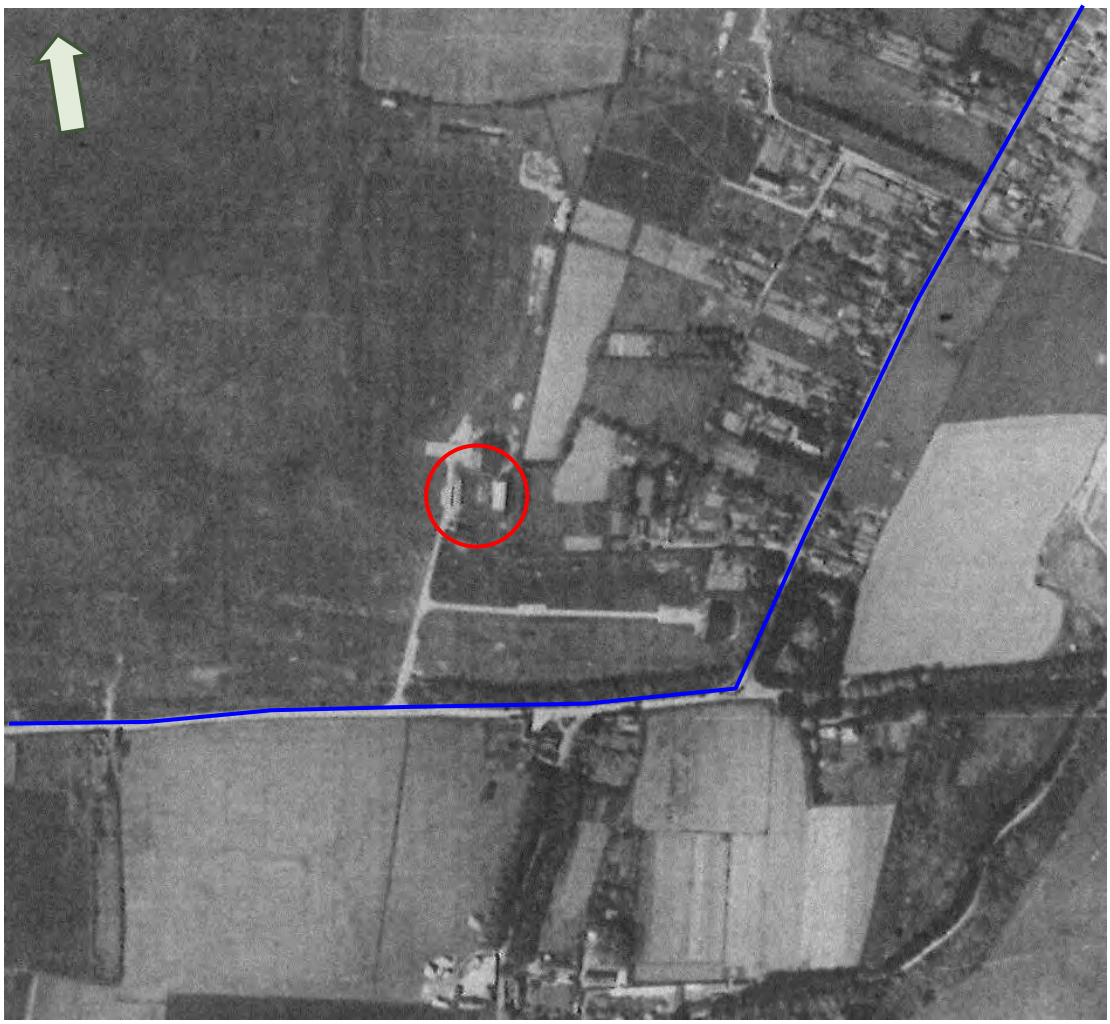


Source: RAF Museum *Not to Scale*

Legend	Site boundary	Machine gun range

Plate 19, an aerial photograph dated the 1st May 1946, shows that the machine gun range was still in place after WWII.

Plate 19	Aerial photograph of RAF Lympne showing machine gun range, 1st May 1946



Source: Historic England *Not to Scale*

Legend	Site boundary	Machine gun range

The machine gun range was recorded as disused on post-WWII maps, and was removed by the 1970s.

It is considered likely that SAA used at the range remains at shallow depths in its vicinity.

While some live ammunition and residues from explosive propellant may provide a source of explosive contamination, the concentrations are likely to be small and unlikely to offer a significant detonation risk or toxic hazard.

A more significant potential hazard will be from metal contamination associated with the spent ammunition. This contamination is typically characterised by lead, although antimony and zinc may also be present.

6.5 Airfield Bombing Range

On the 26th May 1943, the Armament Warrant Officer from RAF Hawkinge came to RAF Lympne to discuss the setting up of a practice bombing range on the airfield.

No records have been found indicating a practice bombing range was ever established at RAF Lympne.

Airfield bombing ranges are not considered to provide a source of UXO hazard to the Site.

6.6 Munitions Disposal Areas

Munitions disposal commonly took place in areas around the perimeter of an airfield away from aircraft operations.

No records of official munitions disposal areas at RAF Lympne have been found.

During the course of normal operations it is possible that some munitions became unserviceable and had to be disposed of on site. This disposal was usually carried out in remote areas of the airfield and would normally have involved destruction by burning or controlled explosion in a small destructor house. There are no indications of such facilities on airfield plans for RAF Lympne.

There is no evidence on WWII aerial photography of any extensive areas of disturbed ground on the Site which are indicative of munitions disposal.

As with any military airfield there is always the possibility that munitions were discarded or spilt, particularly near munitions stores or at aircraft dispersal points.

This would typically have comprised SAA, in addition to components such as fuzes and detonators, although the potential for close combat munitions used in airfield defence (such as grenades) to have been disposed of in this manner cannot be totally discounted.

6.7 Aircraft Breaking

Specialist Maintenance Units (MU) were responsible for the modification, maintenance and repair of damaged aircraft. Those aircraft considered beyond all repair were stripped of useful and salvageable parts and disposed of in a pit or 'aircraft graveyard'. These were usually in areas around the perimeter of an airfield, adjacent to access tracks or near repair hangars.

Waste from aircraft disposal should be considered hazardous. It contains a range of conventional contaminants and potentially radioactive materials (such as radium from luminescent dials). Liquid waste from the aircraft may have been decanted into tanks.

No records have been found indicating that any dedicated aircraft breaking facilities were located at RAF Lympne, and no areas of disturbed ground indicative of aircraft breaking have been identified on historical aerial photographs.

Aircraft breaking is not considered to provide a source of UXO hazard to the Site.

6.8 Airfield Defences

Airfields were frequently given their own anti-invasion defences such as gun emplacements and pillboxes. As they often had associated caches of munitions, pillboxes and gun emplacements can provide a direct source of UXO hazard.

In response to the threat of a German invasion, a series of anti-invasion defences were established at RAF Lympne.

These defences included a Battle Head Quarters (HQ) (TR 108361), on the central part of the Site, a secure bunker which would have been used to direct defensive efforts in the event of an enemy invasion.

Plate 20 is a photograph of the remains of the Battle HQ, dating from 2011.

Plate 20	Photograph of the remains of the RAF Lympne Battle HQ, 2011

Source: BattlefieldHQ.info

In mid-1940 defences at RAF Lympne included slit trenches, 1No. Armadillo armoured vehicle and 6No. Hispano cannons. These were manned by 1No. Army company (approximately 100-250No. troops) and an RAF Lympne Defence Squadron (66No. RAF personnel).

Plate 21 is an aerial photograph dated the 19th April 1944, showing a series of slit trenches near the airfield boundary (TR 104358). These would typically have been used by infantry armed with rifles and machine guns.

Plate 21	Aerial photograph of RAF Lympne showing slit trenches, 19th April 1944

Source: Historic England *Not to Scale*

Legend	Site boundary	Slit trenches

By 1942 anti-invasion defences had been strengthened, and included 6No. Beverette mobile guns and Bofors Quick Firing (QF) gun emplacements. These were manned by a succession of units, including 'A' Company of the 70th 'Buffs' Battalion, No. 2744 Squadron RAF Regiment and No. 419 Battery LAA Royal Artillery.

In March 1944 RAF Lympne recorded 8No. 40mm Bofors guns, 4No. 20mm Hispano cannon, 7No. twin .303" Browning machine guns and Browning Beaverette mobile guns.

The exact locations of these defences are unknown, as WWII airfield plans of RAF Lympne do not include details of anti-invasion defences. It is likely that they were concentrated on the boundary of the airfield.

It was usual for ammunition caches associated with machine gun emplacements and weapons pits to be removed once defence was no longer required, although the potential for localised disposal of munitions cannot be totally discounted.

Airfield defences are not considered to provide a significant source of UXO hazard to the Site.

7 EXPLOSIVES AND MUNITIONS ESTABLISHMENTS AND DEPOTS

Explosives and munitions manufacturing or storage sites offer a particularly high risk from both explosive substances and UXO. Standard procedures of explosive/ordnance disposal through burial or burning means that explosive and UXO hazards will be present in some areas of such establishments.

In addition, UXB hazards may be present as a result of enemy bombing during WWI and WWII.

7.1 Explosives and Ordnance Factories

No records of any explosives or ordnance factories on or in close proximity to the Site have been found.

7.2 Munitions Stores

Local ammunition caches would have been present near to defended road blocks, pillboxes, HAA and LAA sites. Most of those associated with the anti-invasion sites are understood to have been cleared.

Other than those identified at RAF Lympne (see Sections 6.2 and 6.3), no records of any munitions stores on the Site have been found.

Records have been found indicating that during WWII a munitions store was established near Westenhanger (TR 125374), approximately 150m north of the Site. This was used to store 12" rounds for use the railway guns operational in the surrounding area.

Munitions stores are not considered to provide a source of UXO hazard to the Site.

7.3 Informal Munitions Depots

Informal munitions depots, often made by requisitioning roadside lay-bys or parks. Other informal munitions depots were commonly located in areas of woodland or on train wagons along sidings in marshalling yards.

No records of any informal munitions depots on or in close proximity to the Site have been found.

7.4 Munitions Disposal Areas and Bomb Cemeteries

Munitions disposal areas were often made by requisitioning open areas of land, usually away from habitation. Marshland, beaches or sand dunes were frequently used for this purpose. Disposal of munitions was carried out in many different ways, ranging from destruction to burial. Full records were not necessarily maintained for these locations, and so they can potentially be a source of UXO.

Other than the possibility of localised disposal detailed in Section 6.6, no records of any munitions disposal areas on or in close proximity to the Site have been found.

8 FIRING RANGES AND MILITARY TRAINING AREAS

By their nature, firing ranges and military training areas represent a potential source of UXO due to associated training activities. The training will involve both practice and live munitions and will offer a significant risk from a very wide range of potential UXO.

8.1 Small Arms Ranges

Small arms ranges (such as rifle ranges) and close combat ranges (such as mortar and grenade ranges) are likely to provide a significant source of UXO. It should be noted that even on small arms ranges, larger munitions such as mortars or grenades cannot be discounted.

Apart from the machine gun range at RAF Lympne (see Section 6.3), no records of any small arms ranges on or in close proximity to the Site have been found.

8.2 Artillery Ranges

Artillery ranges will have utilised a wide range of munitions, predominantly shells, although close combat munitions such as mortars, or larger munitions such as bombs, cannot be discounted.

No records of any artillery ranges on or in close proximity to the Site have been found.

8.3 Bombing Ranges

Bombing ranges will have primarily used bombs, although other munitions such as shells and close combat munitions such as mortars cannot be totally discounted.

No records of any bombing ranges on or in close proximity to the Site have been found.

8.4 Training Areas

Training areas will have primarily used blank ammunition or practice shells in 'dry' areas, although live munitions such as shells and close combat munitions such as mortars cannot be discounted in any training area.

No records of military training areas on the Site have been found.

In WWI East Sandling Camp (TR 148373) was established approximately 0.9km east of the Site. This accommodated troops undertaking training exercises in the surrounding area. This training involved mock-attacks on trench systems on Tolsford Hill (TR 155385), approximately 2km northeast of the Site.

No records have been found indicating that training exercises occurred on the Site.

Military training areas are not considered to provide a source of UXO hazard to the Site.

9 EXPLOSIVE ORDNANCE CLEARANCE ACTIVITIES

Official UK bombing statistics have been compiled from both British and German sources. There were differences in the way the figures were originally reported and collated which has led to discrepancies in the summary data.

Based on data from 1939 to 1945, War Office statistics indicate that 200,195No. HE bombs exploded within Great Britain. Additionally, 25,195No. HE bombs (representing 11%) were recorded as UXBs. However, records from the Royal Engineers who were responsible for bomb disposal at the time indicate that as of 27th February 1946 upwards of 45,000No. UXBs were disposed of.

On average 8.5% UXBs later self-exploded. In some cases the bombs had delayed action fuzes or were never intended to explode, their purpose being to cause inconvenience and fear.

Given the discrepancy in records and the fact that UXBs are still being found unexpectedly, it is clear that the original figures are understated and provide only an approximation of the number of potential UXBs in the UK.

War Office statistics also show that between October 1940 and May 1941 most of the UXBs (93%) were either 50kg or 250kg. It should be noted that details of the recovery and the size of the UXB were not always accurately reported.

The larger WWII UXBs are often difficult to recover due to both penetration depths and the presence of two or more fuzes, combined with more sensitive fillings of explosive mixtures including Amatol and Trialen.

9.1 Abandoned Bombs

Records have been found indicating that 1No. abandoned bomb may be located on the Site.

25th September 1940

1No. UXB was recorded falling in a field at Rotherwood Farm, Sellindge (TR 094378), on the north-western corner of the Site. The UXB was investigated on the 10th October 1940 and officially abandoned on the 9th June 1941.

On the 17th October 1944 a reinvestigation was undertaken, and no evidence of the UXB was found. It was recorded as 'discredited and abandoned' and removed from official records of abandoned bombs on the 3rd March 1945.

Given the uncertainty of whether this bomb was removed, it is considered prudent to assume its presence on the Site unless further information from the MoD confirms otherwise.

9.2 EOC Tasks

The MoD has provided Zetica Ltd with records of the following post-WWII EOC tasks being undertaken on the Site.

1945 – 1946

Prior to RAF Lympne being transferred for civilian use, an EOC task was undertaken to clear the airfield of pipe mines. During the task, 119No. more pipe mines were discovered than were originally recorded as having been laid.

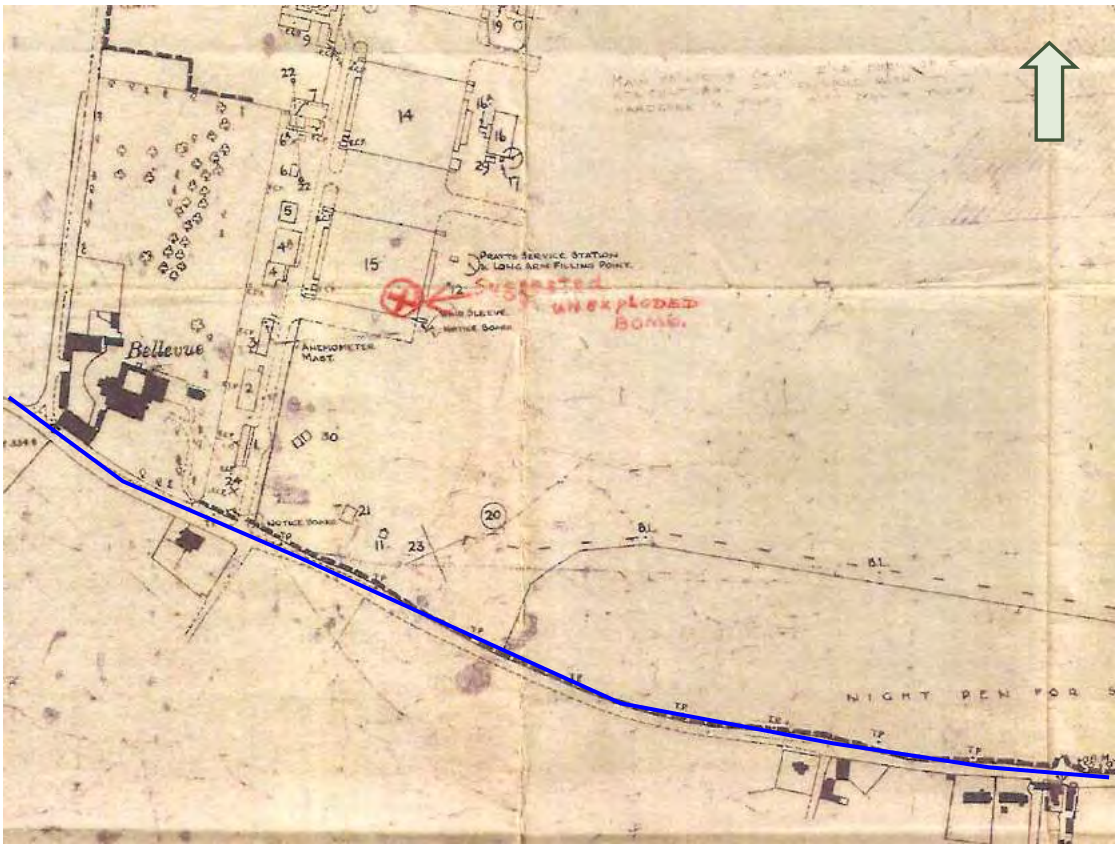
A clearance certificate was issued on the 2nd February 1946.

June 1949

1No. 50kg UXB was discovered near the control tower within the former Technical Area at RAF Lympne (TR 112352). It was removed in August 1949.

Figure 15 is a plan of RAF Lympne showing the location of the UXB.

Figure 15	Plan showing the location of 50kg UXB discovered in June 1949



Source: MoD *Not to Scale*

Legend	Site boundary

September 1953

Pipe mines (number unspecified) were discovered in a former submerged bomb store, used post-WWII as a salvage dump, on the eastern part of Lympne Airport (TR 118353). Some of these pipe mines still contained explosives, and during their removal 1No. workman was injured by an explosion.

1960s

During ground works 1No. pipe mine was accidentally detonated at RAF Lympne, resulting in a fatality. This initiated further pipe mine clearance of the landing area of the former RAF Lympne by a Royal Engineer unit. A number (unspecified) of mines were removed.

11th April 2016

1No. inert practice bomb was discovered at RAF Lympne (location unspecified). This was removed.

10 UXO HAZARD ASSESSMENT

10.1 UXO Hazard Level

The definitions for the levels of UXO hazard are provided below.

Definitions of UXO Hazard Level for a Site

Hazard Level	Definition
Very Low	There is positive evidence that UXO is not present, e.g. through physical constraints or removal.
Low	There is no positive evidence that UXO is present, but its occurrence cannot be totally discounted.
Moderate	There is positive evidence that ordnance was present and that other uncharted ordnance may be present as UXO.
High	There is positive evidence that UXO is likely to be present.
Very High	As high, but requires immediate or special attention due to the potential hazard.

Potential sources of UXO hazard have been identified on the Site:-

WWII Bombing (H1/M1)

Records have been found indicating that at least 500No. HE bombs fell on the southern part of the Site during several heavy air raids against RAF Lympne in WWII.

Given the intensity of the bombing, it is considered possible that a UXB fell on this part of the Site and remained in situ. This part of the Site is assigned a high UXO hazard level due to the possibility that UXB are present.

The parts of the Site bounding the former RAF Lympne are assigned a moderate UXO hazard level to account for the possibility of bombing overspill (M1).

Abandoned Bomb (H2)

Records have been found indicating that an abandoned bomb is located on the north-western corner of the Site.

This part of the Site is assigned a high UXO hazard level.

Pipe Mines (H3)

Records indicate that during WWII RAF Lympne was underlain with pipe mines to destroy the airfield facilities in the event of an enemy invasion.

Although a clearance certificate was issued in February 1946, further pipe mines were discovered on the Site in the 1950s and 1960s, indicating that they were not all removed at the end of WWII.

In 2002 a recommendation letter from 33 Engineer Regiment (Explosive Ordnance Disposal) concluded that there was “a high possibility of uncleared pipe mines” at the former RAF Lympne, and recommended that a full clearance should take place prior to any further development works.

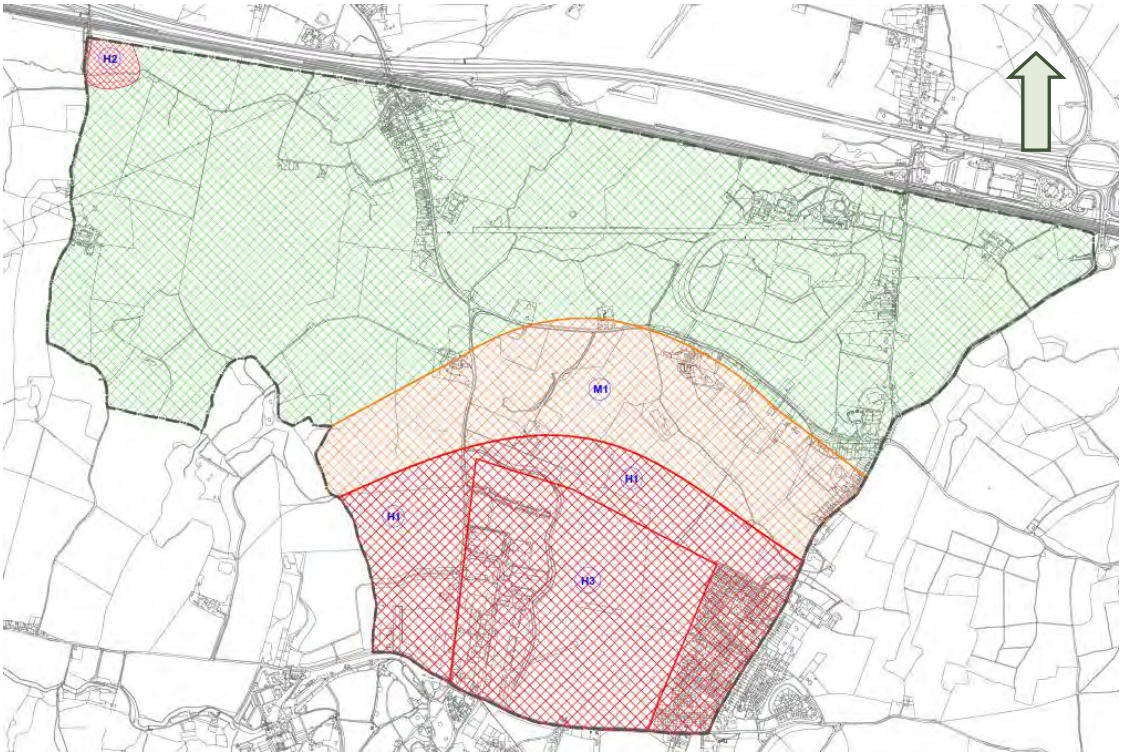
The part of the Site within the airfield boundary is therefore assigned a high UXO hazard level at shallow depths due to the potential presence of pipe mines.

Remainder of the Site

No records of any significant bombing or other sources of UXO hazard have been identified on the remainder of the Site, which is assigned a low UXO hazard level.

Given this, it is considered that the UXO hazard level on the Site can be zoned from low to high, as shown in Figure 16.

Figure 16 UXO hazard zone plan of the Site



Source: Client *Not to Scale*

Legend					
	Very Low		Low		Moderate	
	High		Very High		Site boundary	

It should be noted that the UXO hazard will have been mitigated within the depth and extents of any post-WWII excavation, such as for building foundations. Outside the footprint of post-WWII construction, between piles and below shallow raft foundations and basements, the UXO hazard level remains unchanged to the depth of the likely maximum bomb penetration.

It should also be noted that the potential for encountering SAA across any former military airfield as a result of aircraft crashes, localised disposal or spillages cannot be totally discounted.

11 UXO RISK ASSESSMENT

11.1 UXO Risk Level

A UXO risk assessment has been undertaken for the proposed works, taking into consideration the identified UXO hazard.

Firstly, the probability of encountering UXO (PE) has been considered and rated for the different construction techniques, as detailed below.

Probability of Encounter (PE)	**Rating**
Frequent, highly likely, almost certain.	5
Probable, more likely to happen than not.	4
Occasional, increased chance or probability.	3
Remote, unlikely to happen but could.	2
Improbable, highly unlikely.	1
Impossible	0

Secondly, the probability of detonating a UXO (PD) has been considered and rated for the different construction techniques, as detailed below.

Probability of Detonation (PD)	**Rating**
Frequent, highly likely, almost certain.	5
Probable, more likely to happen than not.	4
Occasional, increased chance or probability.	3
Remote, unlikely to happen but could.	2
Improbable, highly unlikely.	1
Impossible	0

Next, the probability of encountering and detonating the UXO (PE x PD) have been used to generate an overall likelihood rating (P).

P = PE x PD	**LIKELIHOOD of Encounter and Detonation**	**Rating**
21 to 25	Frequent, highly likely, almost certain.	5
16 to 20	Probable, more likely to happen than not.	4
6 to 15	Occasional, increased chance or probability.	3
2 to 5	Remote, unlikely to happen but could.	2
1	Improbable, highly unlikely.	1
0	Impossible	0

P ranges from 25, a certainty of UXO being encountered and detonated on the Site by engineering activity, to 0, a certainty that UXO does not occur on the Site and will not be detonated by engineering activity.

The likelihood of encountering and detonating UXO during site works is multiplied by the severity of such an event occurring (P x S), in order to provide a risk level using the following matrix.

Severity (S)	**Rating**
Multiple fatalities	5
Major injury, long term health issues, single fatality.	4
Minor injury, short term health issues, no fatalities.	3
First aid case but no lost time or ill health.	2
Minor injuries, no first aid.	1
No injuries.	0

UXO Risk Matrix

		SEVERITY (S)					
		5	**4**	**3**	**2**	**1**	**0**
LIKELIHOOD (P)	**5**	**25**	**20**	**15**	**10**	**5**	**0**
	4	**20**	**16**	**12**	**8**	**4**	**0**
	3	**15**	**12**	**9**	**6**	**3**	**0**
	2	**10**	**8**	**6**	**4**	**2**	**0**
	1	**5**	**4**	**3**	**2**	**1**	**0**
	0	**0**	**0**	**0**	**0**	**0**	**0**

The final risk assessment for the Site is given in Table 6.

Table 6	UXO risk assessment for the Site								
Hazard Zone	**Potential UXO Hazard**	**Anticipated Works**	**PE**	**PD**	**P = PE x PD**	**Likelihood**	**Severity**	**Risk Rating**	**UXO Risk**
H1	UXB	Shallow Excavations	4	4	16	4	5	20	**High**
		Deep Excavations	4	4	16	4	5	20	**High**
		Piling/boreholes	4	4	16	4	4	16	**High**
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	**Low**
		Deep Excavations	1	1	1	1	5	5	**Low**
		Piling/boreholes	1	1	1	1	4	4	**Low**
	SAA	Shallow Excavations	3	1	3	2	2	4	**Low**
		Deep Excavations	3	1	3	2	2	4	**Low**
		Piling/boreholes	2	1	2	2	2	4	**Low**
	Other UXO	Shallow Excavations	1	1	1	1	4	4	**Low**
		Deep Excavations	1	1	1	1	4	4	**Low**
		Piling/boreholes	1	1	1	1	3	3	**Low**
H2	UXB	Shallow Excavations	1	1	1	1	5	5	**Low**
		Deep Excavations	5	3	15	4	5	20	**High**
		Piling/boreholes	4	4	16	4	4	16	**High**
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	**Low**
		Deep Excavations	1	1	1	1	5	5	**Low**
		Piling/boreholes	1	1	1	1	4	4	**Low**
	SAA	Shallow Excavations	3	1	3	2	2	4	**Low**
		Deep Excavations	3	1	3	2	2	4	**Low**
		Piling/boreholes	2	1	2	2	2	4	**Low**
	Other UXO	Shallow Excavations	1	1	1	1	4	4	**Low**
		Deep Excavations	1	1	1	1	4	4	**Low**
		Piling/boreholes	1	1	1	1	3	3	**Low**
H3	UXB	Shallow Excavations	4	4	16	4	5	20	**High**
		Deep Excavations	4	4	16	4	5	20	**High**
		Piling/boreholes	4	4	16	4	4	16	**High**
	Pipe Mines	Shallow Excavations	4	5	20	4	5	20	**High**
		Deep Excavations	4	5	20	4	5	20	**High**
		Piling/boreholes	4	5	20	4	4	16	**High**
	SAA	Shallow Excavations	3	1	3	2	2	4	**Low**
		Deep Excavations	3	1	3	2	2	4	**Low**
		Piling/boreholes	2	1	2	2	2	4	**Low**
	Other UXO	Shallow Excavations	1	1	1	1	4	4	**Low**
		Deep Excavations	1	1	1	1	4	4	**Low**
		Piling/boreholes	1	1	1	1	3	3	**Low**

M1	UXB	Shallow Excavations	3	2	6	3	5	15	Moderate
		Deep Excavations	3	2	6	3	5	15	Moderate
		Piling/boreholes	2	3	6	3	4	12	Moderate
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low
Low	UXB	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	Pipe Mines	Shallow Excavations	1	1	1	1	5	5	Low
		Deep Excavations	1	1	1	1	5	5	Low
		Piling/boreholes	1	1	1	1	4	4	Low
	SAA	Shallow Excavations	3	1	3	2	2	4	Low
		Deep Excavations	3	1	3	2	2	4	Low
		Piling/boreholes	2	1	2	2	2	4	Low
	Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
		Deep Excavations	1	1	1	1	4	4	Low
		Piling/boreholes	1	1	1	1	3	3	Low
PE (Probability of Encounter), PD (Probability of Detonation), P (Overall Probability)									
Shallow excavations defined as <1.0m below ground level (bgl).									

UXO Risk	Matrix Rating	Definition
Very Low	0-1	Little action is required by the client provided that suitable records and procedures are in place to ensure appropriate action is undertaken should the UXO risk level change.
Low	2-5	Tolerable to the client as engineering activity need not alter if UXO related procedures and controls are strictly adhered to.
Moderate	6-15	May be tolerable for the client, but it is prudent to reduce the risk where cost effective and reasonably practicable.
High	16-20	Tolerable to the client only where further risk reduction is impracticable or disproportionate to the risk involved. Essential that all practicable measures are taken to reduce the level of risk.
Very High	21-25	Unacceptable to the client except in extraordinary circumstances. Imperative that all control measures are taken.

11.2 Risk Mitigation Recommendations

Ground Investigation Works

For the proposed ground investigation works prior to the main development, the following mitigation is advised to ensure that the UXO risk is reduced to As Low As Reasonably Practicable (ALARP):-

Low Risk Areas

It is considered prudent to raise the awareness of those involved in excavations so that in the unlikely event that a suspect item is discovered, appropriate action is taken.

This can be achieved through UXO awareness briefings to site staff.

Trial Pits in Moderate/High Risk Areas

It is considered essential to raise the awareness of those involved in excavations as per low risk.

Non-intrusive UXO detection methods and intrusive investigation of identified targets is recommended where practical.

Where UXO detection is not feasible due to ground conditions, restricted access or programme, an Explosive Ordnance Clearance (EOC) Engineer can be used to supervise during excavation works.

The EOC Engineer will carry out a visual assessment on any suspect items uncovered and classify them as potential UXO or other material.

Boreholes and Window Samples in Moderate/High Risk Areas

Clearance certification for any borehole or window sample location is considered essential.

This can be achieved by advancing a magnetometer into the ground at the location in order to provide detection of ferrous metal targets such as UXB. Assuming no objects comparable to the UXB detection range are identified, then the position can be considered clear of UXB.

Pipe Mines

In the hazard zone where there is the potential to encounter pipe mines (H3), a more proactive approach to mitigation is recommended due to the increased risk of an accidental detonation.

It is proposed that a surface non-intrusive geophysical scan is undertaken over a <50m by 50m square area centred on each location within this hazard zone.

This will provide a map of shallow-buried below ground features where, subject to ground conditions, linear features such as pipe mines will be more readily identifiable.

Rather than targeting potential pipe mines, the aim of each scan is to avoid potential shallow-buried UXO at the proposed locations.

Table 7 gives recommended actions in relation to the potential UXO risk level and the anticipated Site activity.

Further advice on the mitigation methods can be provided by Zetica on request.

Future Works

Risk Mitigation Plan

It is recommended that a detailed risk mitigation plan is devised based on the information provided in this desk study and risk assessment, and the requirements of any planning conditions. This should outline the recommended risk mitigation techniques in relation to the identified UXO hazards, proposed construction methods, and intended phase of works.

These risk mitigation measures are to be discussed and confirmed with the client to ensure that the level of proposed mitigation is appropriate for the intended use and the client's risk tolerance and carefully addresses the often emotive issue surrounding UXO and residential development.

Outline Explosive Ordnance Disposal (EOD) proposals are also to be detailed to account for the type of UXO anticipated.

Table 7	Risk mitigation for ground investigation works			
Risk Level	**Typical Future Activity on the Site**			
	None	**Shallow Excavations (<1.0m)**	**Deep Excavations (>1.0m)**	**Boreholes or Pile Construction**
Very low	Ensure suitable records and procedures are in place to highlight the risk should future development be planned.	Ensure site staff, are informed as part of the site safety induction that the potential presence of UXO cannot be discounted. Appropriate action is required to be detailed within site procedures.	Ensure site staff, are informed as part of the site safety induction that the potential presence of UXO cannot be discounted. Appropriate action is required to be detailed within site procedures.	Ensure site staff, are informed as part of the site safety induction that the potential presence of UXO cannot be discounted. Appropriate action is required to be detailed within site procedures.
Low	**As very low.**	**As very low.** **+ It is considered prudent to include some UXO awareness training in site inductions.**	**As very low.** **+ It is considered prudent to include some UXO awareness training in site inductions.**	**As very low.** **+Clearance certification for borehole or pile locations would be considered prudent only if a zero tolerance to risk is adopted.** **Zero tolerance is commonly adopted for sites that have safety critical infrastructure such as nuclear establishments and oil refineries.**
Moderate	**As very low.**	**As low.** **+Non-intrusive investigation methods considered prudent where practical.** **+Alternatively, EOC Engineer supervision is considered prudent.**	**As low.** **+Non-intrusive investigation methods considered prudent where practical.** **+Alternatively, EOC Engineer supervision is considered prudent.**	**As low.** **+Clearance certification for borehole or pile locations is considered essential.**
High	**As very low.**	**As moderate.** **+Non-intrusive investigation methods considered essential in areas with a potential pipe mine hazard.**	**As moderate.** **+Non-intrusive investigation methods considered essential in areas with a potential pipe mine hazard.**	**As moderate.** **+Non-intrusive investigation methods considered essential in advance of deep UXB detection in areas with a potential pipe mine hazard.**
Very High	Requires immediate or special attention.	Requires immediate or special attention.	Requires immediate or special attention.	Requires immediate or special attention.
The above table is for guidance only.				

Appendices

Appendix 1 WWII Bombing Incident List

3rd July 1940

30No. HE bombs fell on the landing area of RAF Lympne, on the southern part of the Site.

3No. HE bombs fell on open ground near Lympne Place, approximately 0.2km south of the Site.

12th August 1940

2No. separate air raids were recorded at RAF Lympne, on the southern part of the Site. A total of 283No. HE bombs were recorded falling on the airfield, causing extensive damage to the Technical Area and landing ground. Approximately 70No. additional HE bombs were recorded falling in fields surrounding the airfield.

3No. HE bombs fell on open ground near Lympne Place, approximately 0.2km south of the Site.

1No. HE bomb fell near French House, within approximately 0.4km south-southwest of the Site. This was recorded as a UXB.

1No. HE bomb fell on Lympne Farm, approximately 0.4 south-southwest of the Site. This was recorded as a UXB.

15th August 1940

Over 50No. Junkers Ju87B dive-bomber aircraft dropped an unspecified number of HE bombs on RAF Lympne, on the southern part of the Site. This raid caused significant damage, and rendered the airfield unusable until mid-September.

30th August 1940

9No. 250kg HE bombs fell on the Technical Area of RAF Lympne, on the southern part of the Site.

1st September 1940

4No. HE bombs fell on RAF Lympne, on the southern part of the Site, damaging aircraft positioned on the landing ground.

2nd September 1940

30No. HE bombs fell on RAF Lympne, on the southern part of the Site.

4th September 1940

5No. HE bombs fell in fields around Sellindge, within approximately 0.6km north of the Site.

60No. IBs fell near Horton Priory, Moorstock, within approximately 1km north of the Site.

14th September 1940

2No. OBs fell in fields near Kennet Lane, Stanford, approximately 0.5km north of the Site.

9No. HE bombs fell in fields near Old Chapel Cottage, Stanford, approximately 0.8km north of the Site.

16th September 1940

4No. HE bomb fells near Sellindge, within approximately 0.6km north of the Site. These were recorded as UXB.

24th September 1940

50No. HE bombs fell on the landing area of RAF Lympne, on the southern part of the Site.

2No. HE bombs and 30No. IBs fell on Shrine Farm, Postling, approximately 0.8km northeast of the Site.

25th September 1940

1No. UXB was discovered in a field near Harringe Lane, Sellindge, on the north-western part of the Site. It was reinvestigated and abandoned on the 9th June 1941 (see Section 9.1 for further details).

26th September 1940

20No. 250kg HE bombs and 2No. OBs fell on western part of RAF Lympne, on the southern part of the Site. No significant damage was recorded.

2No. HE bombs fell near Otterpool Lane, Lympne, on the southern part of the Site.

1No. HE bomb fell on the entrance to Port Lympne, approximately 50m south of the Site.

2nd October 1940

2No. HE bombs fell near Otterpool Lane, Lympne, on the southern part of the Site.

6th October 1940

7No. IBs fell on the roof of Stanford House, approximately 0.4km north of the Site.

9th October 1940

2No. HE bombs and 1No. OB fell on the north-eastern corner of the landing area of RAF Lympne, on the southern part of the Site.

5No. HE bombs fell in the grounds of Somerfield Court, approximately 50m north of the Site.

24th October 1940

1No. HE bomb fell on Springett's Farm, Lympne, approximately 0.3km southeast of the Site.

26th October 1940

2No. HE bombs fell in fields near Lympne Place, approximately 0.3km south-southwest of the Site.

27th October 1940

1No. HE bomb fell on Kennett Lane, Stanford, approximately 0.7km north of the Site.

2No. HE bombs fell in a field between Sandling Park and Pedlinge, approximately 0.9km southeast of the Site.

5th December 1940

1No. HE bomb fell near Aldergate House, Lympne approximately 0.8km southwest of the Site.

28th January 1941

100No. IBs fell between Hillhurst Farm, on the north-eastern part of the Site, and Sandling Park, Saltwood, approximately 1km southeast of the Site.

8No. HE bombs fell on Oathill Farm, Lympne, approximately 0.7km southeast of the Site.

21st February 1941

1No. UXB was discovered at Port Lympne, approximately 0.5km southwest of the Site. This was removed on the 1st April 1941.

1No. HE bomb fell at French House, Lympne, approximately 0.3km south of the Site.

5No. HE bombs fell on fields near Lympne, approximately 0.5km south of the Site.

26th February 1941

10No. HE bombs fell on the boundary of RAF Lympne, on the southern part of the Site.

4No. HE bombs fell on Berwick Manor, Lympne, approximately 0.1km east of the Site.

1No. HE bomb fell on Sandling Park, Saltwood, approximately 0.4km east of the Site.

3No. UXBs were discovered at Port Lympne, approximately 0.5km southwest of the Site. These were removed on the 22nd March 1941.

1No. HE bomb fell near Aldergate Bridge, Lympne, approximately 0.9km south of the Site.

13th March 1941

2No. UXBs were discovered at Lympne, within approximately 0.5km south of the Site. These were removed on the same day.

20th March 1941

2No. separate air raids were undertaken by Messerschmitt Bf109 fighter-bomber aircraft. A total of 21No. HE bombs fell on the landing area of RAF Lympne, and the Technical Area was strafed with machine gun and cannon fire.

3No. HE bombs fell near 'Inglenook', Lympne, on the south-eastern part of the Site. These were recorded as UXB and were removed on the 24th March 1941.

24th March 1941

6No. HE bombs fell on the landing ground of RAF Lympne, on the southern part of the Site.

1No. HE bomb fell on Stone Street, Lympne, on the south-eastern part of the Site.

1No. HE bomb fell on the junction of Old London Road and Stone Street, Lympne, on the south-eastern part of the Site. This was recorded as UXB and was removed on the same day.

5th May 1941

4No. Messerschmitt Bf109 fighter-bomber aircraft strafed RAF Lympne with machine gun fire, destroying 1No. Supermarine Spitfire (R7294) fighter aircraft.

6th May 1941

10No. Messerschmitt Bf109 fighter-bomber aircraft dropped several HE bombs (number unspecified) on RAF Lympne, on the southern part of the Site, and strafed the Technical Area with machine gun fire.

8th May 1941

3No. Messerschmitt Bf109 fighter-bomber aircraft strafed RAF Lympne with machine gun fire.

11th May 1941

2No. HE bombs fell on RAF Lympne, on the southern part of the Site.

2No. HE bombs fell in Divers Quarry, Stone Street, approximately 0.2km east of the Site.

16th May 1941

4No. HE bombs fell on RAF Lympne, on the southern part of the Site.

9th June 1941

RAF Lympne, on the southern part of the Site, was strafed with machine gun fire during 4No. separate air raids.

11th December 1942

4No. Focke-Wulf FW190 fighter-bomber aircraft strafed RAF Lympne with machine gun and cannon fire, damaging 2No. Supermarine Spitfire aircraft.

4th September 1942

1No. HE bomb fell on House Wood, Sandling, approximately 0.5km east of the Site.

21st January 1944

1No. 50kg HE bomb fell on the junction of Aldington Road and Stone Street, Lympne, on the southern-eastern part of the Site.

2No. unopened containers of 1,000No. 1kg IBs fell on Somerfield Court Farm, within approximately 0.2km north of the Site. The containers partially exploded, scattering UX IBs, which were removed.

1No. HE bomb fell on open land near Lympne Place, approximately 0.8km west-southwest of the Site.

22nd January 1944

1No. HE bomb fell on Brook Farm, Stanford, approximately 0.4km north of the Site.

5No. HE bombs fell on Brook Farm, Sellindge, within 0.5km north of the Site. They were all reported as UXB and were removed on the 26th February 1944.

1No. unopened container of 1,000No. 1kg IBs fell in open land at Moon's Corner, Stanford, approximately 0.8km north of the Site. The container partially exploded, scattering UX IBs, which were removed.

17th June 1944

1No. V1 was shot down by a fighter aircraft and crashed near Hoddiford Farm, Sellinge, approximately 0.8km north of the Site.

28th June 1944

1No. V1 was shot down by fighter aircraft and crashed near Upper Otterpool Farm, on the central part of the Site.

3rd July 1944

1No. V1 exploded over Kiln Wood, Saltwood, approximately 0.5km southeast of the Site.

12th July 1944

1No. V1 exploded over Oat Hill, Lympne, approximately 0.6km east of the Site.

23rd July 1944

1No. V1 was shot down by LAA fire and fell on stores on the eastern side of RAF Lympne, on the south-eastern part of the Site.

26th July 1944

1No. V1 fell in a field near Sandling Park, Saltwood, approximately 1km east of the Site.

27th July 1944

1No. V1 fell in a field near Barrow Hill, Sellindge, on the northern part of the Site.

1No. V1 was shot down by HAA fire and fell in a field near Aldergate Bridge, approximately 0.9km south the Site.

1No. V1 fell in a field west of Aldergate Wood, approximately 0.9km west-southwest of the Site.

28th July 1944

1No. V1 fell on Folk's Wood, approximately 0.4km east-southeast of the Site. The blast damaged facilities at RAF Lympne, on the southern part of the Site.

4th August 1944

1No. V1 fell in a field between the Officers' and Sergeants' messes at Lympne Place, approximately 0.4km south of the Site.

8th August 1944

1No. V1 fell on the banks of the Royal Military Canal, approximately 0.8km south of the Site.

10th August 1944

1No. V1 fell on Lympne Park Wood, approximately 0.6km southeast of the Site

12th August 1944

1No. V1 exploded over Aldergate Wood, approximately 0.8km southwest of the Site

Appendix 2 WWII Aircraft Crashes at RAF Lympne

An indicative list of recorded aircraft crashes on the Site is included below.

15th July 1940

1No. Supermarine Spitfire Ia (P9399) fighter aircraft crashed at RAF Lympne, and was destroyed.

2nd September 1940

1No. Hawker Hurricane I (V6698) fighter aircraft crashed at RAF Lympne. The aircraft was repaired.

1No. Hawker Hurricane I (V7234) fighter aircraft crashed at RAF Lympne.

1No. Supermarine Spitfire Ia (K9840) fighter aircraft crashed at RAF Lympne, and was destroyed.

1No. Supermarine Spitfire Ia (X4241) fighter aircraft crashed at RAF Lympne.

15th September 1940

1No. Hawker Hurricane I (V6698) fighter aircraft again crashed at RAF Lympne.

20th September 1940

1No. Supermarine Spitfire Ia (X4101) fighter aircraft crashed at RAF Lympne.

15th June 1941

1No. Supermarine Spitfire Ia (R6700) fighter aircraft crashed at RAF Lympne.

9th July 1941

1No. Supermarine Spitfire IIa (P8537) fighter aircraft crashed at RAF Lympne.

1No. Supermarine Spitfire Ia (R7195) fighter aircraft crashed at RAF Lympne.

17th July 1941

1No. Supermarine Spitfire Vb (W3171) fighter aircraft overshot during landing and crashed on the edge of the landing ground.

29th September 1941

1No. Handley Page Hampden I (AE374) bomber aircraft overshot during landing and crashed on the edge of airfield.

29th August 1942

1No. De Havilland Mosquito IV (DK323) fighter-bomber aircraft crashed at RAF Lympne.

18th March 1943

1No. Hawker Typhoon IB (DN335) crashed through the boundary fence at RAF Lympne.

2nd June 1943

1No. Hawker Typhoon IB (R8752) crashed through a boundary fence at RAF Lympne.

5th September 1943

1No. Supermarine Spitfire fighter aircraft overshot during landing and crashed into a hangar at RAF Lympne.

13th November 1943

1No. B-24 Liberator bomber aircraft overshot during landing and crashed into No. 4 Bofor emplacement.

26th November 1943

1No. Martin B26-B Marauder (41-31609) bomber aircraft overshot during landing and crashed into No. 4 Bofor emplacement. It was recovered on the 6th December 1943 and later repaired.

22nd December 1943

1No. Westland Whirlwind I (P6998) fighter-bomber aircraft crashed at RAF Lympne and was destroyed.

30th December 1943

1No. Boeing B-17G Fortress (42-39867) bomber aircraft crashed on the eastern side of RAF Lympne.

21st January 1944

1No. North American Mitchell II (FL674) bomber aircraft crashed at RAF Lympne.

26th January 1944

1No. Hawker Typhoon IB (EK139) fighter-bomber aircraft crashed at RAF Lympne.

24th February 1944

1No. Consolidated B-24H-5-CF Liberator (41-29231) bomber aircraft crashed at RAF Lympne.

24th April 1944

1No. Supermarine Spitfire Vb (AD348) fighter aircraft crashed at RAF Lympne.

24th April 1944

1No. Hawker Typhoon IB (JP841) fighter-bomber aircraft crashed in Tory Wood on approach to RAF Lympne.

28th May 1944

1No. Supermarine Spitfire Vb (AB794) fighter aircraft crashed into an ammunition hut on landing on airfield near No. 4 Bofors gun emplacement. The aircraft was destroyed.

30th June 1944

1No. Supermarine Spitfire IXa (NH181) fighter aircraft crashed into an air raid shelter on the western part of RAF Lympne, and was destroyed.

17th July 1944

1No. Supermarine Spitfire XII (MB877) fighter aircraft collided with 1No. de Havilland Tiger Moth bi-plane aircraft and crashed in a field approximately 0.8km north of RAF Lympne. The aircraft was destroyed.

18th July 1944

1No. Handley Page Halifax III (MZ313) blew up over RAF Lympne, scattering debris over a wide area.

19th August 1944

1No. Supermarine Spitfire XII (MB875) fighter aircraft crashed on the boundary of the RAF Lympne. The aircraft was badly damaged.

1st September 1944

2No. Supermarine Spitfires collided during landing at RAF Lympne, resulting in a fire which destroyed both aircraft.

18th September 1944

1No. Supermarine Spitfire XIV (NH709) fighter aircraft crashed at RAF Lympne. The aircraft was destroyed.

19th September 1944

3No. Supermarine Spitfire fighter aircraft crashed in the south-eastern corner of the RAF Lympne and were badly damaged.

6th October 1944

1No. Supermarine Spitfire XIV (RM793) fighter aircraft crashed at RAF Lympne, and was destroyed.

11th November 1944

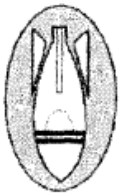
1No. Supermarine Spitfire XIV (NH716) fighter aircraft crashed at RAF Lympne. The aircraft was destroyed.

Appendix 3 Letter from 33 Engineer Regiment (EOD) on Pipe Mine Hazard at RAF Lympne

ARMY

Explosive Ordnance Clearance Group
33 Engineer Regiment
(Explosive Ordnance Disposal)
Carver Barracks, Wimbish, SAFFRON WALDEN,
Essex, CB10 2YA

Tel: 01223 [redacted]
Fax: 01223 [redacted]



Reference EOC 01.031

18 Nov 02

LYMPNE AIRFIELD / ASHFORD AIRPORT EOC TASK 01.031

Reference

A. Letter from Defence Estates D/DE/27/135(TEJ6) dated 14 Oct 02
B. Historical Background Brief dated 08 Aug 02

1. Historical records show Lympne Airfield being subject to the digging in of Pipe Mines as early as 1941. These were then lifted from 1945 onwards. Documentary evidence shows more mines lifted than recorded as laid.

2. Reference A requested an update on the situation and any advice that may help to resolve the issue. In response to this request EOC have conducted a Table Top study and produced a Land Quality Assessment Risk Assessment based on previous clearance operations conducted in the area of the Airfield. The result of this can be found at Annex A.

3. To supplement the Risk Assessment, EOC further add that as there are more mines found than declared as laid then the only way forward, due to the lack of detailed laying information, is to subject all areas of proposed redevelopment to 100% clearance. As a result of this statement it is deemed unnecessary to conduct a reconnaissance as the recommendations would be unchanged.

4. Unfortunately, EOC Group has a list of priorities and the top priority is the clearance of training areas for operational troops. As such, the clearance of Lympne Airfield is a low priority and without the manpower to divert from a priority one task would not be done in the near future.

5. Although not the answer wanted it is hoped this letter will give a realistic update on the situation. If this office can be of further assistance please do not hesitate to contact us.

[redacted] BEM
Capt RE
for OC

Source: MoD

Appendix 4 UXO Hazard and Ordnance Types

When assessing the risk from UXO including UXB, it is important to be aware of ordnance type and function. The following Section briefly describes the more common types of UXO. More data on these can be found at http://zeticauxo.com/downloads-and-resources/ordnance-data-sheets/.

A4.1 Small Arms Ammunition

Small Arms Ammunition (SAA) is one of the more recognisable categories of ordnance which is primarily designed for anti-personnel use. SAA include items such as bullets, generally up to a calibre (diameter) of 20mm.

Larger calibre small arms munitions can contain fuze mechanisms and high explosives or pyrotechnic fillings and may have been used for anti-aircraft or anti-vehicle purposes.

Generally small arms ordnance has a relatively low risk as UXO, although the larger calibre categories may have the same detonation risk as larger high explosive ordnance. SAA is often associated with discarded ammunition boxes around firing practice ranges. The Plate below illustrates some common SAA.

Plate	Photograph of typical WWII small arms ammunition

Source: Google Images

A4.2 Hand Grenades

Hand grenades can be filled with explosives or chemicals and have 3No. main parts, a body, a fuze with a pull ring and a safety-clip assembly. Fragmentation grenades are the most common and have a metal or plastic body filled with an explosive. Most use a burning delay fuze that functions for 3 to 5 seconds after the safety lever is released.

Some, such as smoke grenades, are activated instantly when the lever is released. The Plate below illustrates the typical character and condition of No. 36 hand grenades (Mills Bombs) that have been excavated from a site.

Plate	Photographs of a typical and an excavated WWII No. 36 hand grenades

Source: Google Images

Source: Zetica Ltd

A4.3 Projected Grenades

Projected grenades are among the most commonly found UXO items, particularly the 40mm type. These contain high explosives and use a variety of fuzes, including some of the most sensitive internal impact-fuzing systems. They are extremely dangerous and can explode if moved or handled.

A4.4 Mortars

A mortar is a short tube designed to fire a projectile at a steep angle. Mortars can range from approximately 50mm to 280mm in diameter and can be filled with explosives, toxic chemicals, white phosphorous or illumination flares. They generally have a thinner metal casing than projectiles, but use the same types of fuzing and stabilisation.

During WWII there are records that the target areas of RAF practice bombing ranges were occasionally used for mortar training.

The Plate below shows a typical 2-inch mortar bomb found (left) and a demonstration 3-inch mortar bomb (right).

Plate	Photographs of WWII 2-inch and 3-inch mortars

Source: Daily Mail

Source: Zetica Ltd

A4.5 Shells

Shells are a projectile containing an explosive charge designed to burst the casing that can contain High Explosives, pyrotechnic compounds or other chemicals.

Shells can be found in a range of sizes, from <20mm to several times this size. The most likely shells to be found on the Site are Small Arms Ammunition (SAA) or UXAA shells that have fallen back to the ground unexploded.

Most commonly used anti-aircraft shells were 2" and 3.7" HE shells.

If fired and found as UXO, shells can offer a particular hazard from accidental detonation as they can have sensitive fuze mechanisms. A fuze is a device which incorporates mechanical, electrical, chemical or hydrostatic components to initiate a train of fire or detonation.

The Plate below is a photograph of a 3.7" UXAA shell found in Camberwell, London.

Plate	Photograph of a recently excavated 3.7" AA shell

Source: Zetica Ltd

A4.6 German Incendiary Bombs

Incendiary Bombs (IBs) ranged from small 1kg thermite filled, magnesium bodied bombs to a 250kg 'Oil Bomb' (OB) and a 500kg 'C300' IB. By far the most common air dropped devices across the UK during WWII were small 1kg to 2kg IBs.

In some cases the IBs were fitted with a very small High Explosive (HE) bursting charge. This exploded after the bomb had been alight for a few minutes causing burning debris to be scattered over a greater area. The C300 bombs were similar in appearance to 500kg HE bombs.

The small amount of HE, if any, and the almost negligible potential for IBs to remain active after more than 65 years in the ground means that these items have very little prospect of causing damage. In the majority of cases if IBs are found in the ground, the incendiary materials have deteriorated to such an extent that they are considered to provide a low UXO hazard level.

However, since magnesium and phosphorus were common components in IBs, some localised chemical contamination may occur where the contents have leached out of the IB into the surrounding soil.

The Plate below shows a typical variety of fragmentary remains of IBs and 2No. IBs recovered by the Civil Defence during WWII.

Plate	Photographs of typical fragmentary remains of IBs and an intact IB

Source: ZeticaUXO

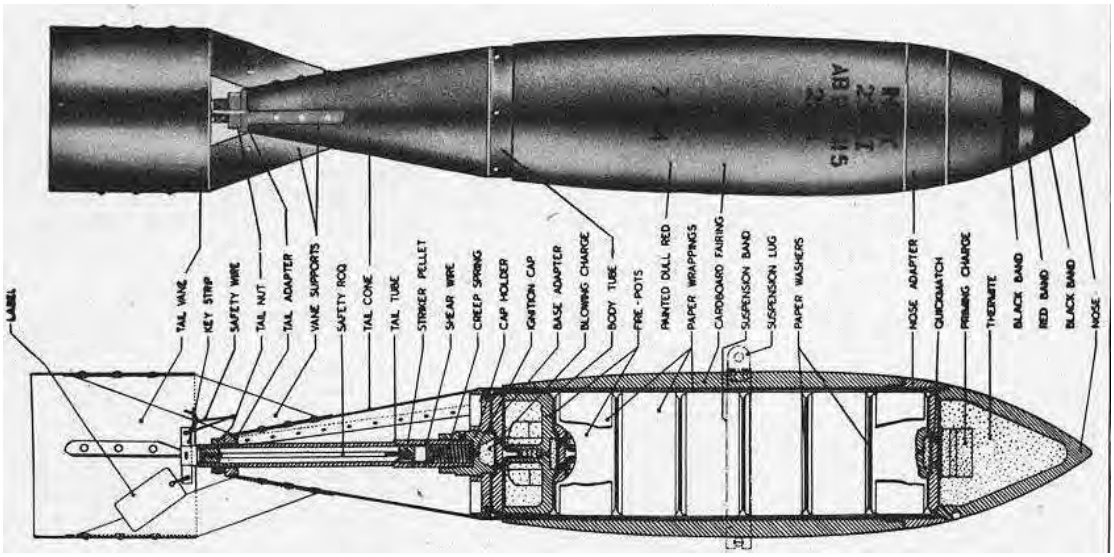
A4.7 British Incendiary Bombs

British Incendiary Bombs (IBs) ranged from small 4lb magnesium powder-filled bombs to a 25lb IBs and were stored at RAF Ashbourne.

In some cases, particularly the larger bombs, the IBs were fitted with a small HE bursting charge. This exploded after the bomb had been alight for a few minutes causing burning debris to be scattered over a greater area.

The plate below shows a cross-sectional diagram and a restored version of a British 25lb IB.

Plate	Photograph and line drawing of a 25lb British IB



Source: IWM

The plate below is a photograph of British 4lb IBs showing their original and degraded states. This type contained compressed thermite pellets typically comprising magnesium, and sometimes aluminium powder.

Plate	Photograph of new and degraded 4lb incendiary bomb

Source: IWM

Because both magnesium and phosphorus were common components in IBs, some localised chemical contamination may occur where the contents of live or partially destroyed ordnance have leached out of the IB into the surrounding soil. No evidence of such contamination on the Site has been found and the watercourses in the quarry pits were found to be free of significant contamination.

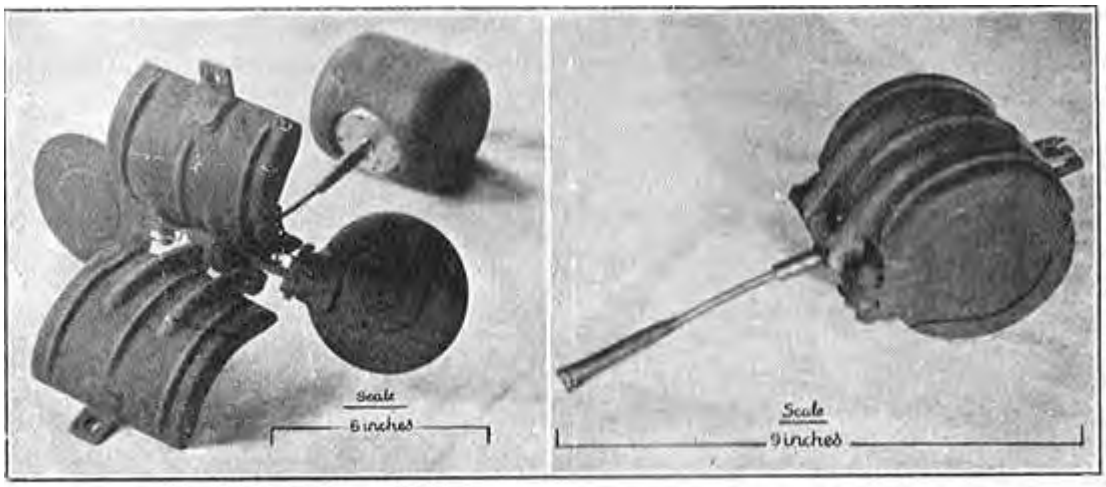
A4.8 Anti-Personnel Bombs

2No. types of Anti-Personnel (AP) bombs were in common use, the 2kg and the 12kg bomb. The 2kg bomb could inflict injury across an area up to 150m away from the impact, within 25m of this, death or fatal injury could occur.

In the majority of cases WWII AP bombs were so sensitive to disturbance that none have been found since WWII as UXAPB and it is considered very unlikely that such an item would be found buried as an UXAPB

The Plate below shows typical AP ('Butterfly') bombs recovered by the Civil Defence during WWII.

Plate	Photographs of typical AP ('Butterfly') bombs



Source: Smith

A4.9 German High Explosive Bombs

Probably the most common and certainly most publicised UXOs to be found in the UK are bombs. Air dropped bombs, as a result of WWII enemy action, are found on a relatively frequent basis as UXO. They tend to be highly publicised (at least on a local basis) due to the common disruption where an evacuation of the potentially affected area is put in place.

The amount of High Explosive and the potential for a fuze to still be activated means that these devices have the prospect of causing some of the most widespread damage. WWII bombs were particularly sophisticated for their time, with anti-tamper fuzes.

Many German bombs were designed to not explode on impact and instead to cause disruption as a UXB. Some fuzes were set with a delay time of over 70 hours. During this time, an anti-tamper fuze could also be activated to detonate should it be disturbed.

The most commonly used bombs during WWII were the 50kg and 250kg sized general purpose bombs. Less frequently, the 500kg bomb was also used. Larger bombs were used, but so infrequently that any assessment of hazard is more typically based on bombs ranging up to 500kg only.

It should be noted that the June 2008 find of a 1,000kg bomb in London, does demonstrate that larger bombs can be found and any risk mitigation measures should consider this.

The Plates below show the variety of UXB recovered by the Civil Defence during WWII and examples of the 1,000kg UXB excavated in London and a 250kg HE bomb dredged up in Portsmouth Harbour during November 2016.

Plate	Photograph of a variety of UXB recovered by the Civil Defence during WWII

Source: Imperial War Museum

Plate	Photographs of recently excavated 1,000kg (LHS) and dredged 250kg UXB (RHS)

Source: East London Advertiser

Source: Sky News

A4.10 British High Explosive Bombs

If a bomb was found to be unserviceable or it had been brought back from an operation and could not be re-used due to damage, it was likely to have been buried somewhere in a remote part of the airfield or immediately adjacent to it.

Records for such disposal are normally absent as they may not have been carried out to formal regulations. Whilst many of these bombs would later have been removed during WWII, some were forgotten about and remain in situ.

A recent example of this is at an airfield in Cambridgeshire, where 7No. buried UXB have been discovered in recent years. The plate below is a photograph of a British 500lb GP bomb found by Zetica at the former airfield in January 2016.

Plate	Photograph of a recently excavated WWII British 500lb GP bomb

Source: Zetica Ltd

A4.11 Practice Bombs

Practice bombs were typically used on inland bombing ranges. 11.5lb practice bombs contained a small explosive charge and produced a coloured powder plume for daylight operations and a light flash for night operations. The Plate below shows a 25lb WWII practice bomb and recovered practice bomb head.

Plate	Photograph of 25lb WWII practice bomb and practice bomb head

Source: Zetica Ltd

Source: BOCN

A4.12 Detonators, Gaines and Fuzes

Bomb components such as detonators, gaines and fuzes were stored at operational airfields during WWII and typically contained some type of explosive charge to initiate the detonation of a munition. A wide variety of these components were used and examples of some common fuzes are shown in the Plate below.

Plate	Photographs showing examples of WWII fuzes

Source: Zetica Ltd

Source: Zetica Ltd

A4.13 Canadian Pipe Mines

Often crudely made, pipe mines were pipes approximately 100mm in diameter and up to 55m long bored roughly horizontal beneath critical infrastructure such as airfield run ways, or angled between ten and thirty degrees into river banks in places were invasion forces may land. The pipes were filled with explosives and usually a sensitive fuzing mechanism. With nitro-glycerine or Polar Blasting Gelignite (PBG) being the primary component, over time, these devices can become increasingly unstable.

After WWII, most remaining Canadian pipe mine installations were removed. Due to the method and speed of placement of many of them during 1940-41, detailed plans and maps were sometimes not available and a small number were missed.

The Plates below illustrates typical steel tube pipe mines excavated during clearance operations.

Plate	Photographs of recently excavated WWII pipe mines

Source:

Source: Zetica Ltd

A4.14 Land Mines

Wartime activities provide numerous sources of UXO within the land environment. Whilst efforts have been made to clear the known British minefields, it was common for mines to become lost for a variety of reasons and so not recovered. Additionally, such munitions might have been disposed of on an unofficial basis and so no records were kept.

Most of the mined beaches and other land areas in the UK have been cleared by the MoD. Occasionally, wave action or activities such as bombing caused mines to become displaced and these were missed as part of any past clearance activities.

The Plate below is a photograph of a typical WWII land mine used on the land area, beaches and cliffs around Britain. This example was found at Gatwick Airport formerly RAF Gatwick.

Plate	Photographs of original and recently excavated WWII land mines

Source: Google Images

Source: Zetica Ltd

A4.15 Home Guard Weapons

Initially, the Home Guard's armoury was largely second-hand and much of it was of WWI vintage. Personal weapons (such as shotguns) and home-made devices were also employed.

By the end of WWII, some units were well equipped with a wide variety of small arms and munitions.

These included .32, .38 and .455 revolvers, .303 P14, .300 P17 and .303 Canadian Ross rifles, anti-tank rifles and a variety of Sub- Machine Guns (SMG) such as the .45 Thompson and 9mm Sten Guns.

Other heavier Machine Guns (MG) at their disposal included Browning, Hotchkiss, Lewis, Vickers and Marlin MG. Sub-artillery weapons were developed for them, including grenade throwers (the Northover Projector) and spigot mortars (the Blacker Bombard). 2-pdr anti-tank guns and Projector, Infantry Anti-Tank (PIAT) weapons were in circulation amongst some units, and the Home Guard also manned AA guns later in WWII.

Explosives were available to some Home Guard units and were used and stored by all Auxiliary Unit patrols. As well as the flame fougasse and hand grenades detailed in this Appendix, the Home Guard had stocks of Molotov Cocktails, Sticky Bombs and SIP grenades.

In October 2006 a cache of 76No. SIP grenades was found in a garden at Seend, Wiltshire. In October 2008, a further 26No. SIP grenades were discovered in a garden in Wimborne, Dorset.

Similar caches were discovered in October 2009 in Hove, Sussex and during May 2010 in Halesowen in the West Midlands, and a further cache of 20No. was uncovered on a construction site at Birdlip, Gloucestershire, in July 2010. Also in July 2010, a box of 24No. SIP grenades was found on Cogden Beach, Dorset. In April 2012, more than 8No. SIP grenades were found on a construction site in Banbury and destroyed by members of the Army Royal Logistic Corps (RLC).

In March 2015, 80No. SIP grenades were found at a building site in Eastbourne, some of which exploded before they could be made safe by a Bomb Disposal Unit (BDU).

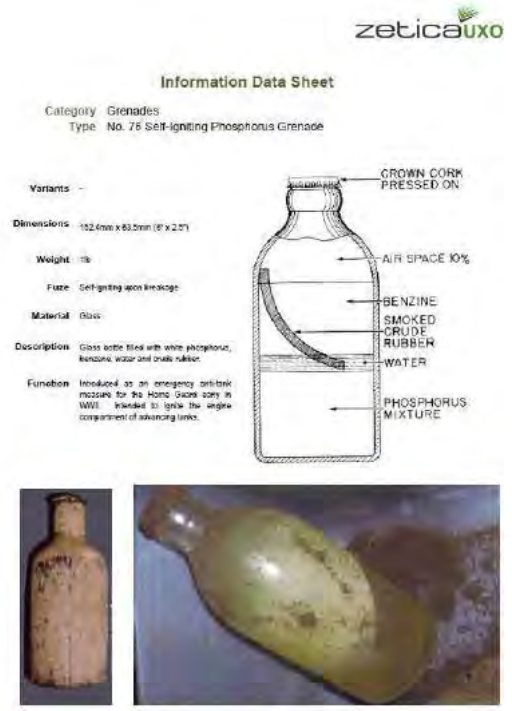
More recently, in May 2016, 1No. No. 76 SIP grenade was found during excavation at Chapel Point, Lincolnshire forcing works to be delayed. During WWII, the site was occupied by a pillbox and gun emplacement associated with the heavily-defended 'Coastal Crust', manned by Home Guard units. The device was removed safely.

Also in May 2016, 49No. SIP grenades were found at a building site in Washington, Sunderland and were made safe by an RAF BDU.

In all these cases, the bottles were in good condition and most exploded in flames when broken.

The Plate below is a photograph of a No. 76 SIP grenade (LHS) with an explanatory leaflet produced by ZeticaUXO for site staff (RHS).

Plate	Photographs and data sheet of a No. 76 SIP grenade



Source: Zetica Ltd

Given the irregular nature of Home Guard activity, the possibility of items of UXO or weapons being discovered at any locations occupied or used for training by them can never be totally discounted.

A4.16 UXO Migration

It is possible for explosive material, UXO or ordnance scrap to migrate to a site during landfill or dredging operations or other ground works which import Made Ground or natural materials already containing UXO. It is important to understand the nature and age of such landfill or dredging operations when assessing the potential UXO hazard level on the site.

A4.17 Effects and Consequences

There have been a limited number of recorded incidents in the UK since WWII where bombs have detonated during engineering works, though a significant number of bombs have been discovered. Incidents involving smaller ordnance are, however, relatively common in the UK.

In the UK, there are no recorded incidents since the decade after WWII, of a UXB accidentally detonating. In recent years, bombs have been found that have fuze mechanisms that have started to operate indicating that given the right conditions a UXB may still function.

In June 2008 the UXB uncovered in the Lea Valley caused difficulty to No. 33 Regiment (Explosive Ordnance Disposal) Royal Engineers because the fuze mechanism started to operate.

The 1,000kg 'Hermann' bomb, the first of this size to be found in over 30 years, took 5 days to deactivate. This demonstrates that larger bombs can be found and any risk mitigation measures should provide the option to deal with this size of device. Since WWII, UXBs have been found on a regular basis in London.

Since WWII, UXBs have been found on a regular basis throughout Britain. Some of the most recent cases are described below.

In May 2009 1No. 50kg WWII bomb was found on a building site in Bexhill-on-Sea, Sussex, and on the 16th August 2009, 1No. 250kg WWII bomb was found near Ebberston, North Yorkshire. Both of these were destroyed in controlled explosions by Bomb Disposal Units.

On the 8th March 2010 1No. 500kg WWII bomb was found at Bowers Marsh in Essex by Zetica EOC operatives following a Zetica desk study concluding a high risk of UXB on the site. The bomb was demolished in situ by members of the Army Royal Logistics Corps (RLC).

The Plate below is a photograph of the bomb in situ.

Plate	Photograph of the 500kg WWII UXB at Bowers Marsh, 8th March 2010

Source: Zetica Ltd

On the 23rd February 2011, 1No. WWII UXB was found on a building site in Notte Street in Plymouth City centre. The bomb was removed by EOD personnel and demolished at sea.

On the 22nd July 2012, a landslip in the cliffs at Mappleton in the East Riding of Yorkshire exposed over 1,000No. UXO items, including practice bombs, mortars, rockets, shells and grenades. The cliff was part of a former bombing and artillery range, used during WWII and until the 1970s.

UXO items were removed by Explosive Ordnance Disposal (EOD) officers from Catterick and MoD staff from Leconfield. 15No. controlled explosions were undertaken by the Royal Engineers (RE) to detonate the more volatile items in situ, while other less hazardous UXO devices were left in place to be dealt with at a later date.

1No. WWI bomb (shown in the Plate below) was found on the Isle of Sheppey on the 2nd August 2012 during a geophysical survey following desk study research by Zetica Ltd which had established that a previously unknown WWI bombing range existed on the site. A further WWI bomb was found in the same location in August 2015.

On the 23rd March 2015, 1No. WWII 500kg UXB was found on a building site in The Grange, Bermondsey. The bomb was made safe by EOD personnel and removed for demolition.

On the 21st May 2015, 1No. 50kg UXB was found on a building site near Wembley Stadium, London Borough of Brent. The bomb was made safe by EOD personnel and removed for demolition.

On the 10th August 2015, 1No. 250kg UXB was found under the basement of a building site at Bethnal Green, London Borough of Tower Hamlets. It was made safe and removed by an EOD team from the RLC.

On the 21st September 2015, 1No. UXB was uncovered on a construction site in Cheylesmore, Coventry, by the operator of a mechanical digger. It was destroyed in situ by an EOD team from the RLC.

In January 2016, Zetica discovered 3No. 500lb British UXB at a former airfield in Cambridgeshire. These were destroyed in controlled explosions.

On the 12th May 2016, 1No. 250kg UXB was found on a building site in Bath. It was made safe and then taken to a local quarry for demolition.

In September 2016 1No. 500kg UXB and 1No. torpedo were discovered during dredging works in Portsmouth Harbour. An additional 250kg HE bomb was discovered on the 16th November 2016. These devices were towed out to sea and destroyed in controlled explosions.

On the 19th January 2017, 1No. 50kg UXB was found during dredging works along the River Thames Victoria Embankment in Central London. The device was towed to Tilbury in Essex where it was destroyed in a controlled explosion.

On the 25th January 2017, 1No. 500lb British UXB and 1No. mortar shell were found in King's Forest, Thetford. They were destroyed in a controlled explosion.

On the 2nd March 2017, 1No. 250kg German UXB was found on a building site in Brondesbury Park in the London Borough of Brent. It was defuzed by an EOD team and removed to a safe location where it was destroyed in a controlled explosion.

On the 15th May 2017, 1No. suspected 250kg German UXB was found on a building site in Aston, Birmingham.

There is a long list of incidents during construction work in Germany that in some cases have led to the deaths of workers.

In June 2010, 3No. members of a bomb disposal team were killed, and 6No. others injured, whilst attempting to defuze an unexploded WWII bomb in Goettingen, Central Germany.

The bomb, the second found in Goettingen in the space of a few days, was unearthed at a depth of 7.5m during excavations for a sports stadium.

In September 2008, 17No. people were injured and considerable damage occurred to adjacent buildings when a bomb exploded on a construction site in Hattingen, Germany.

In October 2006 during road works on a motorway near Aschaffenburg in Bavaria, southern Germany, a bomb was struck by a machine and detonated. The plant driver was killed and 5No. others injured, including passing motorists.

In a similar incident in October 2004 in Linz, Austria a bomb exploded injuring 3No. workers and causing considerable damage to plant. In the same month, a WWII bomb under a back garden in Vienna, Austria, was detonated without warning by a minor earth tremor, after remaining undiscovered for over 60 years.

Incidents involving UXO are also reported from the marine areas around the North Sea. For example, on 6th April 2005, 3No. Dutch fishermen were killed when they accidentally trawled up a WWII UX bomb which exploded when it hit the deck.

More recently, an unexploded HE bomb was trawled from the sea floor off South Shields on the 25th February 2015 but caused no damage.

Further details of similar finds can be found at http://zeticauxo.com/news/.

The effects of a partial or full detonation of ordnance are usually shock, blast, heat and shrapnel damage. A 50kg buried bomb can damage brick / concrete structures up to a distance of approximately 16m away. Unprotected personnel on the surface up to 70m away from the blast could also be seriously injured. Larger ordnance would obviously be more destructive.

Explosives rarely lose effectiveness with age, although over time mechanisms such as fuzes and gaines can become more sensitive and therefore more prone to detonation, regardless of whether the device has been submersed in water or embedded in silt, clay or similar materials.

The effects of a detonation of explosive ordnance are usually extremely fast, often catastrophic and invariably traumatic to any personnel involved.

Appendix 5 Abbreviations	
AA	Anti-Aircraft
ACPO	Association of Chief Police Officers
ALARP	As Low As Reasonably Practicable
ARP	Air Raid Precaution
ASACS	Air Surveillance and Control System
AXO	Abandoned Explosive Ordnance
BD	Bomb Disposal
BDO	Bomb Disposal Officer
BDU	Bomb Disposal Unit
CBRN	Chemical, Biological, Radiological and Nuclear
CMD	Conventional Munitions Disposal
DCLG	Department of Communities and Local Government
EO	Explosive Ordnance
EOC	Explosive Ordnance Clearance
EOR	Explosive Ordnance Reconnaissance
ERW	Explosive Remnants of War
ESA	Explosive Substances and Articles
FFE	Free From Explosives
HAA	Heavy Anti-Aircraft
HE	High Explosive
HSE	Health and Safety Executive
JSEODOC	Joint Services EOD Operations Centre
IB	Incendiary Bomb
IED	Improvised Explosive Device

IEDD	Improvised Explosive Device Disposal
LAA	Light Anti-Aircraft
MoD	Ministry of Defence
MU	Maintenance Unit
ORB	Operational Record Book
OTU	Operational Training Unit
PUCA	Pick Up and Carry Away
RAF	Royal Air Force
SAA	Small Arms Ammunition
SIP	Self-Igniting Phosphorous
TEP	Time Expired Pyrotechnics
USAAF	United States Army Air Forces
UXB	Unexploded Bomb
UXO	Unexploded Ordnance

Appendix 6 Glossary & Definitions	
Abandoned Explosive Ordnance (AXO)	Abandoned Explosive Ordnance is explosive ordnance that has not been used during an armed conflict, that has been left behind or disposed of by a party to an armed conflict, and which is no longer under control of that party. Abandoned explosive ordnance may or may not have been primed, fuzed, armed or otherwise prepared for use.
Camouflet	The type of cavity produced when a charge explodes underground without breaking the surface of the earth to form a crater.
Danger Area	The land surrounding a firing range under military control, in which public access is restricted and MoD byelaws in place.
Danger Radius	The radius around a practice firing range target in which the majority of ordnance items are anticipated to fall.
Demil	Derived from the term 'Demilitarisation', it refers to the break down and the recycling or disposal of ordnance components.
Detonation	The high-speed chemical breakdown of an energetic material producing heat, pressure, flame and a shock wave.
Detonator	A device filled with primary explosive to help trigger an explosion of a munition.
Device	This term is used for any component, sub-assembly or completed ordnance, which may or may not have an explosive risk. It can apply to detonators, primers, gaines, fuzes, shells or bombs.
Explosive	The term explosive refers to compounds forming energetic materials that under certain conditions chemically react, rapidly producing gas, heat and pressure. Obviously, these are extremely dangerous and should only be handled by qualified professionals.
Explosive Ordnance (EO)	Explosive Ordnance is all munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads, guided and ballistic missiles, artillery, mortar, rocket, small arms ammunition, mines, torpedoes, depth charges, pyrotechnics, cluster bombs & dispensers, cartridge & propellant actuated devices, electro-explosive devices, clandestine & improvised explosive devices, and all similar or related items or components explosive in nature.
Explosive Ordnance Clearance (EOC)	Explosive Ordnance Clearance is a term used to describe the operation of ordnance detection, investigation, identification and removal, with EOD being a separate operation.
Explosive Ordnance Disposal (EOD)	Explosive Ordnance Disposal is the detection, identification, on-site evaluation, rendering safe, recovery and final disposal of unexploded explosive ordnance.

Explosive Ordnance Reconnaissance (EOR)	Explosive Ordnance Reconnaissance is the detection, identification and on-site evaluation of unexploded explosive ordnance before Explosive Ordnance Disposal.
Explosive Remnants of War (ERW)	Explosive Remnants of War are Unexploded Ordnance (UXO) and Abandoned Explosive Ordnance (AXO), excluding landmines.
Explosive Substances and Articles (ESA)	Explosive substance are solid or liquid substance (or a mixture of substances), which is either: • capable by chemical reaction in itself of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. • designed to produce an effect by heat, light, sound, gas or smoke, or a combination of these as a result of a non-detonative, self-sustaining, exothermic reaction. Explosive article is an article containing one or more explosive substances.
Fuze	A fuze is the part of an explosive device that initiates the main explosive charge to function. In common usage, the word fuze is used indiscriminately, but when being specific (and in particular in a military context), fuze is used to mean a more complicated device, such as a device within military ordnance.
Gaine	Small explosive charge that is sometimes placed between the detonator and the main charge to ensure ignition.
High Explosive	Secondary explosives (commonly known as High Explosives (HE)) make up the main charge or filling of an ordnance device. They are usually less sensitive than primary explosives. Examples of secondary explosives are: Nitro glycerine (NG), Trinitrotoluene (TNT), AMATOL (Ammonia nitrate + TNT), Gunpowder (GP), and Cyclotrimethylenetrinitramine (RDX).
Munition	Munition is the complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions. This includes those munitions that have been suitably modified for use in training, ceremonial or non-operational purposes. These fall into three distinct categories:- • inert - contain no explosives whatsoever. • live - contain explosives and have not been fired. • blind - have fired but failed to function as intended.
Primary Explosive	Primary explosives are usually extremely sensitive to friction, heat, and pressure. These are used to initiate less sensitive explosives. Examples of primary explosives are: Lead Azide, Lead Styphnate, and Mercury Fulminate. Primary explosive are commonly found in detonators.

Propellants	Propellants provide ordnance with the ability to travel in a controlled manner and deliver the ordnance to a predetermined target. Propellants burn rapidly producing gas, pressure and flame. Although usually in solid form they can be produced in liquid form. Examples of propellants are: Ballistite often found in a flake form and Cordite used in small arms ammunition.
Pyrotechnic	A pyrotechnic is an explosive article or substance designed to produce an effect by heat, light, sound, gas or smoke, or a combination of any of these, as a result of non-detonative, self-sustaining, exothermic chemical reactions.
Unexploded Ordnance (UXO)	UXO is explosive ordnance that has been either primed, fuzed, armed or prepared for use and has been subsequently fired, dropped, launched, projected or placed in such a manner as to present a hazard to operations, persons or objects and remains unexploded either by malfunction or design.

Appendix 7 Bibliography

Ashworth C, Action Stations 9: Military Airfields of the Central South and South East, 1985

Birtles P, World War 2 Airfields, 1999

Bodleian Library, German Invasion Plans for the British Isles 1940, 2007

Boorman H R P, Hells Corner, 1940, 1944

Bulloch G, Steeds J E, Green K, Sainsbury M G, Brockwell J S & Slade N J, Land Contamination: Technical Guidance on Special Sites: MoD Land

Bulloch G, Steeds J E, Green K, Sainsbury M G, Brockwell J S, & Slade N J, R&D Technical Report P5-042/TR/03, Land Contamination: Technical Guidance on Special Sites: Explosives Manufacturing & Processing Sites

CIRIA C681, Unexploded Ordnance, a Guide for the Construction Industry, 2009

Clarke N J, Luftwaffe Target Reconnaissance, German Aerial Photography 1939-1942, 1995

Clarke N J, Luftwaffe Aerial Reconnaissance Photographs of England, Scotland and Wales, 2012

Clarke R W, British Aircraft Armament Vol. 2: RAF Guns and Gunsights, 1994

Cocroft W D, Dangerous Energy, 2000

Cocroft W D & Thomas R J, Cold War, 2003

Collier B, The Defence of the United Kingdom, 1957

Delve K, The Military Airfields of Britain: Southern England, 2005

Department of the Environment, Sampling Strategies for Contaminated Land, Department of the Environment: Contaminated Land Research Report, CLR Report No. 4, 1994

Dobinson C S, Twentieth Century Fortifications in England, Volume I 1, Anti-Aircraft artillery, England's air defence gun sites. 1914 – 46. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I 2, Anti-Aircraft artillery, site gazetteer, WWI. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I. 3. Anti-Aircraft artillery, 1914-46, Site gazetteer, WWII HAA & ZAA. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I 4, Anti-Aircraft artillery, Site gazetteer, WWII LAA. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I 5, Anti-Aircraft artillery, Sources. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume II, Anti-Invasion defences of WWII. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume III, Bombing decoys of WWII, England's passive air defence 1939-45. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume VIII, Civil defence in WWII, Protecting England's Civil Population. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Supporting paper AA/1 Searchlight sites in WWII. Council for British Archaeology, 1996

Dobinson C S, Fields of Deception, Britain's Bombing Decoys of World War II, 2000

Dobinson C S, AA Command, 2001

Evans M, Forrest H, Haynes D, Young R, Draper R, Sarangi J & Murray V, Discovery of WWII Special Incendiary Phosphorous (SIP) Grenades in a Wiltshire garden, Chemical Hazards and Poisons Report, 2007

Fegan T, The Baby Killers, 2002

Forty G, British Army Handbook 1939-1945, 2006

Front Line 1940-41, The Official Story of the Civil Defence of Britain, 1942

Groves C, The Home Guard of Britain, 1943

Gulvin K R, Kent Home Guard, 1980

Innes G B, British Airfields of the Second World War, 1995

Moor A, Lympne Airfield at War and Peace, 2004

Morris J, German Air Raids on Britain 1914-1918, 1993

Ogley R, Kent at War, 1994

Osborne M, Defending Britain, Twentieth-Century military structures in the landscape, 2004

Oxford Archaeological Unit, WWII Munitions Store at Fairmead farm, Westenhanger, Kent, 2001

Price A, Blitz on Britain 1939-45, 2000

Ramsey W, The Blitz Then and Now, Vol 1, 1987

Ramsey W, The Blitz Then and Now, Vol 2, 1988

Ramsey W, The Blitz Then and Now, Vol 3, 1990

Rawson A, British Army Handbook 1914-1918, 2006

Rootes A, Front Line County: Kent at War, 1939-45, 1980

Smith D J, Britain's Military Airfields 1939-45, 1989

Storey N, Zeppelin Blitz, 2015

Established for over 25 years, Zetica's services include

- ☑ Desk studies
- ☑ Unexploded ordnance risk assessments and risk mitigation
- ☑ Topographic surveys
- ☑ Utility services detection
- ☑ Environmental and engineering geophysical surveys
- ☑ Transport infrastructure surveys
- ☑ Pipeline & cable route surveys
- ☑ Intrusive ground investigations

More details are available at

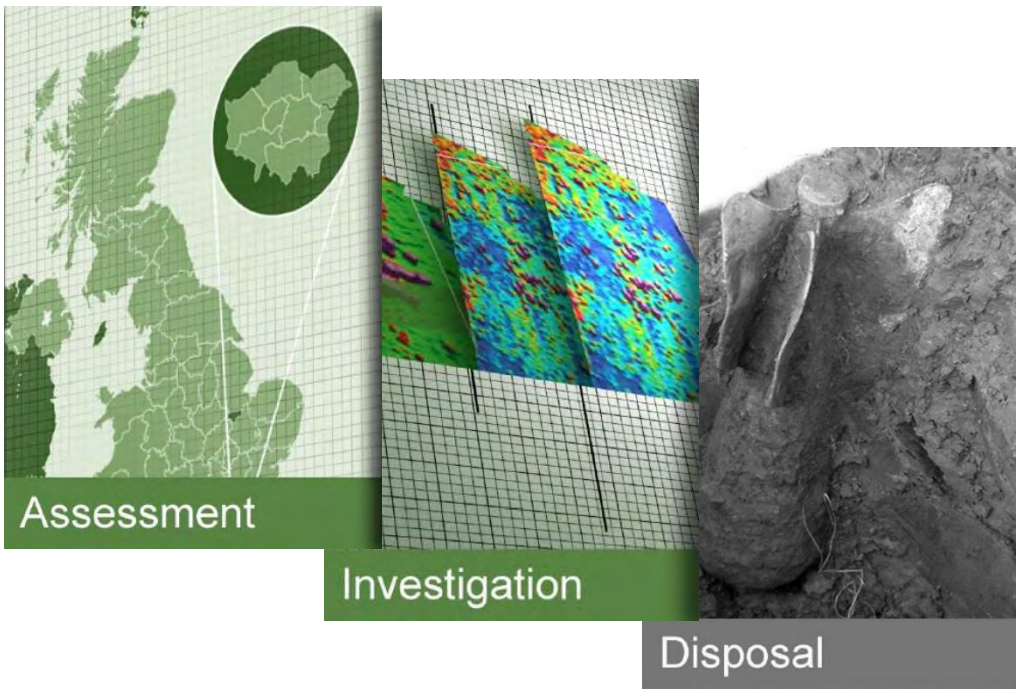
www.zetica.com


zeticauxo

APPENDIX E

UXO Risk Mitigation Report and UXO Survey Drawings

zeticaUXO



Otterpool Park – Unexploded Ordnance (UXO) Risk Mitigation for Ground Investigation

Drafted by Dan Byrne
Checked By Brian Barrett & Stefan Lang
Authorised by Mike Sainsbury

Document Title	**UXO Risk Mitigation for Ground Investigation**
Document Ref.	**P6248-17-R2-A**
Project Location	**Otterpool Park**
Client	**Arcadis**
Date	**12th July 2018**

UXO Risk Mitigation for Ground Investigation

Otterpool Park

EXECUTIVE SUMMARY

A detailed UXO desk study and risk assessment undertaken by Zetica (Report Ref: P6248-17-R1-B) identified significant sources of UXO hazard at the proposed Otterpool Park Garden Town development in Lympne, Kent (the 'Site').

This included the potential presence of pipe mines and German air-dropped Unexploded Bombs (UXB).

Zetica has undertaken a non-intrusive geophysical survey with the aim of ensuring that proposed ground investigation positions can be located in areas clear of shallow-buried UXO.

249No. isolated metallic anomalies have been identified which cannot be discounted as potential UXB.

38No. linear features have been identified which may relate to the presence of pipe mines.

The survey has detected other buried features to include utility services, demolition arisings, airfield infrastructure, archaeology, areas of possible buried waste and other buried obstructions as shown on P6248-17-DWG03-D Summary Interpretation Plan.

The Client is proposing to relocate exploratory points into clear areas, as identified on Zetica Drawing P6248-17-DWG03-D Summary Interpretation Plan.

Zetica has already provided the AutoCAD drawing prior to the issue of this report.

As a guide, the Client is to locate any exploratory points approximately 20m from any identified anomaly.

Where this is not possible, advice is to be sought from Zetica.

It should be noted that for deeper exploratory points such as boreholes that are within the high and moderate UXB hazard zone, further UXB clearance will be required using a MagDrill (Magnetometer lowered as borehole is advanced) techniques.

It is prudent to ensure that any staff onsite undergo a UXO induction awareness prior to any intrusive works.

CONTENTS

Appendices

Figures, Plates, Tables & Drawings

Referenced Drawings and Spreadsheets

P6248-17-DWG03-D Summary Interpretation Plan

P6248-17-DWG04-A Map of Residual Magnetic Field Strength

P6248-17-DWG05-A Map of 3D Analytic Signal

P6248-17-DWG06-A Map of Quadrature Response (425Hz)

P6248-17-DWG07-A Map of Quadrature Response (3725Hz)

P6248-17-DWG08-A Map of Quadrature Response (3305Hz)

P6248-17-DWG09-A Map of In-Phase Response (425Hz)

P6248-17-DWG10-A Map of In-Phase Response (3725Hz)

P6248-17-DWG11-A Map of In-Phase Response (33025Hz)

P6248-17-XLS01-A Arcadis Otterpool Park Target List

UXO Risk Mitigation for Ground Investigation

Otterpool Park

1 INTRODUCTION

1.1 Project Outline

Zetica Ltd was commissioned by Arcadis (the Client) to assist in managing the potential Unexploded Ordnance (UXO) hazard in advance of a ground investigation at the proposed Otterpool Park Garden Town development in Lympne, Kent (the 'Site').

A detailed UXO desk study and risk assessment undertaken by Zetica (Report Ref: P6248-17-R1-B) identified significant sources of UXO hazard on the Site, including the potential presence of pipe mines and German air-dropped Unexploded Bombs (UXB).

Zetica has undertaken a non-intrusive geophysical survey with the aim of ensuring that proposed ground investigation positions can be located in areas clear of shallow-buried UXO.

In order to detect the potential pipe mines and UXBs, a Magnetometer survey was used.

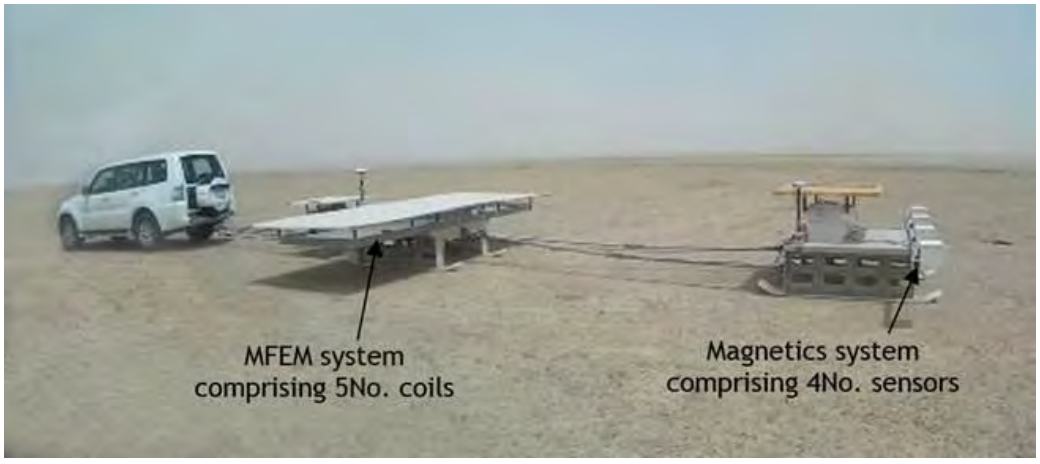
This report provides details of the findings of the non-intrusive geophysical survey and gives recommendations for mitigating the UXO risk during both ground investigation works and future construction.

1.2 Additional Demonstration Survey

Zetica used the opportunity to demonstrate the capability of a new survey technique and how in combination with the magnetometer survey, a much more informed appraisal of ground conditions can be made.

The demonstration technique used a multi-frequency electromagnetic sensor (MFEM) (one of a series specially built for Zetica for use in the middle east) for use one of its towed geophysical platform (see Figure 1). The technique provides greater detection and discrimination of UXO, in-ground obstructions, utility services, archaeology, changes in soil type and groundwater and a many other in-ground features.

Figure 1	Zetica's towed geophysical platform with magnetometer and MFEM sensors



1.3 The Site

The Site is centred at Ordnance Survey National Grid Reference (OSNGR) TR 120365 between the M20 and B2067, approximately 3.2km northwest of Hythe and 9km west of Folkestone (see following site location plan).

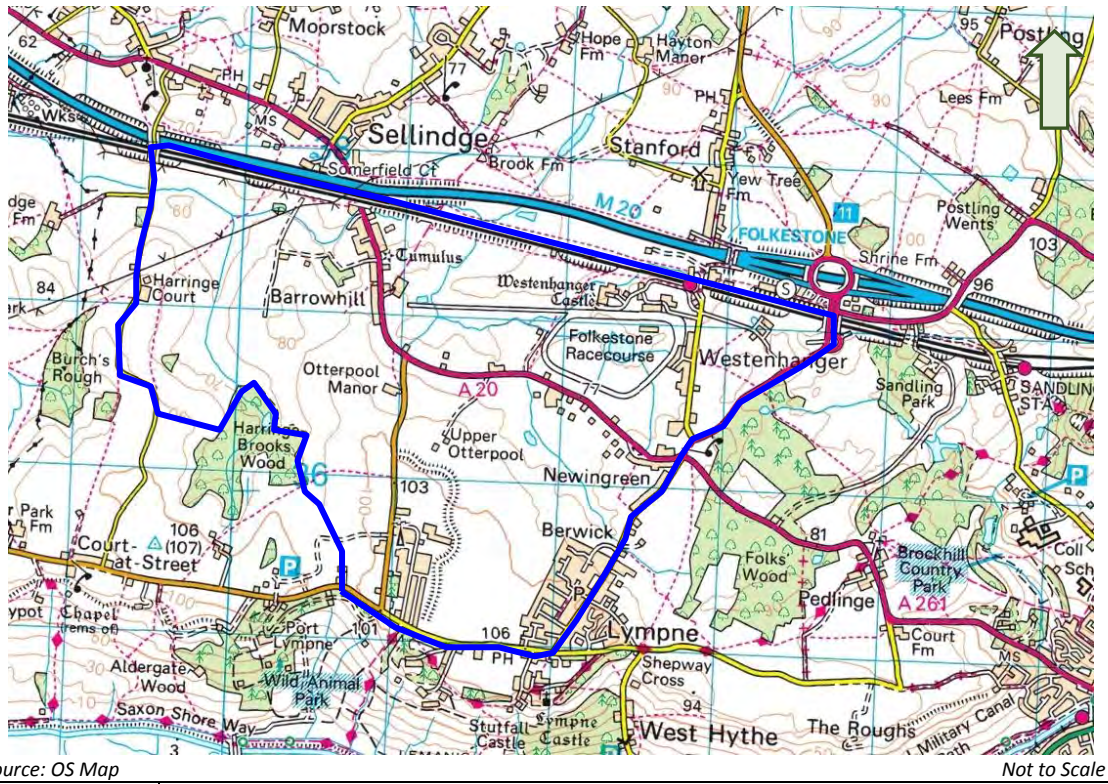
The Site comprises open farmland, industrial buildings and associated roads and hardstanding, alongside the remains of the former Folkestone Racecourse.

The Site is bounded to the north by a railway line and the M20, to the east and west by farmland and woodland, and to the south by the B2067 and the Port Lympne Wild Animal Park.

Areas inaccessible at the time of survey are shown on Zetica Drawing P6248-17-DWG03-D Summary Interpretation Plan. Exploratory points HD201, TP206 and BH203 were inaccessible due to physical obstructions.

Permission to access exploratory point locations TP212, TP221, TP222 and BH205 was not available at the time of survey. It is understood that these may be accessed at a later date..

Figure 2 Site location plan



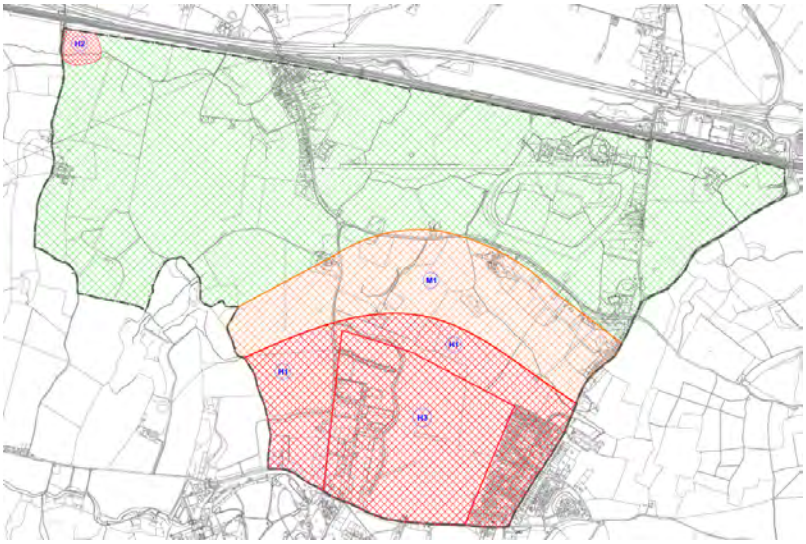
Source: OS Map *Not to Scale*

Legend Site boundary

1.4 UXO Hazard Background

Zetica's detailed UXO desk study & risk assessment (Report ref: P6248-17-R1-B) identified a series of UXO hazards as shown in Figure 3. Definitions of the hazard levels is provided within Appendix 2.

Figure 3 UXO hazard zone plan of the Site



Source: Zetica Ltd *Not to Scale*

Legend					
	Very Low		Low		Moderate
	High		Very High		Site boundary

The UXO hazards are of two types:-

Unexploded Bombs (UXB)

WWII Bombing (H1/M1)

Records have been found indicating that at least 500No. High Explosive (HE) bombs fell on the Site in World War Two (WWII). This has been assigned a high UXO hazard level (H1) with the overspill areas being moderate (M1).

Abandoned Bomb (H2)

Records have been found indicating that an abandoned bomb is located on the north-western corner of the Site. This part of the Site is assigned a high UXO hazard level.

Pipemines

Pipe Mines (H3)

Records indicate that during WWII RAF Lympne was underlain with pipe mines to destroy the airfield facilities in the event of an enemy invasion.

Although a clearance certificate was issued in February 1946, further pipe mines have been discovered since with the MoD concluding that there was "a high possibility of uncleared pipe mines". As a result, parts of the Site is assigned a high UXO hazard level (H3).

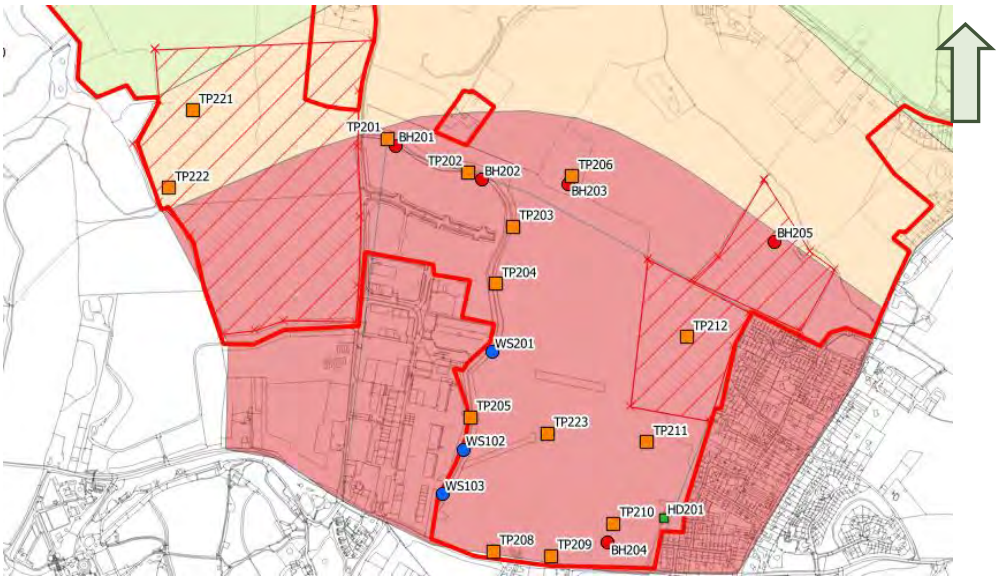
1.5 Proposed Works

1.4.1 Ground Investigation

It is understood that the Client proposes to undertake ground investigation works involving trial pit, window sampler and borehole exploratory points.

Figure 4 is the clients proposed exploratory point location plan overlain on the UXO hazard zones.

Figure 4 Exploratory point location plan overlain on the UXO hazard level zones.



Source: Client *Not to Scale*

Legend	Very Low	Low	Moderate
	High	Very High	Site boundary
	No Land Access	Exploratory Location (with ID)	

1.4.2 Construction Phase

It is understood that the site forms part of the proposed Otterpool Garden Town, which will include the development of a range of residential, commercial, educational and recreational facilities, along with associated infrastructure.

It is likely that future works at the Site will include further intrusive ground investigations, archaeological trenching, bulk excavations and piling.

2 METHODOLOGY

2.1 Introduction

The primary aim of the survey was to identify whether the Client's proposed ground investigation exploratory points are at risk from shallow buried UXO. Any exploratory points identified as being at risk from UXO can then be relocated or have other UXO risk mitigation employed.

Zetica undertook a non-intrusive geophysical survey, in order to provide UXO detection for an area of approximately 50m by 50m around each exploratory point. The survey was conducted between the 5th June and 8th June 2018. The primary technique used was a magnetometer survey, which is suitable for detecting pipe mines and UXB, in addition to utility services, reinforced concrete and archaeological features.

The magnetometer survey was completed using 2No. dual sensor caesium vapour magnetometers, operated in an array configuration, and measured the total magnetic field strength. Data was acquired along 4m wide survey swaths, with the sensor configuration providing an effective line spacing of 1m. A sampling rate of 10Hz was used, giving a sample spacing of approximately 0.25m.

The demonstration survey using MFEM was employed to further investigate anomalies seen in the magnetometer data in the south-eastern part of the Site, which increased the potential to see linear trending features that might be pipe mine related. 5No. line paths were collected per swath, again with a sampling rate of 10Hz.

MFEM techniques are used to detect ferrous and non-ferrous metallic features such as buried reinforced structures, some types of UXO, foundations, utility services and other buried obstructions. This is helpful as pipe mines may be discontinuous and if present can be more readily detonated on first discovery. The maximum depth of investigation is typically 2-4m.bgl depending on burial setting and target size.

Summary of Survey Design

Technique	Configuration	Effective line spacing	Station interval
Magnetometer	4No. sensors per swath	1.0m	~0.25m
MFEM	5No. sensors per swath	0.6m	~0.25m

Further details of the survey methodology are provided on Zetica's website: http://www.zetica.com/methods.

2.2 Data Processing

The raw magnetometer and MFEM data were processed, registered to the Site base plan and subsequently displayed as colour coded maps for interpretation.

The magnetometers measure the total magnetic field strength in units of nanotesla (nT). False readings such as dropouts were filtered before a background removal was applied to the data to generate the residual magnetic field strength.

The MFEM system measures a secondary magnetic field that is induced in the ground by a transmitted primary magnetic field. The recorded data includes two components of this secondary field, known as the quadrature and the in-phase responses. Both components have unit of parts per million (ppm). The quadrature component is typically associated with changes in ground conductivity while the in-

phase component is most responsive to buried metallic objects. False readings were filtered before a background removal was applied to the data.

The results were used to identify significant anomalies that could potentially represent UXO or other targeted features. The threshold above which an anomaly was considered significant was determined from analysis of the background signal level on the Site and from data obtained over known UXO buried at Zetica's test site in Oxfordshire.

2.3 Limitations

Magnetometer and MFEM data can be detrimentally affected by surface metal objects such as vehicles, fences, reinforced concrete, walls and above ground pipe work.

The detectability depth for potential features depends on target size and Site-specific signal to noise ratios. Large diameter features will be detectable at greater burial depth than small diameter features in the same environment.

The detectability depth limit for potential features depends on target size and site-specific background geophysical noise levels. Large diameter features will be detectable at greater burial depth than small diameter features in the same environment.

Detected items have the potential to mask further items buried beneath them. If greater certainty is required (such as for UXO), then removal of the detected item and a re-survey may be required.

The results of geophysical techniques are not infallible. Whilst all reasonable efforts are made, the detection of all targets cannot be guaranteed.

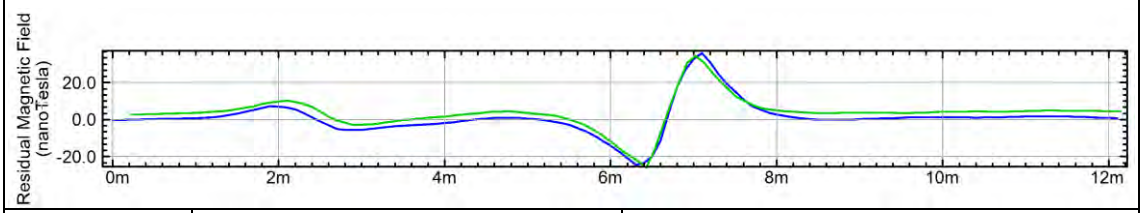
3 PROCESSING

3.1 Data Quality

The data across the Site were characterised by a relatively low background geophysical noise level. Geophysical noise includes all measured signals that were not the target of the survey.

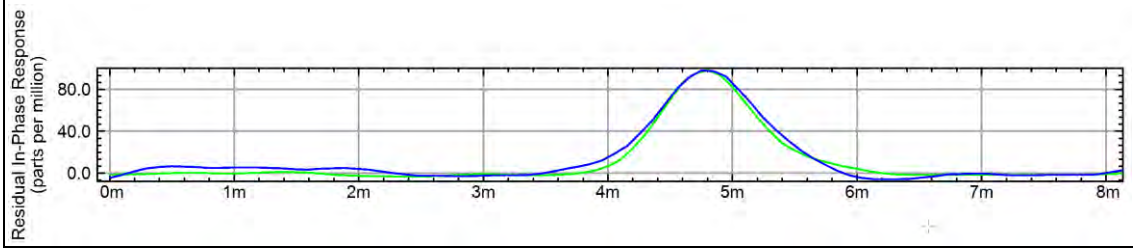
Data repeatability was monitored throughout the project through the comparison of repeat profiles. Figures 5 and 6 show examples of repeat profile line, which display good repeatability both in terms of equipment sensitivity and location.

Figure 5	Repeatability assessment (magnetometer)



Legend	Original Profile	Repeat Profile

Figure 6	Repeatability assessment (MFEM)



Legend	Original Profile	Repeat Profile

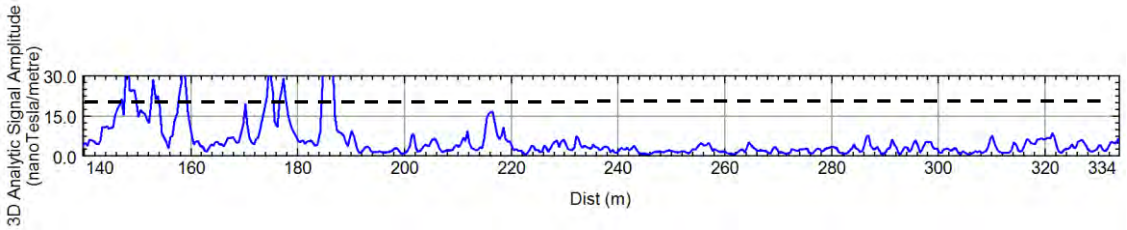
3.2 Interpretation

The results were used to identify significant anomalies that could potentially represent the targeted features. This was undertaken through a combination of automatic picking of anomalies considered significant through analysis of the background signal level on the Site and manual assessment of localised anomalous responses.

To aid interpretation of the magnetometer data, the 3D analytic signal amplitude was calculated. The 3D analytic signal can also be referred to as the “total gradient” of a magnetic anomaly because it is calculated as a vector sum of three gradient terms. The amplitude of the 3D analytic signal (with units of nT/m) offers a number of advantages for the investigation and interpretation of linear and isolated ferrous targets as it has a peak directly above the object, making it well suited for locating targets.

For automatic selection of isolated metallic objects from the magnetometer data, a minimum threshold of detection had to be determined. This was calculated from analysis of the noise levels in the data with a value being chosen to avoid false positive targets. The magnetometer data had a 3D analytic signal amplitude detection threshold of 20nT/m. This threshold was chosen to enable the highest levels of detectability, whilst being above the level of geophysical noise, as shown in an example in Figure 7.

Figure 7	Example target detection threshold



Legend	Detection threshold (20nT/m) – – – –

All identified targets were manually assessed to remove those targets attributed to known structures, potential utility services, recognised noise signals or other attributable features. Target discrimination was undertaken to establish targets more likely to be 50kg UXB (or larger). This was based on modelled target weight derived from the following three stage process:

- The target size was calculated by an analysis of the 3D analytic signal anomaly shape.
- The target depth was predicted using Euler's homogeneity equation, applied over the established target size. A structural index of 2.7 was used, representing a prolate spheroid.
- Modelled UXO sizes (referred to as apparent weight) are obtained from the magnetic data using a table lookup and the modelled depth. The table lookup is compiled from direct measurements over varying target sizes at different depths. More information can be found at https://my.geosoft.com/supportcentre#/kb/kA2a0000000P65cCAC.

3.3 UXO Detection Assurance and Verification

To monitor the detection levels, verify the data quality and provide reference for detectability analysis, a seed target was used. An inert 2-inch mortar was placed on the ground. This seed target was surveyed each day for reference, both before and after the data collection. This confirmed the equipment function and detection of a known target.

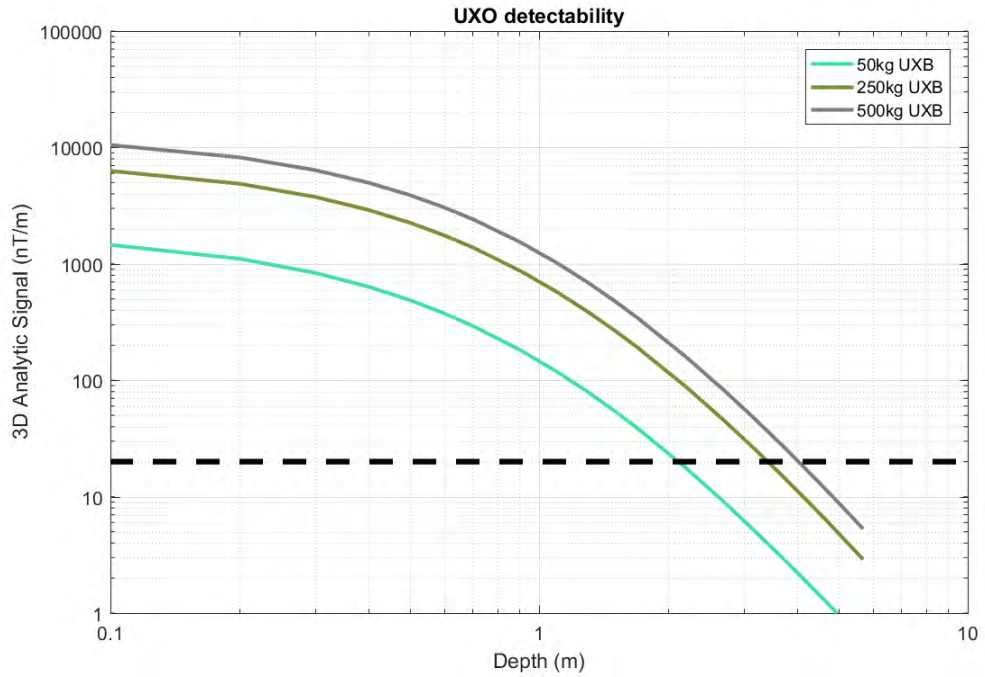
In addition to the seed target, detectability was assessed through modelling a range of UXO in proximity tests over known items. The modelling shows the range of depths and anticipated response up to the maximum depth of detection for the magnetometer survey. Figure 8 below shows the modelled detectability depths for the magnetometer survey.

With a target detection threshold at 20nT/m from the 3D Analytic Signal amplitude in the magnetometer survey, a large UXB (250kg) is considered detectable up to a depth of 3.3m.

The estimated horizontal accuracy for the magnetometer survey is ±0.3m. The depths of investigation are highly dependent on the target size and the burial setting. The maximum detection depth of smaller diameter targets would be much shallower than the detection depth of larger targets.

The presence of above ground and subsurface structures (e.g. fences, buildings etc.) in some areas has had the effect of distorting the amplitude response in magnetometer data. Affected areas may mask in-ground features.

Figure 8	Modelled detectability depths for magnetometer survey



Legend	Detection threshold (20nT/m)

3.4 Data Presentation

The survey results are presented as plots of the geophysical data. The data are presented as colour-shaded grids, with the colours indicating the amplitude of the measured physical properties. Cool colours (blues, greens) represent relatively low values whilst warm colours (reds, magenta) correspond to relatively high values.

A map of the residual magnetic field strength is provided in drawing P6526-16-DWG04-A. A map of the amplitude of the 3D analytic signal of the total magnetic field has been presented in drawing P6526-16-DWG05-A.

4 UNEXPLODED ORDNANCE

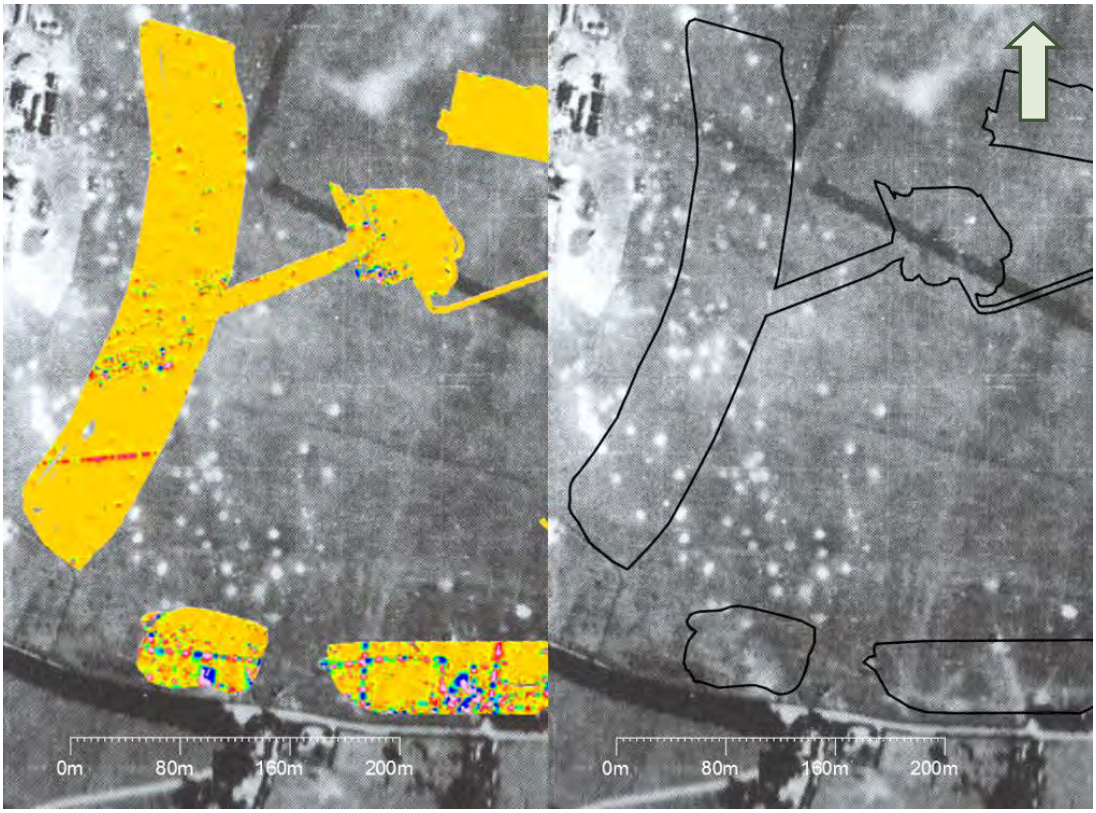
4.1 UXB

The magnetic survey has identified 1,978No. isolated ferrous anomalies, the locations of which have been plotted on Zetica Drawing P6248-17-DWG03-D (Summary Interpretation Plan).

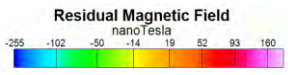
Given the site's history, the potential for a portion of these to be UXO is significant. This has been borne out by the results of the geophysical survey.

Figure 9 shows good correlation between areas of high UXO hazard (areas of clearly visible bomb impacts on historical photographs) and areas of higher concentration of metallic anomalies.

Figure 9	Magnetometer data Left) overlain on historical aerial photograph (August 1940)



Source: Zetica *Not to Scale*

Legend	

Whilst simple avoidance is sufficient for the purposes of the ground investigation, Zetica has provided a ranking of the anomalies based on their location in relation to the hazard zones, and geophysical modelling.

Geophysical modelling indicates 249No. of the 1,978No. anomalies were assessed as being potentially UXB of 50kg or larger. Whilst the majority of these are likely to comprise other metal items, the potential for them to be UXB cannot be totally discounted.

4.2 Pipe Mines

The survey has identified 38No. linear features (IDs Z5-Z21, Z51 and Z75-Z93) as shown on Zetica Drawing P6248-18-DWG03-A Summary Interpretation Plan. The orthogonal arrangement of some of these is consistent with a pipe mine grid.

The positions do not correlate with known utility services as shown on the Client-provided statutory undertaker's records.

In addition, there are no correlating linear features on historical mapping or aerial photographs.

Without evidence to the contrary, we have to assume that the potential for these items to be pipe mines cannot be totally discounted.

4.3 Other features to avoid

The survey has identified 5No. features identified as Z38-Z41 and Z62 on Zetica Drawing P6248-17-DWG03-D (Summary Interpretation Plan).

These are characterised by regular identical anomalies either in a linear formation or regular pattern. Whilst these may relate to former infrastructure, until further investigation is undertaken, we would advise that these be avoided due to their location in areas of significant bombing.

5 UTILITY SERVICES

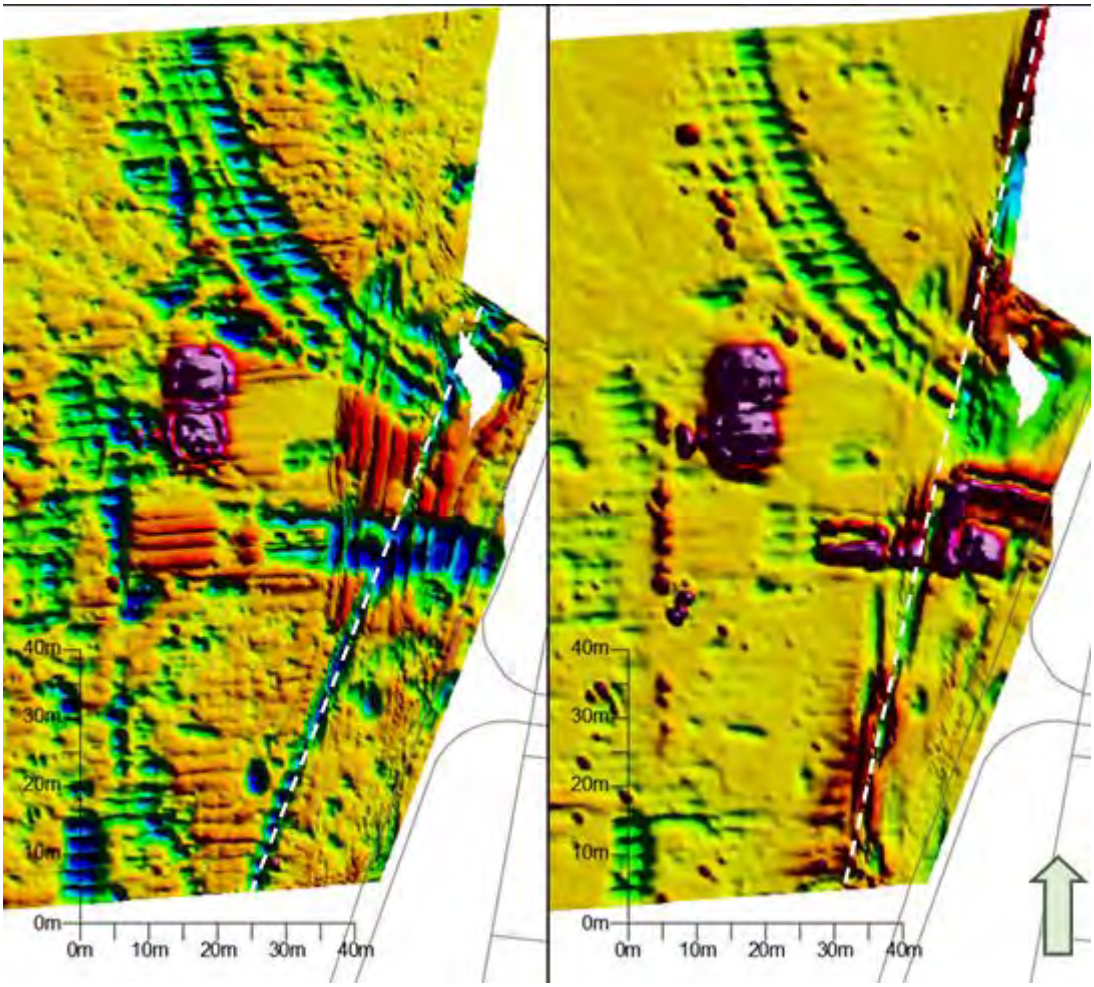
In addition to UXO, utility services provide a potential hazard to ground investigation and construction works.

8No. linear features have been interpreted as utility services (IDs Z1–Z4, Z50, Z61, Z69 and Z70).

Feature IDs Z69 and Z70 on Zetica drawing P6248-17-DWG03-D (Summary Interpretation Plan) are identified as a gas line and communications cable respectively.

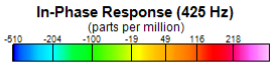
Figure 10 is an example tract of the MFEM data showing utility services as white dashed lines.

Figure 10	Plot of MFEM data showing linear features (dashed white line) relating to utility services



Source: Zetica Ltd

Legend



6 INFRASTRUCTURE AND ARCHAEOLOGY

The demonstration survey using the combined magnetometer and MFEM techniques has also identified other buried features.

This information can be used to better inform future ground investigations or development layouts, where significant obstructions can be either investigated early-on or avoided.

6.1 Airfield Infrastructure

Feature Z36 is a large area on the south of the Site covering part of a disused runway. Anomalies within this area are likely to be related to construction materials or associated demolitions arisings.

6.2 Other Infrastructure

Feature Z45 relates to an electrical sub-station.

Features Z42 – Z49 have been attributed to other unknown infrastructure that could not be attributed to the former airfield operations.

Features Z42–Z44 and Z46–Z49 were in areas of dense vegetation with a a localised rise in ground level indicating a possible buried feature.

6.3 Archaeology

11No. features have been attributed to industrial archaeology relating to vehicle tracks and field boundaries, identified from 1940 and 1944 aerial photography.

No other types of archaeology have been readily identified.

6.4 Potential buried structures

Features Z52, Z53, and Z55–Z60 are defined as single or groups of anomalies delineating a regular or irregular shape in the magnetometer data. No documentary evidence has been found to indicate their nature. It is considered that they may represent buried structures or changes in ground conditions.

Features Z63–Z67 are anomalies identified in the MFEM data on the south-eastern corner of the Site.

Features Z64 and Z65 overlay features Z54 and Z32 identified in the magnetometer data. They are assumed to be related to the vehicle tracks in this area.

Z66 and Z67 comprise well-defined isolated objects which also have a corresponding feature in the magnetometer data (Feature ID Z56). They are better resolved in the MFEM data and are therefore interpreted from this. These could be buried reinforced concrete slabs or other construction features.

7 AREAS OF WASTE OR INFILLED GROUND

7.1 Areas of Buried Ferrous Material

Features Z22–Z31 are defined as areas with a high concentration of buried ferrous material.

Feature Z22 is situated on the southern boundary of the surveyed area and matches with an area of disturbed ground identified on aerial photographs from 1940 and 1944. This may be buried waste or infilled ground. The potential for UXO to be present cannot be totally discounted.

Features Z23 and Z24 are situated adjacent to the abandoned runway (Z36). It is likely that the dense concentration of magnetic anomalies in these areas are caused by demolitions arisings.

Features Z25 and Z26 are adjacent to feature Z60, which overlays a field boundary crossing point seen on 1940 aerial photography.

Features Z27–Z30 are situated within Z68 and are likely to relate to a field boundary identified at this location.

Feature Z31 is situated in the same area as features Z38-Z41 and Z62 and is likely to be related to airfield infrastructure.

8 SUMMARY & RECOMMENDATIONS

8.1 Summary

Zetica's non-intrusive geophysical survey has utilised both magnetometer and MFEM data and has identified a number of areas that ground investigation exploratory points need to avoid, in order to reduce the risk from potential UXO.

249No. isolated metallic anomalies have been identified which cannot be discounted as potential UXB.

38No. linear features have been identified which may relate to the presence of pipe mines.

The survey has detected other buried features to include utility services, demolition arisings, airfield infrastructure, archaeology, areas of possible buried waste and other buried obstructions as shown on P6248-17-DWG03-D Summary Interpretation Plan.

8.2 Recommendations

The Client is proposing to relocate exploratory points into clear areas, as identified on Zetica Drawing P6248-17-DWG03-D Summary Interpretation Plan.

Zetica has already provided the AutoCAD drawing prior to the issue of this report.

As a guide, the Client is to locate any exploratory points approximately 20m from any identified anomaly.

Where this is not possible, advice is to be sought from Zetica.

It should be noted that for deeper exploratory points such as boreholes that are within the high and moderate UXB hazard zone, further UXB clearance will be required using a MagDrill (Magnetometer lowered as borehole is advanced) techniques.

It is prudent to ensure that any staff onsite undergo a UXO induction awareness prior to any intrusive works.

APPENDICES

Appendix 1 General Notes

This report has been prepared in relation to the specific requirement of the contract or commission. The report should not be used by third parties without prior consultation with Zetica Limited.

The report refers to the conditions of the Property at the time of investigation/ reporting. Zetica Limited cannot accept liability for subsequent changes of Property conditions.

Zetica Limited may have relied on externally provided information. Zetica Limited is in no circumstances responsible for the accuracy of such information or data supplied.

Interpretation relies largely on experience of similar conditions. Site-specific conditions can create variations that may not be detectable by non-intrusive investigation techniques. It should be noted that our interpretation might vary in detail from that identified by later intrusive investigation, although the general identification of a feature should not vary.

The report has been written utilising relevant guidance and legislation in use at the time of report compilation. Subsequent improvement in techniques, changes in legislation or in Site conditions may render parts of this report obsolete. If the report is utilised after such changes have occurred or at a time in excess of 1 year of the issue date, it would be prudent to contact Zetica Limited to reassess the report under a new contract.

Appendix 2 UXO Hazard Level Definitions	
Definitions of UXO Hazard Level for a Site	
Hazard Level	**Definition**
Very Low	There is positive evidence that UXO is not present, e.g. through physical constraints or removal.
Low	There is no positive evidence that UXO is present, but its occurrence cannot be totally discounted.
Moderate	There is positive evidence that ordnance was present, and that other uncharted ordnance may be present as UXO.
High	There is positive evidence that UXO is present.
Very High	As high but requires immediate or special attention due to the potential hazard.

Established for over 27 years, Zetica's services include

- ☑ Desk studies
- ☑ Unexploded ordnance risk assessments and risk mitigation
- ☑ Utility services detection
- ☑ Environmental and engineering geophysical surveys
- ☑ Transport infrastructure surveys
- ☑ Pipeline & cable route surveys
- ☑ Intrusive ground investigations

More details are available at

www.zetica.com


zeticauxo

Sheet 5

Sheet 4

Sheet 3

Sheet 2

Sheet 1

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

UXO

Targets

- P043 — Priority target (with ID)
- T180 — Low priority target (with ID)
- A0154 — Non-priority target (with ID)
- Potential pipe mine, caution advised (see report)

Features of interest

- Ferrous metallic structure, caution advised (see report)

Utility Services

- MAG — Ferrous metal utility service
- Utility service related feature
- FEM — Linear feature in FEM

Infrastructure

- Infrastructure - Airfield
- Infrastructure - Other

Archaeology

- Archaeology - Industrial
- Archaeology - Other

Other

- Area of dense ferrous metallic objects - potential waste or demolitions arisings
- Magnetic anomaly - potential buried structure
- Change in ground conductivity - potential buried structure

Site

- SITE — Original Survey Extents
- Magnetometer Survey Extents
- Site Boundary
- Inaccessible
- WS103 — Proposed GI location with ID
- Z1 — Feature ID (colour indicates type)

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Summary Interpretation Plan

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
NTS	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG03	Overview	D

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	03/07/18
B	Draft issue, for comment.	DB	MS	09/07/18
C	Draft issue, for comment.	DB	MS	10/07/18
D	Draft issue, for comment.	DB	MS	13/07/18

Zetica Ltd.
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

unway

Access tracks created by repeated passing of vehicles.

No current or historical structures could be attributed to this feature with any level of confidence

It is assumed the linear feature Z70 is related to either the water pipe or communications cable as shown on statutory undertakers plans

Feature Z50 is related to features Z66 and Z67, which are interpreted as buried metal structures such as reinforced concrete caps

It is assumed the linear feature Z69 is related to the gas pipe as shown on statutory undertakers plans

It is assumed the linear feature Z2 is related to either the electricity cable or foul water sewer as shown on statutory undertakers plans

It is assumed the linear feature Z1 is related to the electricity cable as shown on statutory undertakers plans

It is assumed the linear features Z3 and Z4 are related to the foul water pipe as shown on statutory undertakers plans

Notes

A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

UXO

Targets

- P043 — Priority target (with ID)
- T180 — Low priority target (with ID)
- A0154 — Non-priority target (with ID)
- Potential pipe mine

Features of interest

- Ferrous metallic structure, caution advised (see report)

Utility Services

- MAG — Ferrous metal utility service
- Utility service related feature
- FEM — Linear feature in FEM

Infrastructure

- Infrastructure - Airfield
- Infrastructure - Other

Archaeology

- Archaeology - Industrial
- Archaeology - Other

Other

- Area of dense ferrous metallic objects - potential waste or demolitions arisings
- Magnetic anomaly - potential buried structure
- Change in ground conductivity - potential buried structure

Site

- SITE — Original Survey Extents
- Magnetometer Survey Extents
- Site Boundary
- Inaccessible
- WS103 — Proposed GI location with ID
- Z1 — Feature ID (colour indicates type)

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview

Draft

User to check for latest issue

Client

Arcadis

Project

Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location

Otterpool Park, Lympne, Kent

Title

Summary Interpretation Plan

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG03	1 of 5	D

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	03/07/18
B	Draft issue, for comment.	DB	MS	09/07/18
C	Draft issue, for comment.	DB	MS	10/07/18
D	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Disused concrete runway

No current or historical structures could be attributed to these feature with any level of confidence

It is assumed the linear feature Z50 is related to the electricity cable as shown on statutory undertakers plans

Notes

A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

UXO

Targets

- P043 — Priority target (with ID)
- T180 — Low priority target (with ID)
- A0154 — Non-priority target (with ID)
- Potential pipe mine

Features of interest

- Ferrous metallic structure, caution advised (see report)

Utility Services

- MAG — Ferrous metal utility service
- Utility service related feature
- FEM — Linear feature in FEM

Infrastructure

- Infrastructure - Airfield
- Infrastructure - Other

Archaeology

- Archaeology - Industrial
- Archaeology - Other

Other

- Area of dense ferrous metallic objects - potential waste or demolitions arisings
- Magnetic anomaly - potential buried structure
- Change in ground conductivity - potential buried structure

Site

- SITE — Original Survey Extents
- Magnetometer Survey Extents
- Site Boundary
- Inaccessible
- WS103 — Proposed GI location with ID
- Z1 — Feature ID (colour indicates type)

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview

Draft

User to check for latest issue

Client

Arcadis

Project

Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location

Otterpool Park, Lympne, Kent

Title

Summary Interpretation Plan

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG03	2 of 5	D

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	03/07/18
B	Draft issue, for comment.	DB	MS	09/07/18
C	Draft issue, for comment.	DB	MS	10/07/18
D	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Harborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

No current or historical structures could be attributed to this feature with any level of confidence

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

UXO

Targets

- P043 — Priority target (with ID)
- T180 — Low priority target (with ID)
- A0154 — Non-priority target (with ID)
- Potential pipe mine

Features of interest

- Ferrous metallic structure, caution advised (see report)

Utility Services

- MAG — Ferrous metal utility service
- Utility service related feature
- FEM — Linear feature in FEM

Infrastructure

- Infrastructure - Airfield
- Infrastructure - Other

Archaeology

- Archaeology - Industrial
- Archaeology - Other

Other

- Area of dense ferrous metallic objects - potential waste or demolitions arisings
- Magnetic anomaly - potential buried structure
- Change in ground conductivity - potential buried structure

Site

- SITE — Original Survey Extents
- Magnetometer Survey Extents
- Site Boundary
- Inaccessible
- WS103 — Proposed GI location with ID
- Z1 — Feature ID (colour indicates type)

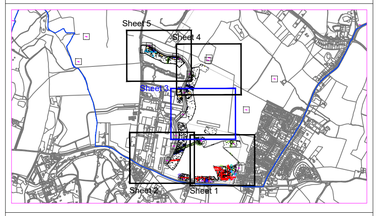
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Summary Interpretation Plan

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG03	3 of 5	D

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	03/07/18
B	Draft issue, for comment.	DB	MS	09/07/18
C	Draft issue, for comment.	DB	MS	10/07/18
D	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd.
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

It is assumed the feature Z61 is related to the gas service installation as shown on statutory undertakers plans

No current or historical structures could be attributed to these features with any level of confidence

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

UXO

Targets

- P043 — Priority target (with ID)
- T180 — Low priority target (with ID)
- A0154 — Non-priority target (with ID)
- Potential pipe mine

Features of interest

- Ferrous metallic structure, caution advised (see report)

Utility Services

- MAG — Ferrous metal utility service
- Utility service related feature
- FEM — Linear feature in FEM

Infrastructure

- Infrastructure - Airfield
- Infrastructure - Other

Archaeology

- Archaeology - Industrial
- Archaeology - Other

Other

- Area of dense ferrous metallic objects - potential waste or demolitions arisings
- Magnetic anomaly - potential buried structure
- Change in ground conductivity - potential buried structure

Site

- SITE — Original Survey Extents
- Magnetometer Survey Extents
- Site Boundary
- Inaccessible
- WS103 — Proposed GI location with ID
- Z1 — Feature ID (colour indicates type)

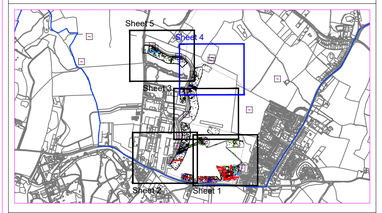
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Summary Interpretation Plan

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG03	4 of 5	D

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	03/07/18
B	Draft issue, for comment.	DB	MS	09/07/18
C	Draft issue, for comment.	DB	MS	10/07/18
D	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd.
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH.
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

UXO

Targets

- P043 — Priority target (with ID)
- T180 — Low priority target (with ID)
- A0154 — Non-priority target (with ID)
- Potential pipe mine

Features of interest

- Ferrous metallic structure, caution advised (see report)

Utility Services

- MAG — Ferrous metal utility service
- Utility service related feature
- FEM — Linear feature in FEM

Infrastructure

- Infrastructure - Airfield
- Infrastructure - Other

Archaeology

- Archaeology - Industrial
- Archaeology - Other

Other

- Area of dense ferrous metallic objects - potential waste or demolitions arisings
- Magnetic anomaly - potential buried structure
- Change in ground conductivity - potential buried structure

Site

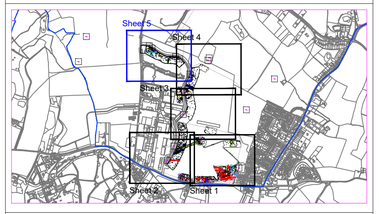
- SITE — Original Survey Extents
- Magnetometer Survey Extents
- Site Boundary
- Inaccessible
- WS103 — Proposed GI location with ID
- Z1 — Feature ID (colour indicates type)

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

Overview



Draft

User to check for latest issue

Client

Arcadis

Project

Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location

Otterpool Park, Lympne, Kent

Title

Summary Interpretation Plan

Drawn by	Checked by		
D Byrne	M Sainsbury		
Horizontal Scale (A1)	Date of Survey	Issue Date	
1:800	05 - 07/06/2018	13/07/2018	
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG03	5 of 5	D

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	03/07/18
B	Draft issue, for comment.	DB	MS	09/07/18
C	Draft issue, for comment.	DB	MS	10/07/18
D	Draft issue, for comment.	DB	MS	13/07/18

It is assumed the feature Z61 is related to the gas service installation as shown on statutory undertakers plans

zeticaUXO

Zetica Ltd
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Sheet 5

Sheet 4

Sheet 3

Sheet 2

Sheet 1

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Residual Magnetic Field
nanoTesla

-255 -102 -50 -14 19 52 93 160

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Residual Magnetic Field Strength

Drawn by	Checked by		
D Byrne	M Sainsbury		
Horizontal Scale (A1)	Date of Survey	Issue Date	
NTS	05 - 07/06/2018	13/07/2018	
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG04	Overview	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd.
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Residual Magnetic Field
nanoTesla

-255 -102 -50 -14 19 52 93 160

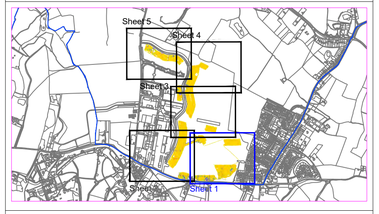
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Residual Magnetic Field Strength

Drawn by	Checked by		
D Byrne	M Sainsbury		
Horizontal Scale (A1)	Date of Survey	Issue Date	
1:800	05 - 07/06/2018	13/07/2018	
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG04	1 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd.
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH.
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Residual Magnetic Field
nanoTesla

-255 -102 -50 -14 19 52 93 160

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Residual Magnetic Field Strength

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG04	2 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Residual Magnetic Field
nanoTesla

-255 -102 -50 -14 19 52 93 160

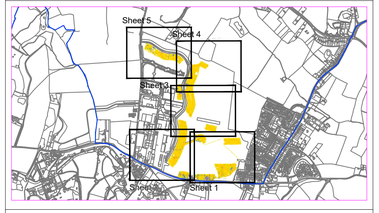
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Residual Magnetic Field Strength

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG04	3 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd.
Units 15 & 16
Harborough Business Park
Long Harborough
OX29 8LH.
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Residual Magnetic Field
nanoTesla

-255 -102 -50 -14 19 52 93 160

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Residual Magnetic Field Strength

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG04	4 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd.
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH.
UK
Tel. 44 (0)1993 886682
Fax. 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Residual Magnetic Field
nanoTesla

-255 -102 -50 -14 19 52 93 160

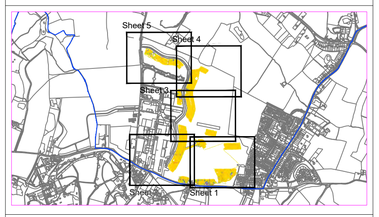
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Residual Magnetic Field Strength

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG04	5 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd.
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH.
UK.
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Sheet 5

Sheet 4

Sheet 3

Sheet 2

Sheet 1

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

3D Analytic Signal
(nanoTesla/metre)

-1102 -379 -156 25 165 345 597

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of 3D Analytic Signal Amplitude

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
NTS	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG05	Overview	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd.
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH,
UK.
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

3D Analytic Signal
(nanoTesla/metre)

-1102 -379 -156 25 165 345 597

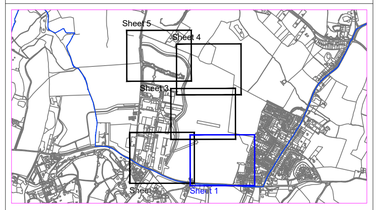
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of 3D Analytic Signal Amplitude

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG05	1 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Harborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

3D Analytic Signal
(nanoTesla/metre)

-1102 -379 -156 25 165 345 597

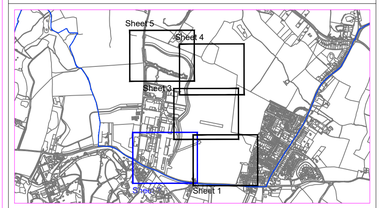
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of 3D Analytic Signal Amplitude

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

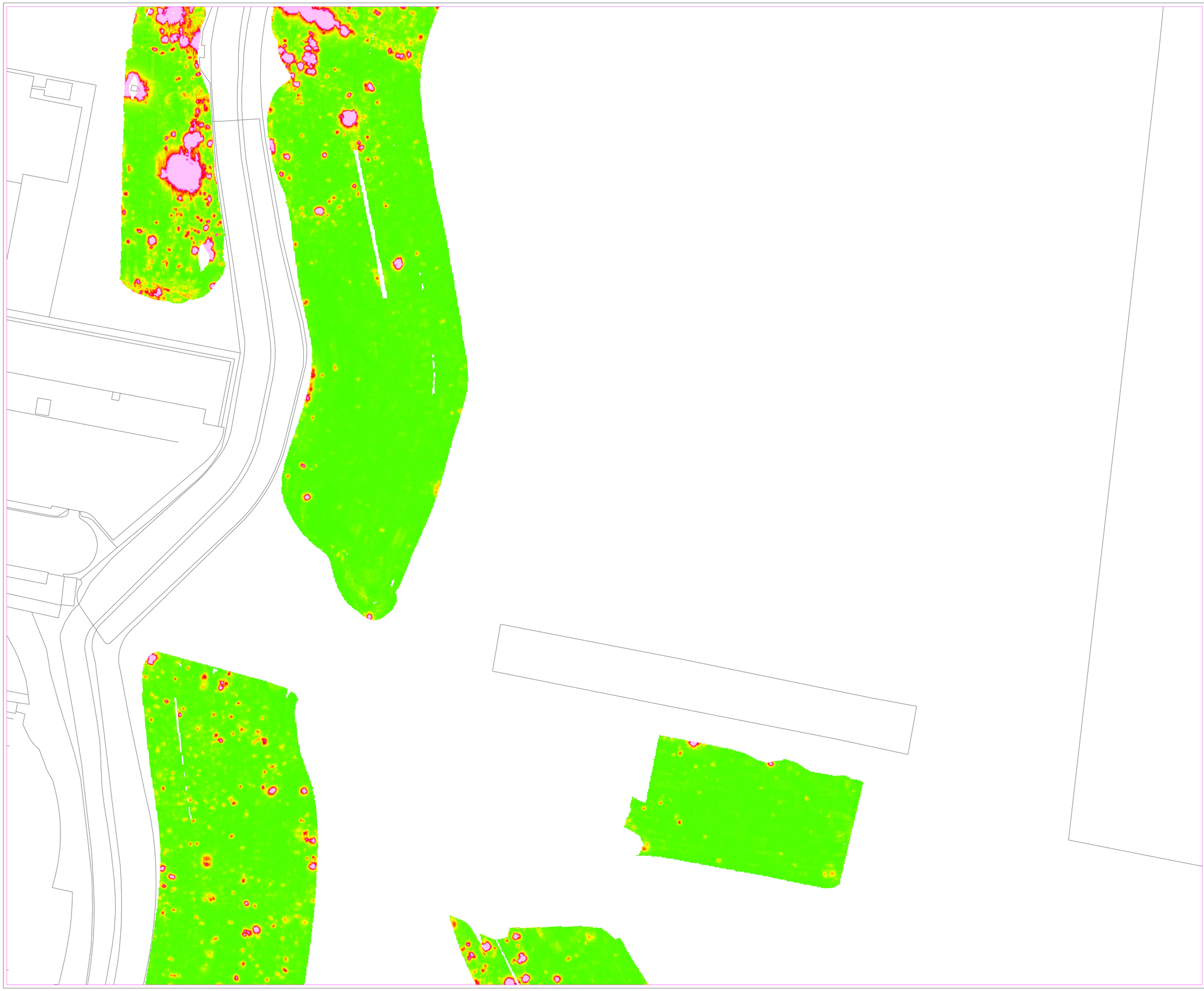
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG05	2 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

3D Analytic Signal
(nanoTesla/metre)

-1102 -379 -156 25 165 345 597

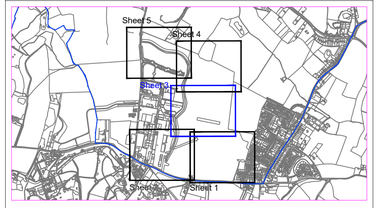
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of 3D Analytic Signal Amplitude

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

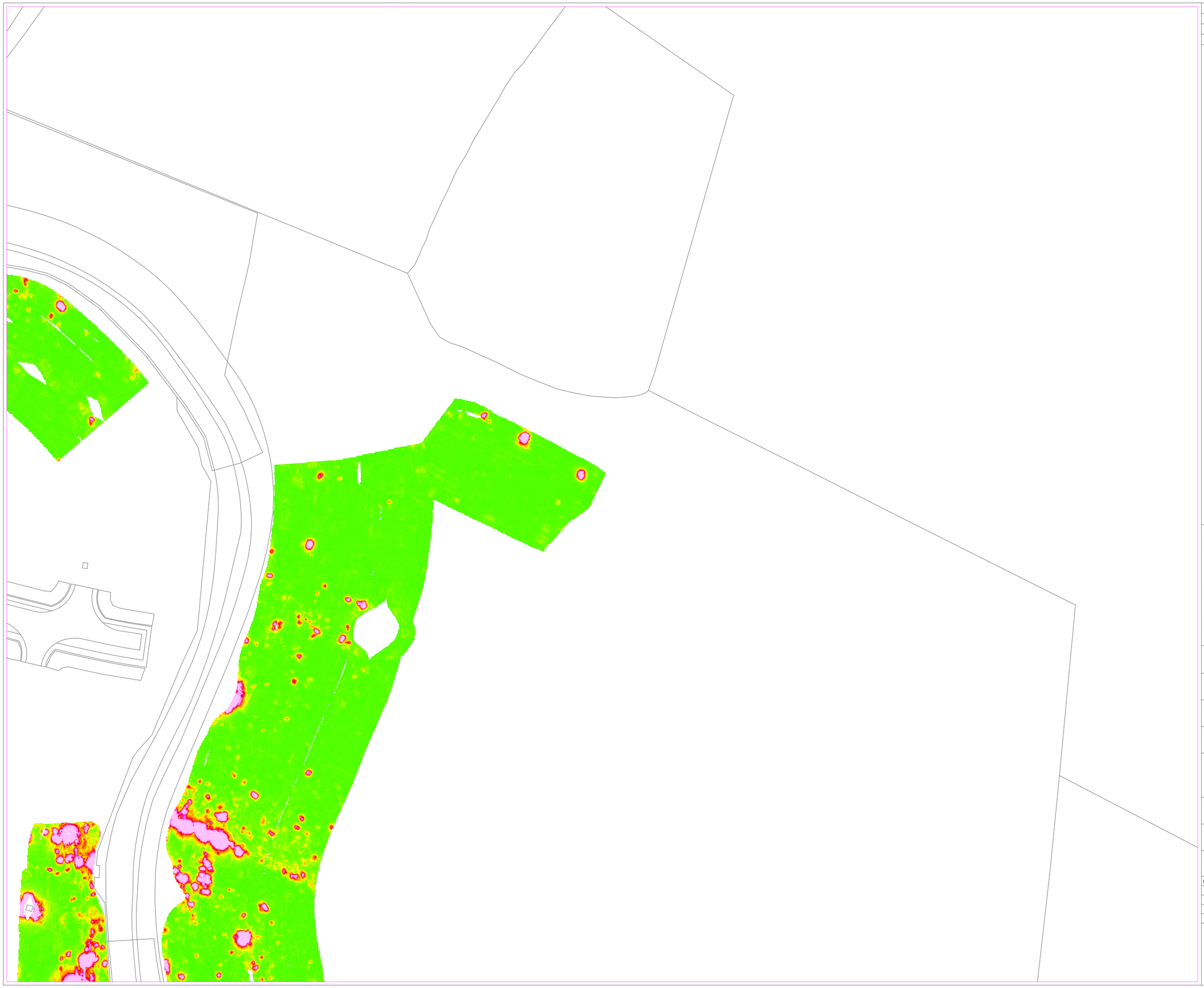
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG05	3 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

3D Analytic Signal
(nanoTesla/metre)

-1102 -379 -156 25 165 345 597

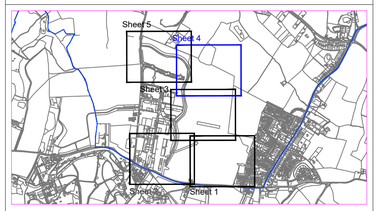
CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Overview



Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of 3D Analytic Signal Amplitude

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG05	4 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Harborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

3D Analytic Signal
(nanoTesla/metre)

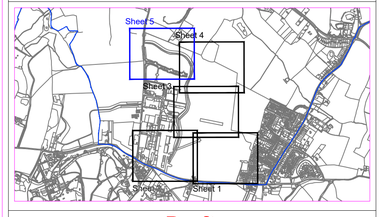
-1102 -379 -156 25 165 345 597

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

Overview



Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of 3D Analytic Signal Amplitude

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:800	05 - 07/06/2018	13/07/2018

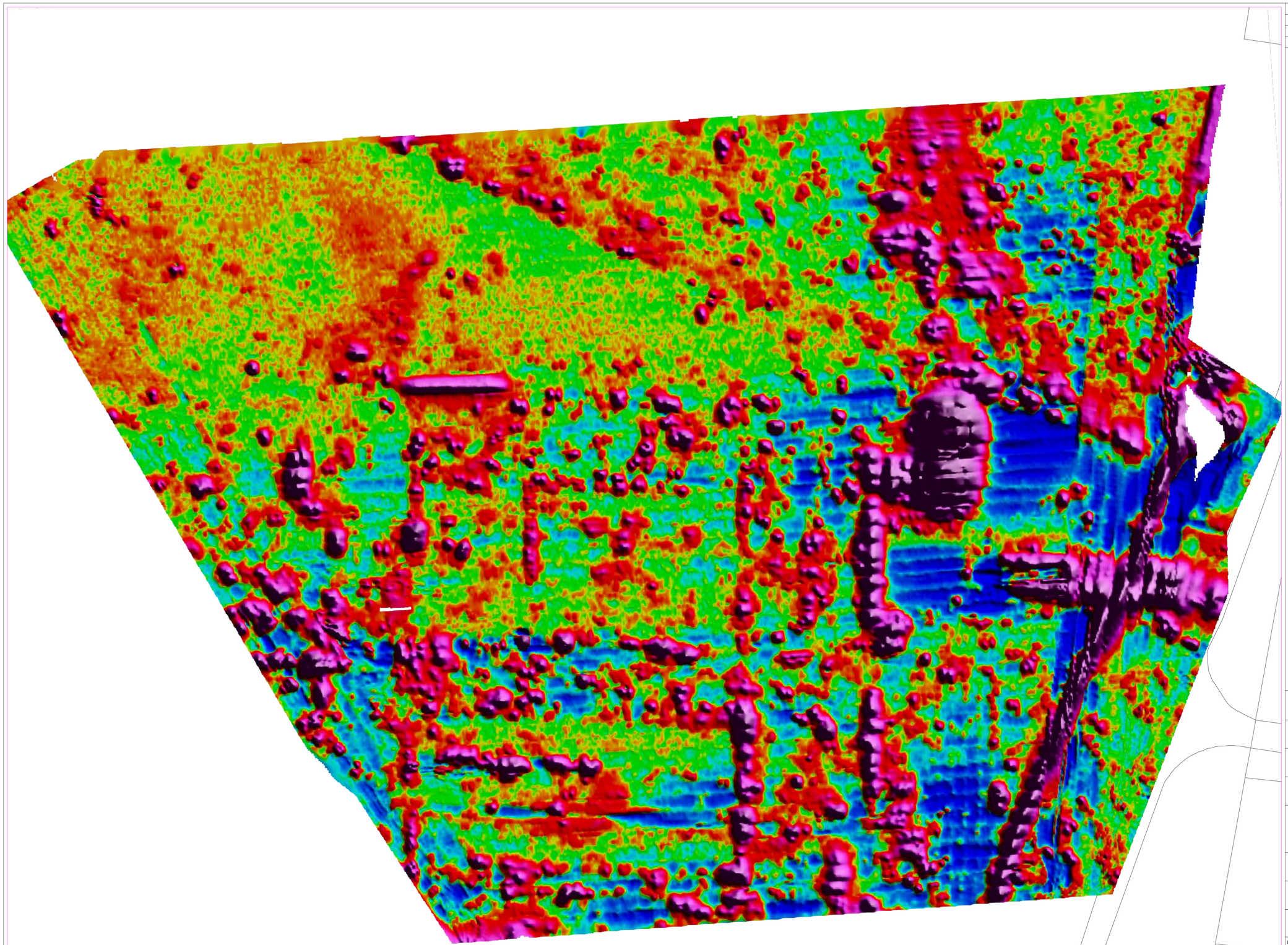
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG05	5 of 5	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Quadrature Response (425 Hz)
(parts per million)

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Quadrature Response (425Hz)

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:300	08/06/2018	13/07/2018

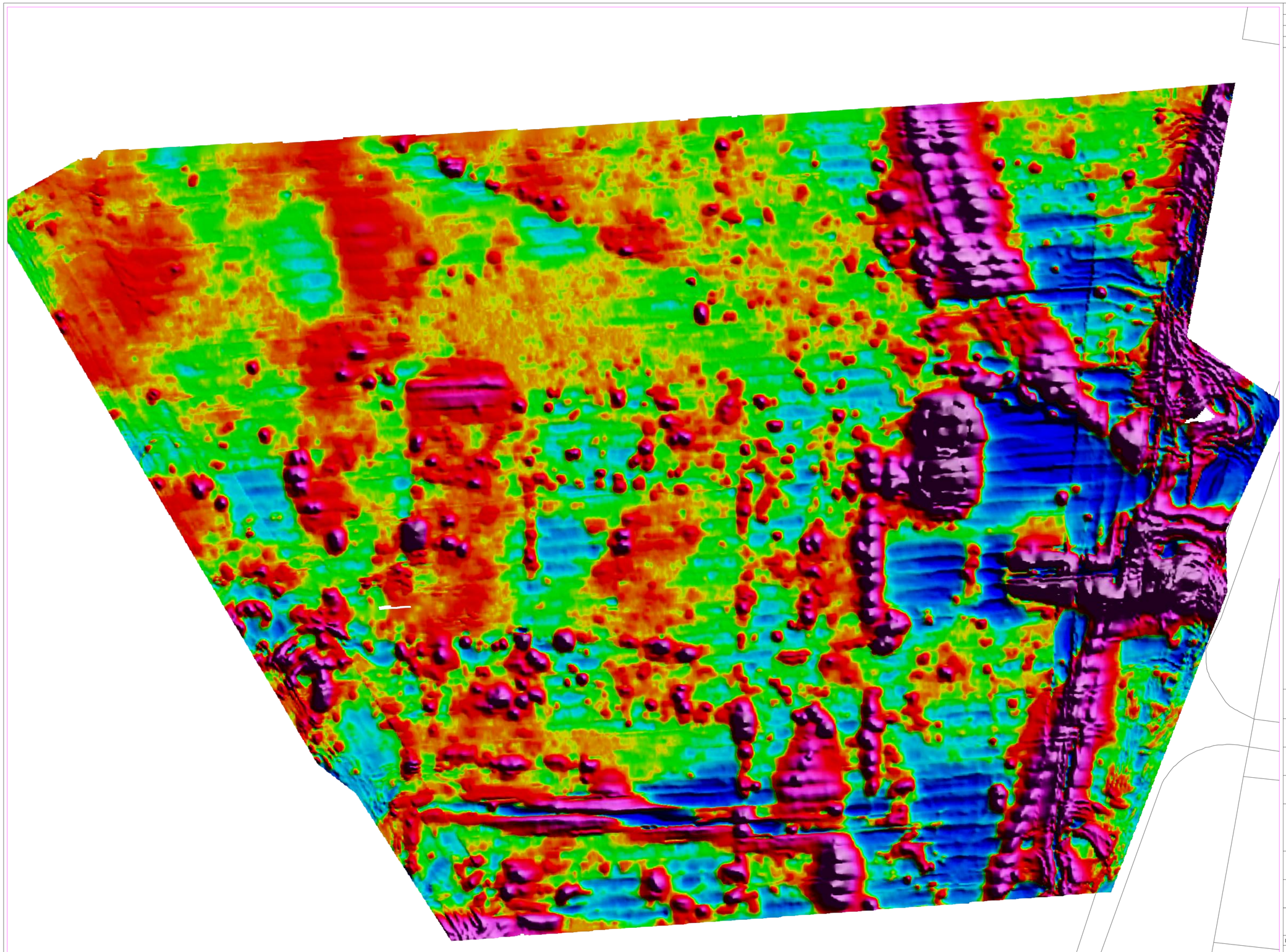
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG06	-	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Quadrature Response (3725 Hz)
(parts per million)

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Quadrature Response (3725 Hz)

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:300	08/06/2018	13/07/2018

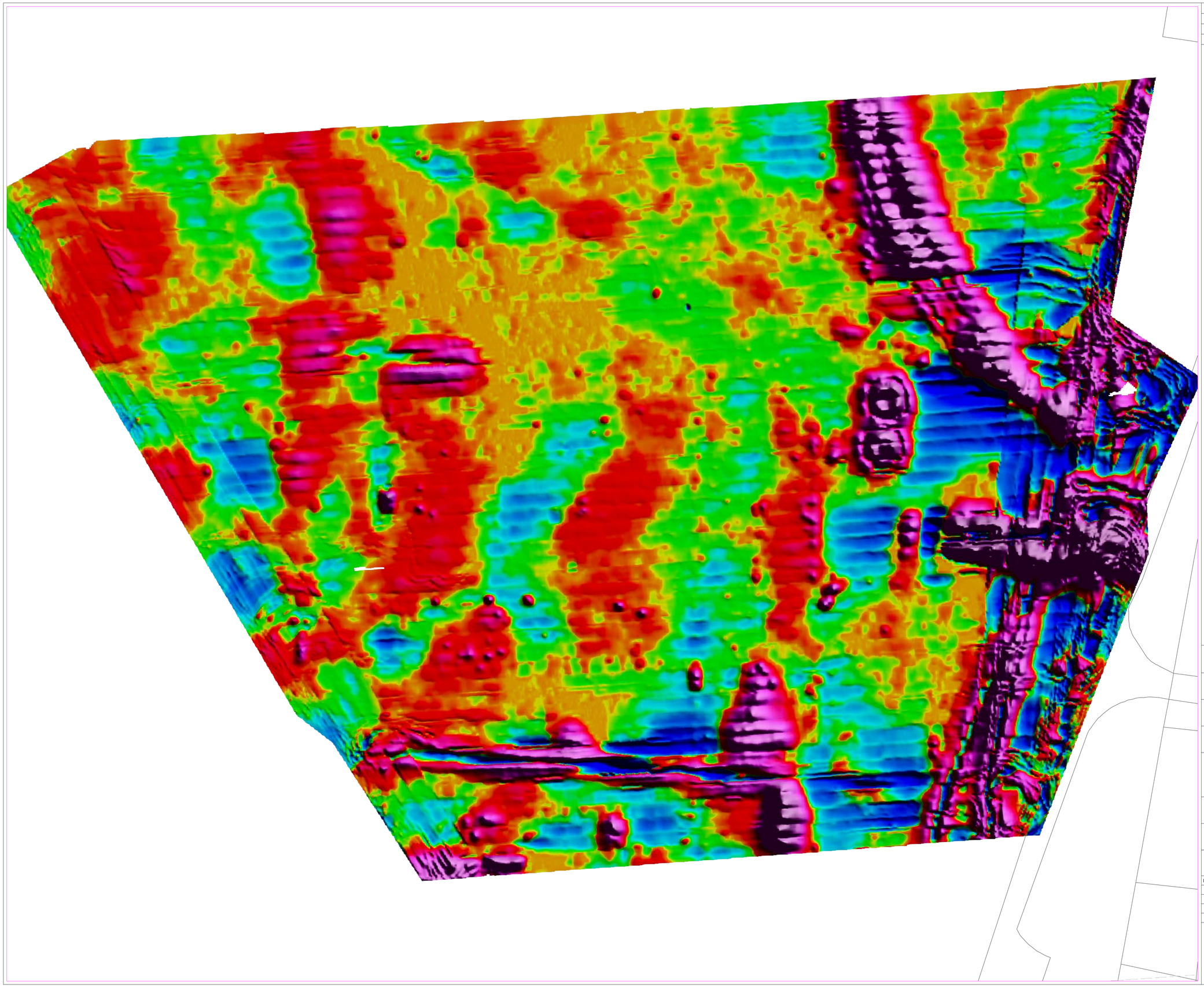
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG07	-	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH.
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

Quadrature Response (33025 Hz)
(parts per million)

-430 -54 -25 0 1 12 40 161

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft

User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of Quadrature Response (33025Hz)

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:300	08/06/2018	13/07/2018

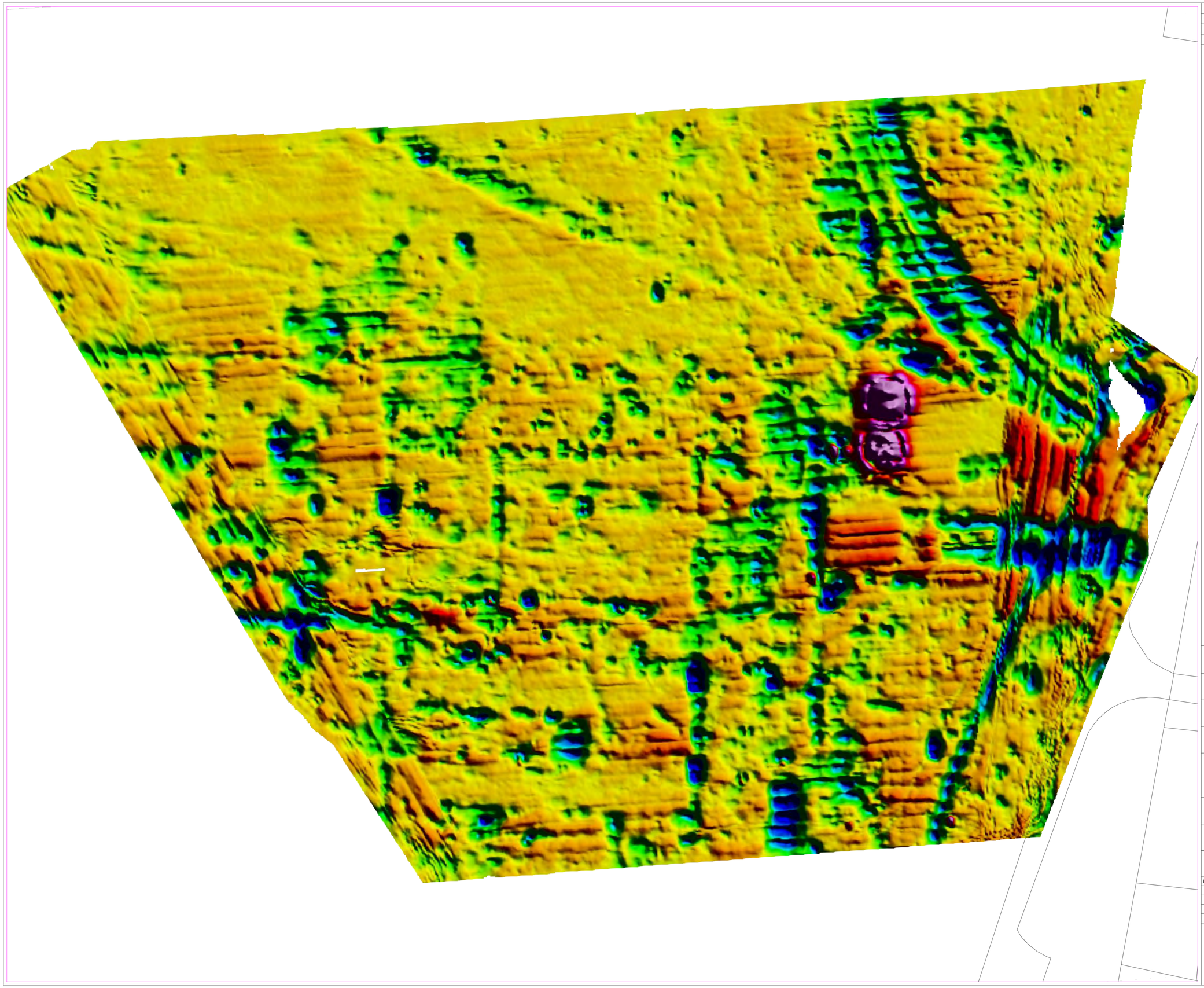
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG08	-	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticauxo

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Hanborough
OX29 8LH.
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

In-Phase Response (425 Hz)
(parts per million)

-510 -204 -102 -48 48 116 218

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of In-Phase Response (425Hz)

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:300	08/06/2018	13/07/2018

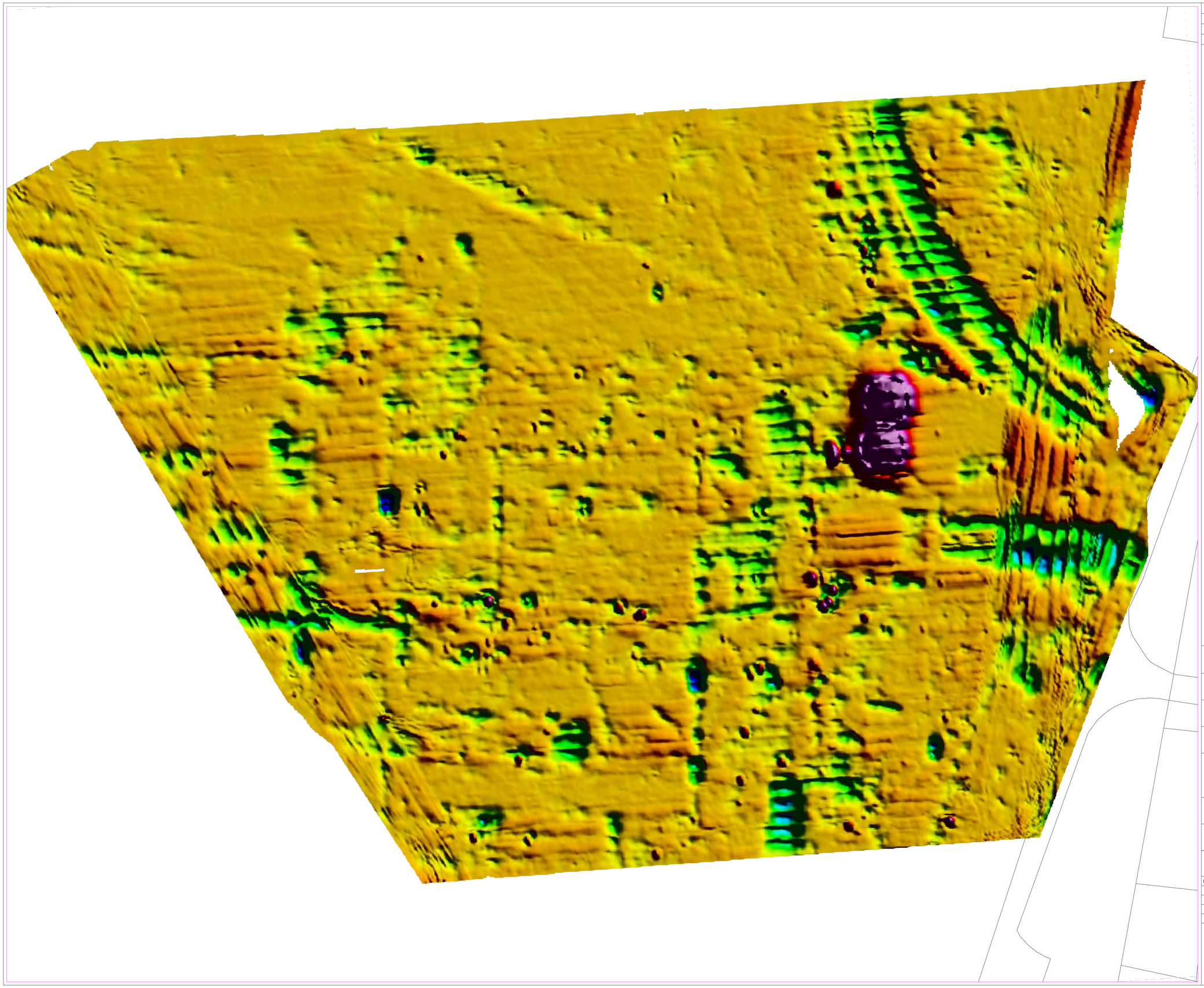
Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG09	-	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd.
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

In-Phase Response (3725Hz)
(parts per million)

-366 -41 -14 -7 -2 5 15 20 121

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of In-Phase Response (3725Hz)

Drawn by	Checked by
D Byrne	M Sainsbury

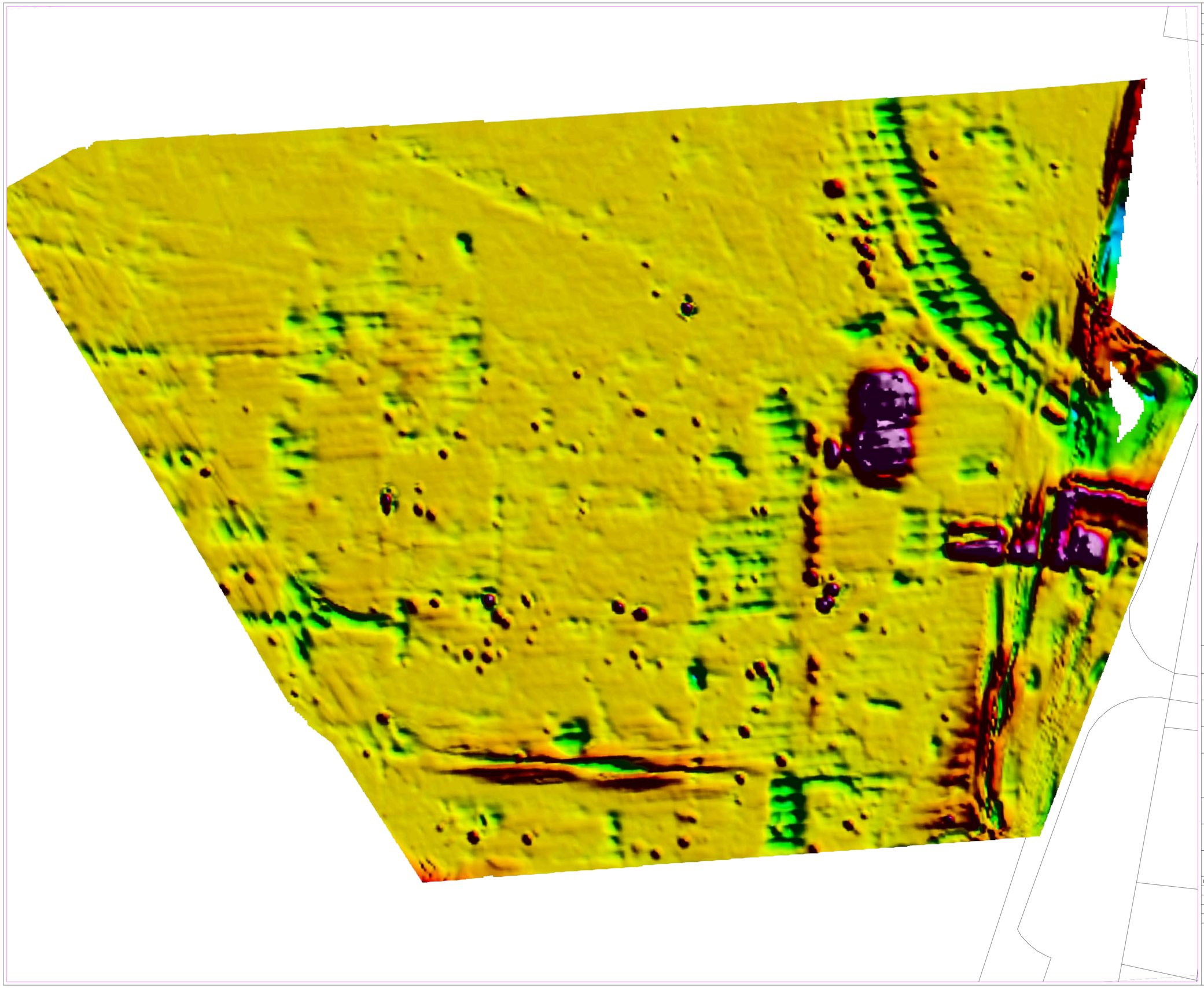
Horizontal Scale (A1)	Date of Survey	Issue Date
1:300	08/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG10	-	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

Zetica Ltd.
Units 15 & 16
Hanborough Business Park
Long Hanborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com



Notes	
A	Base map provided by Client.
B	This drawing to be read in conjunction with Zetica report P6248-18-R2-A.
C	Zetica do not accept responsibility for the accuracy of information supplied by third parties.

Legend

In-Phase Response (33025 Hz)
(parts per million)

-1598 -562 -32 417 475 837

CALL US

Before undertaking any intrusive or design work, please call us so that we can briefly explain what is represented on this drawing, the limitations of the techniques used and the effect of site conditions at the time of the survey.

(Please call Zetica Ltd on 01993 886682 and ask for the Projects Manager)

N

Draft
User to check for latest issue

Client
Arcadis

Project
Otterpool Park - UXO Risk Mitigation for Ground Investigation

Location
Otterpool Park, Lympne, Kent

Title
Map of In-Phase Response (33025Hz)

Drawn by	Checked by
D Byrne	M Sainsbury

Horizontal Scale (A1)	Date of Survey	Issue Date
1:300	08/06/2018	13/07/2018

Project Code	Drawing No.	Sheet	Issue
P6248-17	DWG11	-	A

Issue	Remarks	Drawn	Checked	Date
A	Draft issue, for comment.	DB	MS	13/07/18

zeticaUXO

Zetica Ltd
Units 15 & 16
Harborough Business Park
Long Harborough
OX29 8LH,
UK
Tel: 44 (0)1993 886682
Fax: 44 (0)1993 886683
Email: projects@zetica.com

www.zetica.com

APPENDIX F

Summary of Soil Analysis and Screening

Project / Site name: Otterpool Park

Legend:

123: Values originally with "<" symbols.

: Result is below GAC values/ LOD is below GAC values.

: Result exceeds GAC values/ LOD is above GAC values.

Lab Sample Number				805231	805232	805233	805234	805235	805236	805237	805238	805239	805240	805241	805242	805243	805244	805245	805246	805247	805248	805249
Sample Reference				TP101	TP102	TP104	TP106	TP108	TP109	TP110	TP113	TP113	TP113	TP113	TP113	WS101	WS102A	WS104C	WS104C	WS109	WS110	WS110
Sample Number				3	3	6	3	9	3	3	3	6	2	5	1	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.2	0.3	0.5	0.2	1	0.3	0.3	0.3	0.6	1.4	2	3	0.50-0.55	0.00-0.20	0.10-0.20	1.80-1.90	0.10-0.20	0.05-0.15	0.50-0.55
Date Sampled				15/08/2017	15/08/2017	16/08/2017	22/08/2017	17/08/2017	21/08/2017	22/08/2017	17/08/2017	17/08/2017	17/08/2017	17/08/2017	17/08/2017	16/08/2017	17/08/2017	17/08/2017	17/08/2017	16/08/2017	16/08/2017	16/08/2017
Geological Stratum				TOPSOIL	TOPSOIL	HEAD DEPOSITS - CLAY	TOPSOIL	HEAD DEPOSITS - CLAY	MADE GROUND	TOPSOIL	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	TOPSOIL	MADE GROUND	MADE GROUND	TOPSOIL	TOPSOIL	HEAD DEPOSITS - CLAY
Location / Objective																						
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status																			
Stone Content	%	0.1	NONE	0.1	0.1	0.1	0.1	20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	30	42	0.1	0.1	0.1
Moisture Content	%	N/A	NONE	13	11	10	15	7.9	12	15	8.2	13	17	19	19	13	15	8.5	13	12	13	11
Total mass of sample received	kg	0.001	NONE	1.4	1.7	1.5	1.4	1.6	1.5	1.6	1.8	1.4	1.6	1.8	1.9	1.8	2	2	1.5	2	1.2	1.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025																			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics																						
pH - Automated	pH Units	N/A	MCERTS	6.6	6.3	6.8	6.1	6.1	6.3	7.7	9.1	7.2	7.6	7.6	7.7	7.8	7.4	8.2	8.1	7.9	7	7.1
Total Cyanide	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Free Cyanide	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.005	0.0045	0.0043	0.015	0.0058	0.0085	0.015	0.2	0.025	0.06	0.022	0.0077	0.0057	0.0083	0.009	0.026	0.012	0.016	0.012
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.012	0.012	0.0023	0.02	0.0013	0.016	0.011	0.018	0.0037	0.0061	0.0044	0.001	0.012	0.022	0.02	0.0024	0.01	0.049	0.0097
SOM				2.07	2.07	0.40	3.45	0.22	2.76	1.90	3.10	0.64	1.05	0.76	0.17	2.07	3.79	3.45	0.41	1.72	8.45	1.67
Total Phenols																						
Total Phenols (monohydric)	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Speciated PAHs																						
Naphthalene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.11	0.14	0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.7	0.05	0.05	0.05	0.05	0.17	0.05	0.1	0.05	0.57	0.27	0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.24	0.05	0.12	0.05	0.05	0.36	0.05	0.05	0.05	0.37	0.05	0.05
Fluorene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.27	0.05	0.14	0.05	0.05	0.32	0.05	0.05	0.05	0.47	0.05	0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.2	0.09	4.2	0.05	1.2	0.05	0.05	3.9	0.05	0.44	0.05	4.2	0.97	0.05
Anthracene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.5	0.05	0.29	0.05	0.05	1.1	0.05	0.16	0.05	1.7	0.26	0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.85	0.26	16	0.05	1.6	0.05	0.05	7.1	0.05	1.7	0.05	12	4.4	0.05
Pyrene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.78	0.27	16	0.05	1.3	0.05	0.05	5.3	0.05	1.3	0.05	10	3.4	0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.57	0.15	12	0.05	0.67	0.05	0.05	5.1	0.05	1.3	0.05	8.4	2.3	0.05
Chrysene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.45	0.21	9.1	0.05	0.64	0.05	0.05	2.3	0.05	0.57	0.05	3.8	1.2	0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.6	0.15	12	0.05	0.48	0.05	0.05	6.2	0.05	1.7	0.05	9.8	3.5	0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.53	0.22	16	0.05	0.57	0.05	0.05	1.6	0.05	0.55	0.05	3	1.1	0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.73	0.24	19	0.05	0.67	0.05	0.05	5.2	0.05	1.4	0.05	8.3	2.9	0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.42	0.13	11	0.05	0.36	0.05	0.05	2.3	0.05	0.78	0.05	4.2	1.5	0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.12	0.05	3.1	0.05	0.08	0.05	0.05	0.43	0.05	0.14	0.05	0.79	0.27	0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.48	0.15	12	0.05	0.4	0.05	0.05	2.2	0.05	0.78	0.05	3.5	1.4	0.05
Total PAH																						
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	0.8	0.8	0.8	0.8	0.8	5.73	1.87	133	0.8	8.54	0.8	0.8	43.6	0.8	10.9	0.8	70.8	23.5	0.8
Heavy Metals / Metalloids																						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	13	14	9.2	9.9	12	8.9	8.3	12	11	18	14	7.4	15	9.3	14	15	14	5.5
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	0.8	0.5	0.9	0.6	1.2	1	1	0.9	1.1	0.8	0.5	1.5	1.4	0.8	0.6	0.9	4.3	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	19	24	14	21	15	21	30	20	27	36	24	41	32	43	22	32	23	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	14	13	16	8.9	23	14	36	11	13	15	9.7	13	15	34	8.5	11	61	9.7
Lead (aqua regia extractable)	mg/kg	1	MCERTS	31	24	12	38	8.9	47	17	44	15	31	22	11	36	19	30	11	60	340	27
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	10	26	5.1	16	11	14	29	22	24	44	33	27	29	21	22	27	22	5.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1	1	1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	41	42	28	30	73	46	470	36	44	49	34	70	71	81	29	71	240	28
Monoaromatics																						
Benzene	ug/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
Toluene	ug/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
Ethylbenzene	ug/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
p & m-xylene	ug/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
o-xylene	ug/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
Petroleum Hydrocarbons																						
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-	-	-	-	0.1	0.1	-	0.1	0.1	0.1	0.1	0.1	-	-	-	-	0.1	0.1	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	-	-	0.001	-	0.001	0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	-	-	0.001	-	0.001	0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	-	-	0.001	-	0.001	0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1.3	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	2	2	-	15	2	2.7	2	2	-	-	2	-	2	2	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	8	8	-	33	8	12	8	8	-	-	8	-	8	8	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	8	8	-	170	8	34	8	8	-	-	46	-	8.4	50	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	10	10	-	220	10	48	10	13	-	-	53	-	10	58	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	-	-	0.001	-	0.001	0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	-	-	0.001	-	0.001	0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	-	-	0.001	-	0.001	0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	1	1	-	1	1	1	1	1	-	-	1	-	1	1	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	2	2.5	-	8	2	5.1	2.1	3.2	-	-	2.5	-	7.1	3.2	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	10	10	-	110	10	19	10	10	-	-	14	-	70	25	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	10	28	-	690	12	36	10	15	-	-	120	-	230	110	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	10	38	-	810	16	61	11	24	-	-	140	-	310	140	-

VOCs

Project / Site name: Otterpool Park

Legend:

123: Values originally with "<" symbols.

: Result is below GAC values/ LOD is below GAC values.

: Result exceeds GAC values/ LOD is above GAC values.

Lab Sample Number				805250	805251	806659	806660	806661	806662	806663	806664	806665	826421	826422	826423	826424	826425	826426					
Sample Reference				WS111	WS112	HD101	HD102	HD103	BH103	BH102	BH105	BH105	TP107	WS103	WS105	WS106	WS107	WS108					
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	3	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied					
Depth (m)				0.48-0.60	0.50-0.55	0.3	0.3	0.5	2	0.3	0.3	0.5	0.3	0.50-0.55	0.10-0.23	0.10-0.20	0.10-0.15	0.05-0.15					
Date Sampled				17/08/2017	16/08/2017	21/08/2017	21/08/2017	21/08/2017	15/08/2017	24/08/2017	22/08/2017	22/08/2017	Deviating	Deviating	Deviating	Deviating	Deviating	Deviating					
Geological Stratum				MADE GROUND	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	TOPSOIL	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	TOPSOIL	HEAD DEPOSITS - CLAY	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL					
Location / Objective																							
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**																**Minimum**	**Maximum**	**Residential with plant uptake @ 1% SOM values**	**Exceedance**	**LOD above/below S4UL's**
Stone Content	%	0.1	NONE	68	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68	-	-	-
Moisture Content	%	N/A	NONE	8.3	12	11	10	9.9	21	13	12	11	13	11	14	11	11	14	7.9	21	-	-	-
Total mass of sample received	kg	0.001	NONE	2	1.6	0.37	0.38	0.35	0.42	0.4	0.42	0.37	1.5	1.9	1.8	2	1.9	1.6	0.35	2	-	-	-
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025										-	-	Chrysotile-Loose Fibres-Detected	-	-	-	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected		Not-detected	Not-detected	Not-detected	-	-	-	-	-
General Inorganics																							
pH - Automated	pH Units	N/A	MCERTS	10	7.5	7.9	7.6	7.5	7.7	7.7	7.3	7.3	6.3	6.1	6.8	6.6	6.8	6.6	6.1	10	-	-	-
Total Cyanide	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
Free Cyanide	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.18	0.013	0.044	0.023	0.025	0.026	0.016	0.024	0.022	0.012	0.0083	0.016	0.018	0.015	0.021	0.0043	0.2	-	-	-
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.022	0.0045	0.0056	0.0055	0.0048	0.0019	0.0024	0.0069	0.007	0.011	0.003	0.026	0.011	0.011	0.022	0.001	0.049	-	-	-
SOM				3.79	0.78	0.97	0.95	0.83	0.33	0.41	1.19	1.21	1.90	0.52	4.48	1.90	1.90	3.79	0.17	8.45	-	-	-
Total Phenols																							
Total Phenols (monohydric)	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
Speciated PAHs																							
Naphthalene	mg/kg	0.05	MCERTS	0.43	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.43	2.3	NO	BELOW
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.16	0.05	0.05	0.05	0.05	0.7	170	NO	BELOW
Acenaphthene	mg/kg	0.05	MCERTS	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.37	210	NO	BELOW
Fluorene	mg/kg	0.05	MCERTS	0.19	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.47	170	NO	BELOW
Phenanthrene	mg/kg	0.05	MCERTS	0.67	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.51	0.05	0.05	0.32	0.05	4.2	95	NO	BELOW
Anthracene	mg/kg	0.05	MCERTS	0.13	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.18	0.05	0.05	0.05	0.05	1.7	2400	NO	BELOW
Fluoranthene	mg/kg	0.05	MCERTS	1.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.7	0.05	0.05	0.72	0.05	16	280	NO	BELOW
Pyrene	mg/kg	0.05	MCERTS	0.88	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.7	0.05	0.05	0.62	0.05	16	620	NO	BELOW
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.89	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.1	0.05	0.05	0.36	0.05	12	7.2	YES	BELOW
Chrysene	mg/kg	0.05	MCERTS	0.46	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.95	0.05	0.05	0.31	0.05	9.1	15	NO	BELOW
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.1	0.05	0.05	0.33	0.05	12	2.6	YES	BELOW
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.6	0.05	0.05	0.31	0.05	16	77	NO	BELOW
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.5	0.05	0.05	0.32	0.05	19	2.2	YES	BELOW
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.53	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.3	0.05	0.05	0.21	0.05	11	27	NO	BELOW
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.29	0.05	0.05	0.05	0.05	3.1	0.24	YES	BELOW
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.7	0.05	0.05	0.2	0.05	12	32	NO	BELOW
Total PAH																							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	8.45	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	13.8	0.8	0.8	3.7	0.8	133	-	-	-
Heavy Metals / Metalloids																							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	1.1	12	8.8	8.8	10	13	8.7	9.6	16	9.5	4.9	15	21	14	1.1	21	37	NO	BELOW
Boron (water soluble)	mg/kg	0.2	MCERTS	2.3	0.4	1.6	1.1	0.6	0.2	1	0.5	0.8	0.4	0.5	1.3	0.8	1	0.8	0.2	4.3	290	NO	BELOW
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	11	NO	BELOW
Chromium (hexavalent)	mg/kg	4	MCERTS	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	NO	BELOW
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	21	19	21	21	34	27	15	7.9	31	77	29	41	37	24	7.9	77	910	NO	BELOW
Copper (aqua regia extractable)	mg/kg	1	MCERTS	64	9.7	14	13	18	34	50	19	12	10	3.9	21	12	15	22	3.9	64	2400	NO	BELOW
Lead (aqua regia extractable)	mg/kg	1	MCERTS	64	14	14	12	12	13	14	20	13	18	10	40	27	20	140	8.9	340	220	YES	BELOW
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	0.3	0.3	0.3	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	40	NO	BELOW
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29	14	22	20	23	40	24	8.8	5.2	29	67	17	19	24	12	5.1	67	130	NO	BELOW
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	250	NO	BELOW
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	40	37	35	36	48	47	17	20	57	71	110	56	58	63	17	470	3700	NO	BELOW
Monoaromatics																							
Benzene	ug/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1	87	NO	BELOW
Toluene	ug/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1	130000	NO	BELOW
Ethylbenzene	ug/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1	47000	NO	BELOW
p & m-xylene	ug/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1	56000	NO	BELOW
o-xylene	ug/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1	60000	NO	BELOW
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1	-	-	-
Petroleum Hydrocarbons																							
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	0.1	-	0.1	0.1	0.1	-	-	0.1	0.1							0.1	0.1	-	NO	BELOW
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	0.001	-	0.001	0.001	0.001	-	-	0.001	0.001							0.001	0.001	42	NO	BELOW
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	0.001	-	0.001	0.001	0.001	-	-	0.001	0.001							0.001	0.001	100	NO	BELOW
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	0.001	-	0.001	0.001	0.001	-	-	0.001	0.001							0.001	0.001	27	NO	BELOW
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1	-	1	1	1	-	-	1	1							1	1.3	130	NO	BELOW
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	12	-	2	2	2	-	-	2	2							2	15	1100	NO	BELOW
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	47	-	8	8	8	-	-	8	8							8	47	32500	NO	BELOW
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	130	-	8	8	8	-	-	8	8							8	170	32500	NO	BELOW
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	180	-	10	10	10	-	-	10	10							10	220	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	0.001	-	0.001	0.001	0.001	-	-	0.001	0.001							0.001	0.001	70	NO	BELOW
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	0.001	-	0.001	0.001	0.001	-	-	0.001	0.001							0.001	0.001	130	NO	BELOW
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	0.001	-	0.001	0.001	0.001	-	-	0.001	0.001							0.001	0.001	34	NO	BELOW
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.3	-	1	1	1	-	-	1	1							1	2.3	74	NO	BELOW
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	5.4	-	2	2	2	-	-	2	2							2	8	140	NO	BELOW
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	18	-	10	10	10	-	-	10	10							10	110	260	NO	BELOW
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	22	-	10	10	10	-	-	10	10							10	690	1100	NO	BELOW
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	48	-	10	10	10	-	-	10	10							10	810	-	-	-
VOCs																						-	

Project / Site name: Otterpool Park

Legend:

123: Values originally with "<" symbols.

: Result is below GAC values/ LOD is below GAC values.

: Result exceeds GAC values/ LOD is above GAC values.

Lab Sample Number				805231	805232	805233	805234	805235	805236	805237	805238	805239	805240	805241	805242	805243	805244	805245	805246	805247	805248	805249
Sample Reference				TP101	TP102	TP104	TP106	TP108	TP109	TP110	TP113	TP113	TP113	TP113	TP113	WS101	WS102A	WS104C	WS104C	WS109	WS110	WS110
Sample Number				3	3	6	3	9	3	3	3	6	2	5	1	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.2	0.3	0.5	0.2	1	0.3	0.3	0.3	0.6	1.4	2	3	0.50-0.55	0.00-0.20	0.10-0.20	1.80-1.90	0.10-0.20	0.05-0.15	0.50-0.55
Date Sampled				15/08/2017	15/08/2017	16/08/2017	22/08/2017	17/08/2017	21/08/2017	22/08/2017	17/08/2017	17/08/2017	17/08/2017	17/08/2017	17/08/2017	16/08/2017	17/08/2017	17/08/2017	17/08/2017	16/08/2017	16/08/2017	16/08/2017
Geological Stratum				TOPSOIL	TOPSOIL	HEAD DEPOSITS - CLAY	TOPSOIL	HEAD DEPOSITS - CLAY	MADE GROUND	TOPSOIL	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	TOPSOIL	MADE GROUND	MADE GROUND	TOPSOIL	TOPSOIL	HEAD DEPOSITS - CLAY
Location / Objective																						
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status																			
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-

VOCs TICs

VOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-
VOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	0.24	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	0.27	-	-	-	-	-	-	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	3.1	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	Benzo[e]pyrene	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	98	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	9-	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	97	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	3,4:9,10-	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	97	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	Dibenz(a,e)ace	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	97	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	1,2:3,4-	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	97	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	Tetradecane	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	96	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	Pyrene, 1-	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	96	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	Benzo[g]pteridine-10(2H)-	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	96	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	Dibenzothiophe	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	95	-	-	-	-	-	-	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-	-	-	1H-Cyclopropa[l]ph	-	-	-	-	-	-	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-	-	-	95	-	-	-	-	-	-	-	-	-	-	-

Project / Site name: Otterpool Park

Legend:

123: Values originally with "<" symbols.

: Result is below GAC values/ LOD is below GAC values.

: Result exceeds GAC values/ LOD is above GAC values.

Lab Sample Number				805250	805251	806659	806660	806661	806662	806663	806664	806665	826421	826422	826423	826424	826425	826426					
Sample Reference				WS111	WS112	HD101	HD102	HD103	BH103	BH102	BH105	BH105	TP107	WS103	WS105	WS106	WS107	WS108					
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	3	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied					
Depth (m)				0.48-0.60	0.50-0.55	0.3	0.3	0.5	2	0.3	0.3	0.5	0.3	0.50-0.55	0.10-0.23	0.10-0.20	0.10-0.15	0.05-0.15					
Date Sampled				17/08/2017	16/08/2017	21/08/2017	21/08/2017	21/08/2017	15/08/2017	24/08/2017	22/08/2017	22/08/2017	Deviating	Deviating	Deviating	Deviating	Deviating	Deviating					
Geological Stratum				MADE GROUND	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	TOPSOIL	HEAD DEPOSITS - CLAY	HEAD DEPOSITS - CLAY	TOPSOIL	HEAD DEPOSITS - CLAY	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL					
Location / Objective																							
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status																Minimum	Maximum	Residential with plant uptake @ 1% SOM values	Exceedance	LOD above/below S4UL's
Chloromethane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Chloroethane	µg/kg	1	NONE	-	-														1	1	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-														1	1	0.64	YES	ABOVE
Trichlorofluoromethane	µg/kg	1	NONE	-	-														1	1	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-														1	1	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-														1	1	910	NO	BELOW
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-														1	1	8800	NO	BELOW
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-														1	1	7.1	NO	BELOW
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-														1	1	-	-	-
Benzene	µg/kg	1	MCERTS	-	-														1	1	87	NO	BELOW
Tetrachloromethane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-														1	1	16	NO	BELOW
Dibromomethane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Toluene	µg/kg	1	MCERTS	-	-														1	1	130000	NO	BELOW
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-														1	1	180	NO	BELOW
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-														1	1	460	NO	BELOW
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-														1	1	1200	NO	BELOW
Ethylbenzene	µg/kg	1	MCERTS	-	-														1	1	47000	NO	BELOW
p & m-Xylene	µg/kg	1	MCERTS	-	-														1	1	56000	NO	BELOW
Styrene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-														1	1	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-														1	1	60000	NO	BELOW
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-														1	1	1600	NO	BELOW
Isopropylbenzene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-														1	1	61000	NO	BELOW
Butylbenzene	µg/kg	1	MCERTS	-	-														1	1	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-														1	1	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-														1	1	2600	NO	BELOW
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-														1	1	290	NO	BELOW
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-														1	1	1500	NO	BELOW
VOCs TICs																							
VOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
VOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs																							
Aniline	mg/kg	0.1	NONE	-	-														0.1	0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-														0.2	0.2	280	NO	BELOW
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-														0.1	0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-														0.2	0.2	0.4	NO	BELOW
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-														0.1	0.1	23	NO	BELOW
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-														0.2	0.2	61	NO	BELOW
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-														0.1	0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-														0.05	0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-														0.2	0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-														0.3	0.3	2.6	NO	BELOW
Naphthalene	mg/kg	0.05	MCERTS	-	-														0.09	0.09	2.3	NO	BELOW
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-														0.1	0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-														0.1	0.1	0.29	NO	BELOW
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-														0.1	0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-														0.1	0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-														0.1	0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-														0.1	0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-														0.1	0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-														0.1	0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-														0.7	0.7	170	NO	BELOW
Acenaphthene	mg/kg	0.05	MCERTS	-	-														0.24	0.24	210	NO	BELOW
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-														0.3	0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-														0.27	0.27	170	NO	BELOW
Azobenzene	mg/kg	0.3	MCERTS	-	-														0.3	0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-														0.3	0.3	1.8	NO	BELOW
Phenanthrene	mg/kg	0.05	MCERTS	-	-														4.2	4.2	95	NO	BELOW
Anthracene	mg/kg	0.05	MCERTS	-	-														1.5	1.5	2400	NO	BELOW
Carbazole	mg/kg	0.3	MCERTS	-	-														0.5	0.5	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-														0.2	0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-														0.5	0.5	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-														16	16	280	NO	BELOW
Pyrene	mg/kg	0.05	MCERTS	-	-														16	16	620	NO	BELOW
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-														0.3	0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-														12	12	7.2	YES	BELOW
Chrysene	mg/kg	0.05	MCERTS	-	-														9.1	9.1	15	NO	BELOW
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-														12	12	2.6	YES	BELOW
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-														16	16	77	NO	BELOW
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-														19	19	2.2	YES	BELOW
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-														11	11	27	NO	BELOW
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-														3.1	3.1	0.24	YES	BELOW
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-														12	12	32	NO	BELOW
SVOCs TICs																							
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-														-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-														-	-	-	-	-

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

				Hole ID:	TP209	TP210	TP221	BH206	TP206	BH201	WS203
				Sample Top Depth (m):	0.0	0.0	0.1	0.0	0.0	0.0	0.0
				Sample Ref.:	ES1	ES1	ES2	ES8	ES1	ES1	ES1
				Strata:	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**							
Moisture Content	L019	0	%	-	7	10	6.4	7.3	11	11	13
Stone Content	L019	0.1	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
pH	L099	0	pH Units	-	7.1	7.2	7.2	7	7.6	7.4	6.9
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.0054	0.0062	0.0089	0.0094	0.011	0.011	0.011
Total Organic Carbon (TOC)	L009-PL	0.1	%	-	1.5	1.5	0.6		4.1	0.8	1.6
FOC	*(calculated)*			-	*0.015*	*0.015*	*0.006*		*0.041*	*0.008*	*0.016*
Asbestos in Soil	A001			-	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-							
Free Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	8	6.7	13	8.2	12	7.5	9.1
Boron (Water Soluble)	L038	0.2	mg/kg	290	1.3	0.8	0.7	1.2	1.6	0.9	1.5
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	< 0.2	< 0.2	< 0.2	< 0.2	0.5	< 0.2	< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	30	32	27	20	18	24	36
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	14	9.4	10	12	12	11	8.1
Lead (aqua regia extractable)	L038	1	mg/kg	200	25	17	13	19	17	11	20
Manganese (aqua regia extractable)	L038	1	mg/kg	-						820	350
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	25	20	24	9.5	23	14	27
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	54	38	36	37	67	39	49
Acenaphthene	L064	0.05	mg/kg	210	< 0.05	< 0.05	< 0.05	< 0.05	0.24	< 0.05	< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	2.2	< 0.05	< 0.05
Anthracene	L064	0.05	mg/kg	2400	0.18	< 0.05	< 0.05	< 0.05	8.1	< 0.05	< 0.05
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	0.7	< 0.05	< 0.05	< 0.05	**89**	< 0.05	0.17
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	0.74	< 0.05	< 0.05	< 0.05	**84**	< 0.05	0.28
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	0.81	< 0.05	< 0.05	< 0.05	**98**	< 0.05	0.29
Benzo(ghi)perylene	L064	0.05	mg/kg	32	0.57	< 0.05	< 0.05	< 0.05	**44**	< 0.05	0.22
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	0.37	< 0.05	< 0.05	< 0.05	44	< 0.05	0.16
Chrysene	L064	0.05	mg/kg	15	0.6	< 0.05	< 0.05	< 0.05	**69**	< 0.05	0.24
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	< 0.05	< 0.05	< 0.05	< 0.05	**14**	< 0.05	< 0.05
Fluoranthene	L064	0.05	mg/kg	280	1.5	< 0.05	< 0.05	< 0.05	110	< 0.05	0.3
Fluorene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	0.82	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	0.46	< 0.05	< 0.05	< 0.05	**42**	< 0.05	0.17
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	L064	0.05	mg/kg	95	1.1	< 0.05	< 0.05	< 0.05	23	< 0.05	0.1
Pyrene	L064	0.05	mg/kg	620	1.3	< 0.05	< 0.05	< 0.05	92	< 0.05	0.28
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	8.39	< 0.80	< 0.80	< 0.80	718	< 0.80	2.21
Benzene	L073B	1	ug/kg	87					< 1.0	< 1.0	< 1.0
Ethylbenzene	L073B	1	ug/kg	47000					< 1.0	< 1.0	< 1.0
Toluene	L073B	1	ug/kg	130000					< 1.0	< 1.0	< 1.0
o-Xylene	L073B	1	ug/kg	60000					< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-					< 1.0	< 1.0	< 1.0
p & m-Xylene	L073B	1	ug/kg	56					< 1.0	< 1.0	< 1.0
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-					< 0.1	< 0.1	< 0.1
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130							
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100							
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100							
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27							
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74							
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140							
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260							
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100							
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-							
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34							
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-					< 10	< 10	< 10
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130					1.1	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100					< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500					< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500					< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42					< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100					< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27					< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-					980	< 10	< 10
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74					< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140					5.2	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260					230	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100					740	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70					< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130					< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34					< 0.001	< 0.001	< 0.001
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrocellulose (NC) Colour											
Nitrocellulose (NC) Colourimetric		5000	mg/kg								
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg								
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg								
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg								
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg								
Glycerol Trinitrate (NG)		1	mg/kg								
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg								
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg								
2,4-DNT		1	mg/kg								
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg								
Hexanitro-Stilbene (HNS)		0.5	mg/kg								
Nitroguanidine (Picrite)		0.25	mg/kg								
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg								

50 Value exceeds GAC

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

				Hole ID:	BH207	WS201	TP226	BH209	TP217	HD201	TP213
				Sample Top Depth (m):	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				Sample Ref.:	ES1	ES1	ES1	ES1	ES1	ES1	ES
				Strata:	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL	TOPSOIL
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**							
Moisture Content	L019	0	%	-	11	7.1	14	10	11	19	11
Stone Content	L019	0.1	%	-	< 0.1	16	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
pH	L099	0	pH Units	-	7.2	8.1	7.7	7.1	6.8	7.6	8.1
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.011	0.011	0.012	0.013	0.025	0.016	0.018
Total Organic Carbon (TOC)	L009-PL	0.1	%	-		1.2	2.4	1.6	1.3	3	
FOC	*(calculated)*			-		*0.012*	*0.024*	*0.016*	*0.013*	*0.03*	
Asbestos in Soil	A001			-	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Detected	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-						Amosite- Loose Fibres	
Free Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	12	8.4	22	15	7	11	6.6
Boron (Water Soluble)	L038	0.2	mg/kg	290	0.5	0.8	2	1.6	0.6	2.7	1.1
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	< 0.2	< 0.2	0.5	< 0.2	< 0.2	1	< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	35	22	35	31	22	24	22
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	18	17	17	8.9	14	17	15
Lead (aqua regia extractable)	L038	1	mg/kg	200	11	26	21	18	17	73	29
Manganese (aqua regia extractable)	L038	1	mg/kg	-		700		1000			
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	20	17	44	26	13	17	10
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	41	60	62	42	39	100	43
Acenaphthene	L064	0.05	mg/kg	210	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	L064	0.05	mg/kg	2400	< 0.05	0.12	< 0.05	< 0.05	< 0.05	0.26	0.15
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	< 0.05	0.67	< 0.05	< 0.05	< 0.05	2	1.4
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	< 0.05	0.89	< 0.05	< 0.05	< 0.05	**2.5**	1.8
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	< 0.05	0.91	< 0.05	< 0.05	< 0.05	**2.9**	2.1
Benzo(ghi)perylene	L064	0.05	mg/kg	32	< 0.05	0.64	< 0.05	< 0.05	< 0.05	1.8	1.1
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	< 0.05	0.64	< 0.05	< 0.05	< 0.05	1.1	1
Chrysene	L064	0.05	mg/kg	15	< 0.05	0.76	< 0.05	< 0.05	< 0.05	1.9	1.3
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	**0.38**	0.23
Fluoranthene	L064	0.05	mg/kg	280	< 0.05	1.2	< 0.05	< 0.05	< 0.05	4.1	2.2
Fluorene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	< 0.05	0.55	< 0.05	< 0.05	< 0.05	1.4	0.84
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	L064	0.05	mg/kg	95	< 0.05	0.71	< 0.05	< 0.05	< 0.05	1.8	0.63
Pyrene	L064	0.05	mg/kg	620	< 0.05	1	< 0.05	< 0.05	< 0.05	3.6	2
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	< 0.80	8.11	< 0.80	< 0.80	< 0.80	23.6	14.9
Benzene	L073B	1	ug/kg	87		< 1.0		< 1.0	< 1.0	< 1.0	
Ethylbenzene	L073B	1	ug/kg	47000		< 1.0		< 1.0	< 1.0	< 1.0	
Toluene	L073B	1	ug/kg	130000		< 1.0		< 1.0	< 1.0	< 1.0	
o-Xylene	L073B	1	ug/kg	60000		< 1.0		< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-		< 1.0		< 1.0	< 1.0	< 1.0	
p & m-Xylene	L073B	1	ug/kg	56		< 1.0		< 1.0	< 1.0	< 1.0	
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-		< 0.1		< 0.1		< 0.1	
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130							
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100							
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100							
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27							
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74							
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140							
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260							
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100							
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-							
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34							
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-		< 10		< 10	< 10	12	
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130		< 1.0		< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100		< 2.0		< 2.0	< 2.0	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500		< 8.0		< 8.0	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500		< 8.0		< 8.0	< 8.0	11	
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42		< 0.001		< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100		< 0.001		< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27		< 0.001		< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-		44		< 10	< 10	240	
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74		< 1.0		< 1.0	< 1.0	5	
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140		< 2.0		< 2.0	< 2.0	14	
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260		< 10		< 10	< 10	58	
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100		35		< 10	< 10	170	
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70		< 0.001		< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130		< 0.001		< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34		< 0.001		< 0.001	< 0.001	< 0.001	
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrocellulose (NC) Colour											
Nitrocellulose (NC) Colourimetric		5000	mg/kg								
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg								
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg								
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg								
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg								
Glycerol Trinitrate (NG)		1	mg/kg								
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg								
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg								
2,4-DNT		1	mg/kg								
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg								
Hexanitro-Stilbene (HNS)		0.5	mg/kg								
Nitroguanidine (Picrite)		0.25	mg/kg								
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg								

50 Value exceeds GAC

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

				Hole ID:	TP220	TP208	TP204	TP202	HD201	BH202	TP228
				Sample Top Depth (m):	0.0	0.2	0.4	0.2	0.5	0.2	0.2
				Sample Ref.:	ES1	ES4	ES3	ES2	ES2	ES	ES3
				Strata:	TOPSOIL	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**							
Moisture Content	L019	0	%	-	14	5.2	8.6	8.4	9.9	10	11
Stone Content	L019	0.1	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
pH	L099	0	pH Units	-	7.2	6.7	8.2	7.1	7.5	8	7.3
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.018	0.0058	0.0098	0.0099	0.01	0.01	0.012
Total Organic Carbon (TOC)	L009-PL	0.1	%	-		0.5	0.8	1.6	0.6	0.7	0.6
FOC	*(calculated)*			-		*0.005*	*0.008*	*0.016*	*0.006*	*0.007*	*0.006*
Asbestos in Soil	A001			-	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-							
Free Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	8.9	7.6	10	10	6.2	22	12
Boron (Water Soluble)	L038	0.2	mg/kg	290	0.5	1	0.9	0.9	0.8	0.7	1
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	12	28	34	23	20	42	37
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	11	17	14	16	16	17	12
Lead (aqua regia extractable)	L038	1	mg/kg	200	15	12	21	19	13	16	10
Manganese (aqua regia extractable)	L038	1	mg/kg	-							
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	10	29	23	17	13	45	19
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5	< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	29	41	54	45	27	55	36
Acenaphthene	L064	0.05	mg/kg	210	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	L064	0.05	mg/kg	2400	< 0.05	< 0.05	0.11	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	< 0.05	< 0.05	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	< 0.05	< 0.05	1.2	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	< 0.05	< 0.05	1.3	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	L064	0.05	mg/kg	32	< 0.05	< 0.05	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	< 0.05	< 0.05	0.61	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	L064	0.05	mg/kg	15	< 0.05	< 0.05	0.91	< 0.05	< 0.05	< 0.05	< 0.05
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	< 0.05	< 0.05	0.18	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	L064	0.05	mg/kg	280	< 0.05	< 0.05	1.4	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	< 0.05	< 0.05	0.82	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	L064	0.05	mg/kg	95	< 0.05	< 0.05	0.47	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	L064	0.05	mg/kg	620	< 0.05	< 0.05	1.2	< 0.05	< 0.05	< 0.05	< 0.05
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	< 0.80	< 0.80	10.3	< 0.80	< 0.80	< 0.80	< 0.80
Benzene	L073B	1	ug/kg	87		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	L073B	1	ug/kg	47000		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	L073B	1	ug/kg	130000		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	L073B	1	ug/kg	60000		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	L073B	1	ug/kg	56		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130							
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100							
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100							
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27							
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74							
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140							
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260							
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100							
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-							
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34							
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-		< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500		< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500		< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-		< 10	24	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260		< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100		< 10	17	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrocellulose (NC) Colour									-ve		
Nitrocellulose (NC) Colourimetric		5000	mg/kg						<5000		
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg						<2		
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg						<2		
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg						<1		
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg						<1		
Glycerol Trinitrate (NG)		1	mg/kg						<1		
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg						<0.1		
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg						<1		
2,4-DNT		1	mg/kg						<1		
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg						<5		
Hexanitro-Stilbene (HNS)		0.5	mg/kg						<0.5		
Nitroguanidine (Picrite)		0.25	mg/kg						<0.25		
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg						<0.1		

50 Value exceeds GAC

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

				Hole ID:	TP205	BH204	TP203	BH203	TP228	TP203	TP201
				Sample Top Depth (m):	0.7	0.0	0.7	0.7	0.5	1.0	0.2
				Sample Ref.:	ES5	ES1	ES5	ES	ES5	B6	ES
				Strata:	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND	MADE GROUND
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**							
Moisture Content	L019	0	%	-	7.9	9.3	9	11	9.5		8.7
Stone Content	L019	0.1	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1
pH	L099	0	pH Units	-	7.4	8.2	8.2	8.6	7.4		7.9
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.012	0.022	0.024	0.025	0.034		0.0068
Total Organic Carbon (TOC)	L009-PL	0.1	%	-	1.3		1	0.3	0.8		0.4
FOC	*(calculated)*			-	*0.013*		*0.01*	*0.003*	*0.008*		*0.004*
Asbestos in Soil	A001			-	Detected	Not-detected	Not-detected	Not-detected	Not-detected	Detected	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-	Amosite- Loose Fibrous Debris					Chrysotile-Hard/Cement Type Material	
Free Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1		< 1
Total Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1		< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	9.7	7.2	9.8	14	12		9.1
Boron (Water Soluble)	L038	0.2	mg/kg	290	0.7	1.1	1	0.7	0.9		0.8
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	0.4	< 0.2	< 0.2	< 0.2	< 0.2		< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	36	14	38	26	25		28
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0		< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	17	17	16	16	12		15
Lead (aqua regia extractable)	L038	1	mg/kg	200	62	22	35	9.8	17		10
Manganese (aqua regia extractable)	L038	1	mg/kg	-							
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	27	19	17	39	18		19
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	150	35	61	43	52		43
Acenaphthene	L064	0.05	mg/kg	210	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	0.23	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Anthracene	L064	0.05	mg/kg	2400	0.71	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	4.4	0.44	0.46	< 0.05	< 0.05		< 0.05
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	**4.1**	0.42	0.46	< 0.05	< 0.05		< 0.05
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	**4.7**	0.49	0.5	< 0.05	< 0.05		< 0.05
Benzo(ghi)perylene	L064	0.05	mg/kg	32	4.4	< 0.05	0.37	< 0.05	< 0.05		< 0.05
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	2	0.27	0.22	< 0.05	< 0.05		< 0.05
Chrysene	L064	0.05	mg/kg	15	3.5	0.39	0.42	< 0.05	< 0.05		< 0.05
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	**0.94**	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Fluoranthene	L064	0.05	mg/kg	280	6.2	0.8	0.69	< 0.05	< 0.05		< 0.05
Fluorene	L064	0.05	mg/kg	170	0.18	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	3.4	< 0.05	0.27	< 0.05	< 0.05		< 0.05
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05
Phenanthrene	L064	0.05	mg/kg	95	2.5	0.25	0.34	< 0.05	< 0.05		< 0.05
Pyrene	L064	0.05	mg/kg	620	5.3	0.71	0.63	< 0.05	< 0.05		< 0.05
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	42.5	3.77	4.36	< 0.80	< 0.80		< 0.80
Benzene	L073B	1	ug/kg	87	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
Ethylbenzene	L073B	1	ug/kg	47000	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
Toluene	L073B	1	ug/kg	130000	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
o-Xylene	L073B	1	ug/kg	60000	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
p & m-Xylene	L073B	1	ug/kg	56	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-	< 0.1		< 0.1	< 0.1	< 0.1		< 0.1
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130							
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100							
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100							
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27							
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74							
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140							
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260							
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100							
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-							
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34							
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-	46		< 10	< 10	< 10		< 10
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100	< 2.0		< 2.0	< 2.0	< 2.0		< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500	< 8.0		< 8.0	< 8.0	< 8.0		< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500	46		< 8.0	< 8.0	< 8.0		< 8.0
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-	83		58	< 10	< 10		< 10
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74	< 1.0		< 1.0	< 1.0	< 1.0		< 1.0
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140	< 2.0		< 2.0	< 2.0	< 2.0		< 2.0
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260	16		< 10	< 10	< 10		< 10
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100	67		49	< 10	< 10		< 10
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34	< 0.001		< 0.001	< 0.001	< 0.001		< 0.001
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0
Nitrocellulose (NC) Colour											
Nitrocellulose (NC) Colourimetric		5000	mg/kg								
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg								
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg								
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg								
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg								
Glycerol Trinitrate (NG)		1	mg/kg								
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg								
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg								
2,4-DNT		1	mg/kg								
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg								
Hexanitro-Stilbene (HNS)		0.5	mg/kg								
Nitroguanidine (Picrite)		0.25	mg/kg								
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg								

50 Value exceeds GAC

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

				Hole ID:	BH209	BH208	TP223	TP223	TP218	TP201	WS202
				Sample Top Depth (m):	0.9	0.4	1.6	0.6	0.4	1.2	0.5
				Sample Ref.:	ES5	ES4	ES9	ES5	ES2	ES	ES2
				Strata:	ALLUVIUM	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**							
Moisture Content	L019	0	%	-	23	8.7	14	12	8.1	14	8.5
Stone Content	L019	0.1	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
pH	L099	0	pH Units	-	7.5	7	7.8	7.7	6.6	8.3	7.3
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.013	0.011	0.011	0.011	0.012	0.013	0.0062
Total Organic Carbon (TOC)	L009-PL	0.1	%	-	0.9	0.5	< 0.1	0.6		< 0.1	0.4
FOC	*(calculated)*			-	*0.009*	*0.005*	*0.1*	*0.006*		*0.1*	*0.004*
Asbestos in Soil	A001			-	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-							
Free Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	7	7.6	8.9	6.9	9.7	12	9.6
Boron (Water Soluble)	L038	0.2	mg/kg	290	1.1	0.9	0.7	1	0.9	0.6	1.4
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	38	30	47	27	25	35	62
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	11	14	8.3	9.7	11	21	5.1
Lead (aqua regia extractable)	L038	1	mg/kg	200	9.8	11	6.9	10	11	13	8
Manganese (aqua regia extractable)	L038	1	mg/kg	-	200	470					100
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	29	19	54	16	21	28	25
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	48	48	57	37	34	53	36
Acenaphthene	L064	0.05	mg/kg	210	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	L064	0.05	mg/kg	2400	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	L064	0.05	mg/kg	32	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	L064	0.05	mg/kg	15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	L064	0.05	mg/kg	280	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	L064	0.05	mg/kg	170	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	L064	0.05	mg/kg	95	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	L064	0.05	mg/kg	620	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
Benzene	L073B	1	ug/kg	87	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
Ethylbenzene	L073B	1	ug/kg	47000	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
Toluene	L073B	1	ug/kg	130000	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
o-Xylene	L073B	1	ug/kg	60000	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
p & m-Xylene	L073B	1	ug/kg	56	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130					< 1.0		
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100					< 2.0		
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500					< 8.0		
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500					< 8.0		
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100					< 0.001		
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27					< 0.001		
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74					< 1.0		
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140					< 2.0		
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260					< 10		
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100					< 10		
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-					< 10		
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34					< 0.001		
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-	< 10	< 10	< 10	< 10		< 10	< 10
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500	< 8.0	< 8.0	< 8.0	< 8.0		< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500	< 8.0	< 8.0	< 8.0	< 8.0		< 8.0	< 8.0
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-	< 10	< 10	< 10	< 10		< 10	< 10
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260	< 10	< 10	< 10	< 10		< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100	< 10	< 10	< 10	< 10		< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrocellulose (NC) Colour											
Nitrocellulose (NC) Colourimetric		5000	mg/kg								
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg								
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg								
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg								
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg								
Glycerol Trinitrate (NG)		1	mg/kg								
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg								
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg								
2,4-DNT		1	mg/kg								
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg								
Hexanitro-Stilbene (HNS)		0.5	mg/kg								
Nitroguanidine (Picrite)		0.25	mg/kg								
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg								

50 Value exceeds GAC

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

				Hole ID:	BH201	WS201	TP206	TP211	TP227	TP210	TP221
				Sample Top Depth (m):	1.2	1.2	0.2	0.7	0.2	0.8	0.7
				Sample Ref.:	ES5	ES8	ES3	ES5	ES3	ES5	ES6
				Strata:	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HEAD DEPOSITS	HYTHE FORMATION
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**							
Moisture Content	L019	0	%	-	12	15	17	14	12	11	12
Stone Content	L019	0.1	%	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
pH	L099	0	pH Units	-	7.7	7.6	7.8	8.8	8.4	7.4	7.1
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.008	0.0083	0.0094	0.0047	0.005	0.0051	0.018
Total Organic Carbon (TOC)	L009-PL	0.1	%	-	0.2			0.3	0.7	0.4	0.2
FOC	*(calculated)*			-	*0.002*			*0.003*	*0.007*	*0.004*	*0.002*
Asbestos in Soil	A001			-	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-							
Free Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Cyanide	L080	1	mg/kg		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	9.9	7.6	19	23	8.9	11	33
Boron (Water Soluble)	L038	0.2	mg/kg	290	0.5	0.6	1.5	0.9	0.5	0.7	0.8
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	30	33	35	60	27	36	49
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	16	17	14	21	13	7.7	17
Lead (aqua regia extractable)	L038	1	mg/kg	200	11	10	25	25	15	11	19
Manganese (aqua regia extractable)	L038	1	mg/kg	-	710	460					
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	24	22	41	95	18	24	100
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	49	47	62	69	46	40	72
Acenaphthene	L064	0.05	mg/kg	210	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	< 0.05	< 0.05	0.5	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	L064	0.05	mg/kg	2400	< 0.05	< 0.05	1.3	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	< 0.05	< 0.05	**25**	< 0.05	0.23	< 0.05	< 0.05
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	< 0.05	< 0.05	**26**	< 0.05	0.29	< 0.05	< 0.05
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	< 0.05	< 0.05	**25**	< 0.05	0.28	< 0.05	< 0.05
Benzo(ghi)perylene	L064	0.05	mg/kg	32	< 0.05	< 0.05	16	< 0.05	0.35	< 0.05	< 0.05
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	< 0.05	< 0.05	18	< 0.05	0.2	< 0.05	< 0.05
Chrysene	L064	0.05	mg/kg	15	< 0.05	< 0.05	**17**	< 0.05	0.23	< 0.05	< 0.05
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	< 0.05	< 0.05	**5.2**	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	L064	0.05	mg/kg	280	< 0.05	< 0.05	15	< 0.05	0.27	< 0.05	< 0.05
Fluorene	L064	0.05	mg/kg	170	< 0.05	< 0.05	0.17	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	< 0.05	< 0.05	16	< 0.05	0.27	< 0.05	< 0.05
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	L064	0.05	mg/kg	95	< 0.05	< 0.05	2.5	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	L064	0.05	mg/kg	620	< 0.05	< 0.05	13	< 0.05	0.28	< 0.05	< 0.05
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	< 0.80	< 0.80	180	< 0.80	2.4	< 0.80	< 0.80
Benzene	L073B	1	ug/kg	87	< 1.0			< 1.0	< 1.0	< 1.0	
Ethylbenzene	L073B	1	ug/kg	47000	< 1.0			< 1.0	< 1.0	< 1.0	
Toluene	L073B	1	ug/kg	130000	< 1.0			< 1.0	< 1.0	< 1.0	
o-Xylene	L073B	1	ug/kg	60000	< 1.0			< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-	< 1.0			< 1.0	< 1.0	< 1.0	
p & m-Xylene	L073B	1	ug/kg	56	< 1.0			< 1.0	< 1.0	< 1.0	
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-	< 0.1			< 0.1	< 0.1	< 0.1	
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130							
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100							
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500							
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100							
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27							
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74							
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140							
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260							
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100							
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-							
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34							
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-	120			< 10	< 10	< 10	
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130	1.7			< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100	3.7			< 2.0	< 2.0	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500	16			< 8.0	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500	99			< 8.0	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42	< 0.001			< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100	< 0.001			< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27	< 0.001			< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-	< 10			< 10	< 10	< 10	
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74	< 1.0			< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140	< 2.0			< 2.0	< 2.0	< 2.0	
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260	< 10			< 10	< 10	< 10	
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100	< 10			< 10	< 10	< 10	
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70	< 0.001			< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130	< 0.001			< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34	< 0.001			< 0.001	< 0.001	< 0.001	
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrocellulose (NC) Colour											
Nitrocellulose (NC) Colourimetric		5000	mg/kg								
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg								
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg								
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg								
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg								
Glycerol Trinitrate (NG)		1	mg/kg								
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg								
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg								
2,4-DNT		1	mg/kg								
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg								
Hexanitro-Stilbene (HNS)		0.5	mg/kg								
Nitroguanidine (Picrite)		0.25	mg/kg								
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg								

50 Value exceeds GAC

Otterpool Park
Soil Screen - Phase 2 Ground Investigation

		Hole ID:			TP209
		Sample Top Depth (m):			0.9
		Sample Ref.:			ES4
		Strata:			HYTHE FORMATION
Chemical Name	**Lab Method**	**Reporting Detection Limit**	**Unit**	**GAC**	
Moisture Content	L019	0	%	-	8.2
Stone Content	L019	0.1	%	-	< 0.1
pH	L099	0	pH Units	-	7.5
Water Soluble Sulphate (2:1 Leachate Equivalent)	L038	0.0013	g/l	-	0.0023
Total Organic Carbon (TOC)	L009-PL	0.1	%	-	0.2
FOC	*(calculated)*			-	*0.002*
Asbestos in Soil	A001			-	Not-detected
Asbestos in Soil Screen / Identification Name	A001			-	
					3
Free Cyanide	L080	1	mg/kg		< 1
Total Cyanide	L080	1	mg/kg		< 1
Arsenic (aqua regia extractable)	L038	1	mg/kg	37	8
Boron (Water Soluble)	L038	0.2	mg/kg	290	0.3
Cadmium (aqua regia extractable)	L038	0.2	mg/kg	11	< 0.2
Chromium (aqua regia extractable)	L038	1	mg/kg	910	38
Chromium (hexavalent)	L080	4	mg/kg	6	< 4.0
Copper (aqua regia extractable)	L038	1	mg/kg	2400	4.3
Lead (aqua regia extractable)	L038	1	mg/kg	200	7.6
Manganese (aqua regia extractable)	L038	1	mg/kg	-	
Mercury (aqua regia extractable)	L038	0.3	mg/kg	1.2	< 0.3
Nickel (aqua regia extractable)	L038	1	mg/kg	130	38
Selenium (aqua regia extractable)	L038	1	mg/kg	250	< 1.0
Zinc (aqua regia extractable)	L038	1	mg/kg	3700	33
Acenaphthene	L064	0.05	mg/kg	210	< 0.05
Acenaphthylene	L064	0.05	mg/kg	170	< 0.05
Anthracene	L064	0.05	mg/kg	2400	< 0.05
Benzo(a)anthracene	L064	0.05	mg/kg	7.2	< 0.05
Benzo(a)pyrene	L064	0.05	mg/kg	2.2	< 0.05
Benzo(b)fluoranthene	L064	0.05	mg/kg	2.6	< 0.05
Benzo(ghi)perylene	L064	0.05	mg/kg	32	< 0.05
Benzo(k)fluoranthene	L064	0.05	mg/kg	77	< 0.05
Chrysene	L064	0.05	mg/kg	15	< 0.05
Di-benzo(a,h)anthracene	L064	0.05	mg/kg	0.24	< 0.05
Fluoranthene	L064	0.05	mg/kg	280	< 0.05
Fluorene	L064	0.05	mg/kg	170	< 0.05
Indeno(1,2,3-cd)pyrene	L064	0.05	mg/kg	27	< 0.05
Naphthalene	L064	0.05	mg/kg	2.3	< 0.05
Phenanthrene	L064	0.05	mg/kg	95	< 0.05
Pyrene	L064	0.05	mg/kg	620	< 0.05
Speciated Total EPA-16 PAHs	L064	0.8	mg/kg	-	< 0.80
Benzene	L073B	1	ug/kg	87	< 1.0
Ethylbenzene	L073B	1	ug/kg	47000	< 1.0
Toluene	L073B	1	ug/kg	130000	< 1.0
o-Xylene	L073B	1	ug/kg	60000	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	1	ug/kg	-	< 1.0
p & m-Xylene	L073B	1	ug/kg	56	< 1.0
Petroleum Range Organics (C6 - C10)	L088B	0.1	mg/kg	-	< 0.1
TPH6 - Aliphatic (C10 - C12)	L076	1	mg/kg	130	
TPH6 - Aliphatic (C12 - C16)	L076	2	mg/kg	1100	
TPH6 - Aliphatic (C16 - C21)	L076	8	mg/kg	32500	
TPH6 - Aliphatic (C21 - C35)	L076	8	mg/kg	32500	
TPH6 - Aliphatic (C6 - C8)	L088B	0.001	mg/kg	100	
TPH6 - Aliphatic (C8 - C10)	L088B	0.001	mg/kg	27	
TPH6 - Aromatic (C10 - C12)	L076	1	mg/kg	74	
TPH6 - Aromatic (C12 - C16)	L076	2	mg/kg	140	
TPH6 - Aromatic (C16 - C21)	L076	10	mg/kg	260	
TPH6 - Aromatic (C21 - C35)	L076	10	mg/kg	1100	
TPH6 - Aromatic (C6 - C35)	L076	10	mg/kg	-	
TPH6 - Aromatic (C8 - C10)	L088B	0.001	mg/kg	34	
TPH-CWG - Aliphatic (EC5 - EC35)	L076	10	mg/kg	-	< 10
TPH-CWG - Aliphatic >EC10 - EC12	L076	1	mg/kg	130	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	L076	2	mg/kg	1100	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	L076	8	mg/kg	32500	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	L076	8	mg/kg	32500	< 8.0
TPH-CWG - Aliphatic >EC5 - EC6	L088B	0.001	mg/kg	42	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	L088B	0.001	mg/kg	100	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	L088B	0.001	mg/kg	27	< 0.001
TPH-CWG - Aromatic (EC5 - EC35)	L076	10	mg/kg	-	< 10
TPH-CWG - Aromatic >EC10 - EC12	L076	1	mg/kg	74	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	L076	2	mg/kg	140	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	L076	10	mg/kg	260	< 10
TPH-CWG - Aromatic >EC21 - EC35	L076	10	mg/kg	1100	< 10
TPH-CWG - Aromatic >EC5 - EC7	L088B	0.001	mg/kg	70	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	L088B	0.001	mg/kg	130	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	L088B	0.001	mg/kg	34	< 0.001
Total Phenols (monohydric)	L080	1	mg/kg	280	< 1.0
Nitrocellulose (NC) Colour					
Nitrocellulose (NC) Colourimetric		5000	mg/kg		
Cyclotetramethylene Tetranitramine (HMX)		2	mg/kg		
Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX)		2	mg/kg		
Ethylene Glycol Dinitrate (EGDN)		1	mg/kg		
2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl)		1	mg/kg		
Glycerol Trinitrate (NG)		1	mg/kg		
2,4,6-Trinitrotoluene (TNT)		0.1	mg/kg		
2,6-Dinitrotoluene (2,6-DNT)		1	mg/kg		
2,4-DNT		1	mg/kg		
2,4-Dinitrotoluene (2,4-DNT)		5	mg/kg		
Hexanitro-Stilbene (HNS)		0.5	mg/kg		
Nitroguanidine (Picrite)		0.25	mg/kg		
2,4,6-Trinitro Phenol (Picric Acid)		0.1	mg/kg		

Summary - Phase 2 Ground Investigation

No. Tests.	No. of results >= GAC	Minimum	Mean	Maximum
42	-	5.2	11.0	23
42	-	16	16.0	16
42	-	6.6	7.6	8.8
42	-	0.0023	0.0	0.034
34	-	0.2	1.0	4.1
34	-	0.002	0.0	0.1
43	3			
3	3			
42	-	< 1	< 1	< 1
42	-	< 1	< 1	< 1
42	0	6.2	11.1	33
42	0	0.3	1.0	2.7
42	0	0.4	0.6	1
42	0	12	31.3	62
42	0	< 4.0	< 4.0	< 4.0
42	0	4.3	13.6	21
42	0	6.9	18.4	73
9	-	100	534.4	1000
42	0	< 0.3	< 0.3	< 0.3
42	0	9.5	27.1	100
42	0	1.2	1.4	1.5
42	0	27	50.2	150
42	0	0.24	0.2	0.24
42	0	0.23	1.0	2.2
42	0	0.11	1.4	8.1
42	2	0.17	10.5	89
42	4	0.28	10.2	84
42	4	0.28	11.4	98
42	1	0.22	6.4	44
42	0	0.16	5.7	44
42	2	0.23	8.0	69
42	4	0.18	3.5	14
42	0	0.27	12.0	110
42	0	0.17	0.4	0.82
42	1	0.17	6.0	42
42	0	< 0.05	< 0.05	< 0.05
42	0	0.1	3.0	23
42	0	0.28	10.1	92
42	-	2.21	84.9	718
29	0	< 1.0	< 1.0	< 1.0
29	0	< 1.0	< 1.0	< 1.0
29	0	< 1.0	< 1.0	< 1.0
29	0	< 1.0	< 1.0	< 1.0
29	-	< 1.0	< 1.0	< 1.0
29	0	< 1.0	< 1.0	< 1.0
28	-	< 0.1	< 0.1	< 0.1
1	0	< 1.0	< 1.0	< 1.0
1	0	< 2.0	< 2.0	< 2.0
1	0	< 8.0	< 8.0	< 8.0
1	0	< 8.0	< 8.0	< 8.0
1	0	< 0.001	< 0.001	< 0.001
1	0	< 0.001	< 0.001	< 0.001
1	0	< 1.0	< 1.0	< 1.0
1	0	< 2.0	< 2.0	< 2.0
1	0	< 10	< 10	< 10
1	0	< 10	< 10	< 10
1	-	< 10	< 10	< 10
1	0	< 0.001	< 0.001	< 0.001
29	-	12	59.3	120
29	0	1.1	1.4	1.7
29	0	3.7	3.7	3.7
29	0	16	16.0	16
29	0	11	52.0	99
29	0	< 0.001	< 0.001	< 0.001
29	0	< 0.001	< 0.001	< 0.001
29	0	< 0.001	< 0.001	< 0.001
29	-	24	238.2	980
29	0	5	5.0	5
29	0	5.2	9.6	14
29	0	16	101.3	230
29	0	17	179.7	740
29	0	< 0.001	< 0.001	< 0.001
29	0	< 0.001	< 0.001	< 0.001
29	0	< 0.001	< 0.001	< 0.001
42	0	< 1.0	< 1.0	< 1.0
0	-	< 1.0	< 1.0	< 1.0
1	-	< 1.0	< 1.0	< 1.0
1	-	<5000	<5000	<5000
1	-	<2	<2	<2
1	-	<2	<2	<2
1	-	<1	<1	<1
1	-	<1	<1	<1
1	-	<1	<1	<1
1	-	<0.1	<0.1	<0.1
1	-	<1	<1	<1
1	-	<5	<5	<5
1	-	<0.5	<0.5	<0.5
1	-	<0.25	<0.25	<0.25
1	-	<0.1	<0.1	<0.1

50 Value exceeds GAC

APPENDIX G

Summary of Groundwater Analysis and Screening

Project / Site name: Otterpool Park

Legend
123: Values originally with "<" symbols.
NO/BELOW: Result exceeds UKDWS values/ LOD is below UKDWS values..
YES/ABOVE: Result above UKDWS values/ LOD is above UKDWS values.
: Result is below EQS values/ LOD is below EQS values.
: Result exceeds EQS values/ LOD is above EQS values.

Lab Sample Number				810197	810198	810199	810200	810201	810202	810203								
Sample Reference				BH104	WS105	WS107	BH103	WS106	WS108	BH105								
Date Sampled				31/08/2017	31/08/2017	31/08/2017	31/08/2017	31/08/2017	31/08/2017	31/08/2017								
Groundwater body				Hythe Formation	Head Deposits	Head Deposits	Hythe Formation	Head Deposits	Head Deposits	Sandgate Formation								
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status								Minimum	Maximum	EQS	Exceedances	LOD above/below EQS	UKDWS	Exceedances	LOD above/below UKDWS
General Inorganics																		
pH	pH Units	N/A	ISO 17025	7.3	6.8	6.3	7.6	7.2	5.2	6	5.2	7.6	-	-	-	-	-	-
Total Cyanide	µg/l	10	ISO 17025	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
Free Cyanide	µg/l	10	ISO 17025	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
Sulphate as SO_4	µg/l	45	ISO 17025	48400	134000	36900	75800	58300	39700	173000	36900	173000	-	-	-	-	-	-
Sulphate as SO_4	mg/l	0.045	ISO 17025	48	130	37	76	58	40	170	37	170	-	-	-	-	-	-
Alkalinity	mgCaCO3/l	3	ISO 17025	440	400	110	210	370	15	55	15	440	-	-	-	-	-	-
Heavy Metals / Metalloids																		
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.59	3.49	1.09	1.6	0.29	0.36	1	0.29	3.49	50	NO	BELOW	10	NO	BELOW
Boron (dissolved)	µg/l	10	ISO 17025	35	110	58	58	54	78	58	35	110	2000	NO	BELOW	1000	NO	BELOW
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	0.02	0.04	0.02	0.02	0.23	0.02	0.02	0.23	0.08	YES	BELOW	5	NO	BELOW
Chromium (hexavalent)	µg/l	5	ISO 17025	5	5	5	5	5	5	5	5	5	3.4	YES	ABOVE	50	NO	BELOW
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.2	4	0.3	3.9	2.1	0.2	0.2	4	4.7	NO	BELOW	50	NO	BELOW
Copper (dissolved)	µg/l	0.5	ISO 17025	1.9	1.1	2.1	2.6	2.1	6.6	1	1	6.6	19.2 *	NO	BELOW	2000	NO	BELOW
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2	0.2	0.2	0.2	0.2	0.6	0.2	0.2	0.6	1.2	NO	BELOW	10	NO	BELOW
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.25	0.05	0.07	0.09	0.05	0.05	0.05	0.05	0.25	0.05	YES	BELOW	1	NO	BELOW
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.6	6.9	9	3.5	1.7	30	5.9	1.7	30	14.3 *	YES	BELOW	20	YES	BELOW
Selenium (dissolved)	µg/l	0.6	ISO 17025	5.3	0.7	0.6	1.3	0.6	0.6	7	0.6	7	10	NO	BELOW	10	NO	BELOW
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.8	8.8	5.5	2.4	2	87	8.8	2	87	22 *	YES	BELOW	3000	NO	BELOW
Phenols by HPLC																		
Catechol	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
Resorcinol	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
Cresols	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
Naphthols	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
Isopropylphenol	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
Phenol	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	7.7	NO	BELOW	7.7	NO	BELOW
Trimethylphenol	µg/l	0.5	NONE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-		
Total Phenols																		
Total Phenols (HPLC)	µg/l	3.5	NONE	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	-	-	-	-	-	-
Speciated PAHs																		
Naphthalene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2	NO	BELOW	2	NO	BELOW
Acenaphthylene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Acenaphthene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Fluorene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Phenanthrene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Anthracene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Fluoranthene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Pyrene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Chrysene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	0.025	NO	BELOW
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	0.025	NO	BELOW
Benzo(a)pyrene	µg/l	0.01	ISO 17025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00017	NO	ABOVE	0.01	NO	BELOW
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	0.025	NO	BELOW
Dibenz(a,h)anthracene	µg/l	0.01	NONE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-
Benzo(ghi)perylene	µg/l	0.01	NONE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	0.025	NO	BELOW
Total PAH																		
Total EPA-16 PAHs	µg/l	0.16	NONE	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	-	-	-	-	-	-

Project / Site name: Otterpool Park

Legend
123: Values originally with "<" symbols.
NO/BELOW: Result exceeds UKDWS values/ LOD is below UKDWS values..
YES/ABOVE: Result above UKDWS values/ LOD is above UKDWS values.
: Result is below EQS values/ LOD is below EQS values.
: Result exceeds EQS values/ LOD is above EQS values.

Lab Sample Number				810197	810198	810199	810200	810201	810202	810203								
Sample Reference				BH104	WS105	WS107	BH103	WS106	WS108	BH105								
Date Sampled				31/08/2017	31/08/2017	31/08/2017	31/08/2017	31/08/2017	31/08/2017	31/08/2017								
Groundwater body				Hythe Formation	Head Deposits	Head Deposits	Hythe Formation	Head Deposits	Head Deposits	Sandgate Formation								
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status								Minimum	Maximum	EQS	Exceedances	LOD above/below EQS	UKDWS	Exceedances	LOD above/below UKDWS
Monoaromatics																		
Benzene	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	10	NO	BELOW	1	NO	BELOW
Toluene	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	74	NO	BELOW	700	NO	BELOW
Ethylbenzene	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	20	NO	BELOW	300	NO	BELOW
p & m-xylene	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	30	NO	BELOW	500	NO	BELOW
o-xylene	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	30	NO	BELOW	500	NO	BELOW
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	15	NO	BELOW	15	NO	BELOW
Petroleum Hydrocarbons																		
Petroleum Range Organics (C6 - C10)	µg/l	10	ISO 17025	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	10	NO	BELOW	10	NO	BELOW
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	10	NO	BELOW	1	NO	BELOW
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	74	NO	BELOW	700	NO	BELOW
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	-	-	-	-	-	-
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10	10	10	10	10	10	10	10	10	10	NO	BELOW	10	NO	BELOW

* Site-specific PNEC calculated using mBAT bioavailability tool using assumed values for Ca (4 mg/l), DOC (5 mg/l) and pH (7).

Otterpool Park
Groundwater Screen - Phase 2 Ground Investigation

						Hole ID:	BH208	BH207	BH206	BH204	BH202	BH202	BH209
						Sample Ref:	EW1	EW1	EW1	EW1	EW1	EW2	EW1
						Lab Ref:	1051225	1051226	1051227	1051228	1051229	1051230	1051231
						Strata Screened:	HD / SF	HD / HF	HD / SF	HF	HF	HF	ALV / WCF
						Date Sampled:	20/09/2018	20/09/2018	20/09/2018	19/09/2018	19/09/2018	19/09/2018	19/09/2018
Determinand	**Lab Method**	**Accreditation**	**Detection Limit**	**Unit**	**EQS**	**DWS**							
pH	L099-PL	UKAS 4041	0	pH Units	-	-	7	7.7	6.7	7.1	7.3	7.3	7.2
Alkalinity	L082-PL	UKAS 4041	3	mgCaCO3/l	-	-	170	460	210	630	560	550	490
Sulphate as SO4	L039-PL	UKAS 4041	45	ug/l	-	-	38900	44600	51700	21000	22100	23400	63000
Calcium (dissolved)	L039-PL	UKAS 4041	0.012	mg/l	-	-	75	100	54	130	120	130	120
Dissolved Organic Carbon (DOC)	L037B		0.1	mg/l	-	-	1.75	1.11	4.08	7.83	0.12	2.18	1.1
Free Cyanide	L080	UKAS 4041	10	ug/l	-	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Cyanide	L080	UKAS 4041	10	ug/l	-	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Arsenic (dissolved)	L012-PL	UKAS 4041	0.15	ug/l	50	10	0.28	0.9	0.53	6.81	< 0.15	< 0.15	3.08
Boron (dissolved)	L039-PL	UKAS 4041	10	ug/l	2000	1000	14	16	18	55	16	17	25
Cadmium (dissolved)	L012-PL	UKAS 4041	0.02	ug/l	0.08	5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chromium (dissolved)	L012-PL	UKAS 4041	0.2	ug/l	3.4	50	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	L080	UKAS 4041	5	ug/l	4.7	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Copper (dissolved)	L012-PL	UKAS 4041	0.5	ug/l	19.2 *	2000	1.9	0.8	0.7	1	1.7	2.7	0.9
Lead (dissolved)	L012-PL	UKAS 4041	0.2	ug/l	1.2	10	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	L012-PL	UKAS 4041	0.05	ug/l	0.05	1	< 0.05	< 0.05	< 0.05	**0.29**	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	L012-PL	UKAS 4041	0.5	ug/l	14.3 *	20	7.9	1.3	6.8	**24**	2.3	2.7	1.7
Selenium (dissolved)	L012-PL	UKAS 4041	0.6	ug/l	10	10	1.7	1.1	< 0.6	1	1.2	1.1	0.8
Zinc (dissolved)	L012-PL	UKAS 4041	0.5	ug/l	12.1 *	3000	3.6	2.4	5.2	2.1	1.5	2.9	2.8
Acenaphthene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	L102	UKAS 4041	0.01	ug/l	0.00017	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	L102	UKAS 4041	0.01	ug/l	-	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	L102	UKAS 4041	0.01	ug/l	-	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	L102	UKAS 4041	0.01	ug/l	-	0.025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Di-benzo(a,h)anthracene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	L102	UKAS 4041	0.01	ug/l	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	L102	UKAS 4041	0.16	ug/l	-	-	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Benzene	L073B	UKAS 4041	1	ug/l	10	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	L073B	UKAS 4041	1	ug/l	74	700	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	L073B	UKAS 4041	1	ug/l	20	300	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	L073B	UKAS 4041	1	ug/l	30	500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	L073B	UKAS 4041	1	ug/l	30	500	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	UKAS 4041	1	ug/l	15	15	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Range Organics (C6 - C10)	L088B	UKAS 4041	10	ug/l	10		< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
TPH-CWG - Aliphatic >C5 - C6	L070	UKAS 4041	1	ug/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	L070	UKAS 4041	1	ug/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	L070	UKAS 4041	1	ug/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	L070		10	ug/l			< 10	< 10	30	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	L070		10	ug/l			< 10	< 10	370	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	L070		10	ug/l			< 10	< 10	400	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	L070	UKAS 4041	1	ug/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	L070	UKAS 4041	1	ug/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	L070	UKAS 4041	1	ug/l			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	L070		10	ug/l			< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Phenols (HPLC)	L030-PL		3.5	ug/l			< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
Catechol	L030-PL		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cresols	L030-PL		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylphenol	L030		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthols	L030-PL		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenol	L030-PL		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Resorcinol	L030-PL		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trimethylphenol	L030-PL		0.5	ug/l			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

* Site-specific PNEC calculated using mBAT bioavailability tool using assumed values for Ca (4 mg/l), DOC (5 mg/l) and pH (7).

50 Value exceeds screening criteria

Geological Strata:

ALV	Alluvium
HD	Head Deposits
SF	Sandgate Formation
HF	Hythe Formation
WCF	Weald Clay Formation

Otterpool Park
Groundwater Screen - Phase 2 Ground Investigation

						Hole ID:	Phase 2 Groundwater Samples Summary				
						Sample Ref:					
						Lab Ref:					
						Strata Screened:					
						Date Sampled:					
Determinand	**Lab Method**	**Accreditation**	**Detection Limit**	**Unit**	**EQS**	**DWS**	**No. Tests**	**No Tests >=WQS**	**Minimum**	**Mean**	**Maximum**
pH	L099-PL	UKAS 4041	0	pH Units	-	-	7	-	6.7	7.2	7.7
Alkalinity	L082-PL	UKAS 4041	3	mgCaCO3/l	-	-	7	-	170	438.6	630
Sulphate as SO4	L039-PL	UKAS 4041	45	ug/l	-	-	7	-	21000	37814.3	63000
Calcium (dissolved)	L039-PL	UKAS 4041	0.012	mg/l	-	-	7	-	54	104.1	130
Dissolved Organic Carbon (DOC)	L037B		0.1	mg/l	-	-	7	-	0.12	2.6	7.83
Free Cyanide	L080	UKAS 4041	10	ug/l	-	-	7	-	< 10	< 10	< 10
Total Cyanide	L080	UKAS 4041	10	ug/l	-	-	7	-	< 10	< 10	< 10
Arsenic (dissolved)	L012-PL	UKAS 4041	0.15	ug/l	50	10	7	0	0.28	2.3	6.81
Boron (dissolved)	L039-PL	UKAS 4041	10	ug/l	2000	1000	7	0	14	23.0	55
Cadmium (dissolved)	L012-PL	UKAS 4041	0.02	ug/l	0.08	5	7	0	< 0.02	< 0.02	< 0.02
Chromium (dissolved)	L012-PL	UKAS 4041	0.2	ug/l	3.4	50	7	0	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	L080	UKAS 4041	5	ug/l	4.7	50	7	0	< 5.0	< 5.0	< 5.0
Copper (dissolved)	L012-PL	UKAS 4041	0.5	ug/l	19.2 *	2000	7	0	0.7	1.4	2.7
Lead (dissolved)	L012-PL	UKAS 4041	0.2	ug/l	1.2	10	7	0	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	L012-PL	UKAS 4041	0.05	ug/l	0.05	1	7	1	0.29	0.3	0.29
Nickel (dissolved)	L012-PL	UKAS 4041	0.5	ug/l	14.3 *	20	7	1	1.3	6.7	24
Selenium (dissolved)	L012-PL	UKAS 4041	0.6	ug/l	10	10	7	0	0.8	1.2	1.7
Zinc (dissolved)	L012-PL	UKAS 4041	0.5	ug/l	12.1 *	3000	7	0	1.5	2.9	5.2
Acenaphthene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Acenaphthylene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Anthracene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	L102	UKAS 4041	0.01	ug/l	0.00017	0.01	7	0	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	L102	UKAS 4041	0.01	ug/l	-	0.025	7	0	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	L102	UKAS 4041	0.01	ug/l	-	0.025	7	0	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	L102	UKAS 4041	0.01	ug/l	-	0.025	7	0	< 0.01	< 0.01	< 0.01
Chrysene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Di-benzo(a,h)anthracene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Fluoranthene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Fluorene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Naphthalene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Phenanthrene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Pyrene	L102	UKAS 4041	0.01	ug/l	-	-	7	-	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	L102	UKAS 4041	0.16	ug/l	-	-	7	-	< 0.16	< 0.16	< 0.16
Benzene	L073B	UKAS 4041	1	ug/l	10	1	7	0	< 1.0	< 1.0	< 1.0
Ethylbenzene	L073B	UKAS 4041	1	ug/l	74	700	7	0	< 1.0	< 1.0	< 1.0
Toluene	L073B	UKAS 4041	1	ug/l	20	300	7	0	< 1.0	< 1.0	< 1.0
o-Xylene	L073B	UKAS 4041	1	ug/l	30	500	7	0	< 1.0	< 1.0	< 1.0
p & m-Xylene	L073B	UKAS 4041	1	ug/l	30	500	7	0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	L073B	UKAS 4041	1	ug/l	15	15	7	0	< 1.0	< 1.0	< 1.0
Petroleum Range Organics (C6 - C10)	L088B	UKAS 4041	10	ug/l	10		7	0	< 10.0	< 10.0	< 10.0
TPH-CWG - Aliphatic >C5 - C6	L070	UKAS 4041	1	ug/l			7	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	L070	UKAS 4041	1	ug/l			7	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	L070	UKAS 4041	1	ug/l			7	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	L070		10	ug/l			7	-	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	L070		10	ug/l			7	-	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	L070		10	ug/l			7	-	30	30.0	30
TPH-CWG - Aliphatic >C21 - C35	L070		10	ug/l			7	-	370	370.0	370
TPH-CWG - Aliphatic (C5 - C35)	L070		10	ug/l			7	-	400	400.0	400
TPH-CWG - Aromatic >C5 - C7	L070	UKAS 4041	1	ug/l			7	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	L070	UKAS 4041	1	ug/l			7	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	L070	UKAS 4041	1	ug/l			7	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	L070		10	ug/l			7	-	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	L070		10	ug/l			7	-	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	L070		10	ug/l			7	-	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	L070		10	ug/l			7	-	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	L070		10	ug/l			7	-	< 10	< 10	< 10
Total Phenols (HPLC)	L030-PL		3.5	ug/l			7	-	< 3.5	< 3.5	< 3.5
Catechol	L030-PL		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5
Cresols	L030-PL		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5
Isopropylphenol	L030		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5
Naphthols	L030-PL		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5
Phenol	L030-PL		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5
Resorcinol	L030-PL		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5
Trimethylphenol	L030-PL		0.5	ug/l			7	-	< 0.5	< 0.5	< 0.5

* Site-specific PNEC calculated using mBAT bioavailability tool using assumed values for Ca (4 mg/l), DOC (5 mg/l) and pH (7).

50 Value exceeds screening criteria

Geological Strata:

ALV	Alluvium
HD	Head Deposits
SF	Sandgate Formation
HF	Hythe Formation
WCF	Weald Clay Formation

APPENDIX H

Ground Gas Monitoring Results

Arcadis
Otterpool Park
Summary of Monitoring Data

Monitoring Point Reference	Screened Unit	Date	Atmospheric Pressure (mbar)	Borehole Relative Pressure (mbar)	Flow Rate (l/h)	CH4 (% v/v)	CO2 (% v/v)	O2 (% v/v)	CO (ppm)	H2S (ppm)	Depth to Water (m bgl)	Groundwater Level mAOD	Comment
BH101	Hythe Formation	31/08/2017	1007	0.01	0.01	0	0	20	0	0	DRY	91.10	
		08/09/2017	989	0	0	0	1.4	19.3	0	0	9.89	#N/A	
		15/09/2017	1001	0.01	0	0	0.6	20.5	0	0	10.13	91.35	Not true groundwater in well. This is leftover water in the well endcap from infiltration testin
BH102	Hythe Formation	31/08/2017	1010	0.01	0.01	0	2.5	19.1	0	0	DRY	#N/A	
		08/09/2017	989	0	0	0	2.7	18.4	0	0	DRY	#N/A	
		15/09/2017	1001	0	0	0	2.8	18.4	0	0	DRY	#N/A	
BH103	Hythe Formation	31/08/2017	1010	0.01	0.01	0.1	0.2	20	0	0	1.87	68.82	
		08/09/2017	992	0	0	0	0.3	16.7	0	0	1.84	68.46	
		15/09/2017	1000	0	0	0	0.2	19.6	0	0	1.48	68.43	
BH104	Hythe Formation	31/08/2017	1010	0	0	0	0.5	19	3	0	3.81	91.09	
		08/09/2017	991	0	0	0	1.5	18.5	0	0	3.47	90.75	
		15/09/2017	1000	0	0	0.1	1.6	17.7	0	0	3.47	91.09	
BH105	Sandgate Formation	31/08/2017	1009	0.4	0.6	0	2.5	3.4	15	0	3.69	76.6	
		08/09/2017	992	-0.02	0	0	2.7	18.3	0	0	3.66	76.3	
		15/09/2017	1001	-0.02	0	0	4	14.7	0	0	3.38	76.3	
WS103	Head Deposits	31/08/2017	1007	0	0	0.1	3.5	17.4	0	0	DRY	#N/A	
		08/09/2017	992	0	0	0	4.4	16.1	0	0	DRY	#N/A	
		15/09/2017	999	0	0	0	4.5	16.5	0	0	DRY	#N/A	
WS104C	Head Deposits	31/08/2017	1007	0.2	0	0.1	1.8	19.1	0	0	DRY	#N/A	
		08/09/2017	992	0.02	0	0	2.9	16.3	0	0	DRY	#N/A	
		15/09/2017	1000	0.01	0	0	2.4	17.5	0	0	DRY	#N/A	
WS105	Head Deposits	31/08/2017	1007	0	0	0.1	0.2	20.9	0	0	1.18	69.1	
		08/09/2017	994	0	0	0	0.2	20.3	0	0	0.94	69.1	
		15/09/2017	1001	0	0	0	2.2	18.6	0	0	0.93	68.8	
WS106	Head Deposits	31/08/2017	1010	0	0	0.1	1.2	20.2	0	0	2.31	67.9	
		08/09/2017	992	0	0	0.1	1.4	19.8	0	0	1.99	67.9	
		15/09/2017	1000	0	0	0.1	2.1	19.1	0	0	1.94	67.6	
WS107	Head Deposits	31/08/2017	1010	0	0	0	4.6	13.1	0	0	2.14	66.3	
		08/09/2017	992	0	0	0	3.5	15.1	0	0	2.28	66.2	
		15/09/2017	1000	0	0	0	4.7	12.8	0	0	2.24	66.2	
WS108	Head Deposits	31/08/2017	1010	0	0	0	2.2	19.6	0	0	2.42	71.6	
		08/09/2017	995	0.01	0	0	0.4	20.5	0	0	2.67	71.4	
		15/09/2017	1001	0	0	0	1.8	19.3	0	0	2.57	71.3	
WS112	Head Deposits	31/08/2017	1007	0	0	0.1	1.4	18.9	0	0	DRY	#N/A	
		08/09/2017	991	0.01	0.3	0	0	20.4	0	0	DRY	#N/A	
		15/09/2017	1001	0	0	0	0.7	19.8	0	0	DRY	#N/A	
BH1	Hythe Formation	08/09/2017	991	0	0	0	4	17.9	0	0	9.4	89.46	
BH10	Hythe Formation	08/09/2017	990	0.07	0	0	1.5	18.6	0	0	DRY	#N/A	
BH2	Hythe Formation	08/09/2017	991	0.01	0	0	3.5	17.1	0	0	7.07	91.70	
BH3	Hythe Formation	08/09/2017	990	0	0	0	1.7	16.1	0	0	DRY	#N/A	
BH4	Hythe Formation	08/09/2017	993	0	0	0	3.4	13.7	0	0	10.205	93.50	
BH5	Hythe Formation	08/09/2017	991	0	0	0	4.4	13.7	0	0	9.73	93.03	
BH6	Hythe Formation	08/09/2017	990	0.02	0.1	0	3.8	15.7	0	0	11.39	93.21	
BH7	Hythe Formation	08/09/2017	990	0.05	0.1	0	4	14.5	0	0	DRY	#N/A	
BH8	Hythe Formation	08/09/2017	990	0.05	0.1	0	2	19.3	0	0	DRY	#N/A	
BH9	Hythe Formation	08/09/2017	990	0	0	0	2.6	17.3	0	0	11.24	94.39	

APPENDIX I

Waste Classification Assessment (Soils)

Otterpool Park HazWaste Assessment

Determinand (laboratory concentrations)	Unit	TP101	TP102	TP104	TP106	TP108	TP109	TP110	TP113	TP113[1]	TP113[2]	TP113[3]	TP113[4]	WS101	WS102A	WS104C	WS104C[1]	WS109
Initial Classification Result		Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous
Hazardous properties									HP7: Carcinogenic HP11: Mutagenic HP3(i): Flammable									
Comment/ justification																		
Arcadis classification									Hazardous									
Depth	m	0.20	0.30	0.50	0.20	1.00	0.30	0.30	0.30	0.60	1.40	2.00	3.00	0.50-0.55	0.00-0.20	0.10-0.20	1.80-1.90	0.10-0.20
moisture {no correction}	%	13	11	10	15	7.9	12	15	8.2	13	17	19	19	13	15	8.5	13	12
asbestos	mg/kg	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
pH	pH	6.6	6.3	6.8	6.1	6.1	6.3	7.7	9.1	7.2	7.6	7.6	7.7	7.8	7.4	8.2	8.1	7.9
cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
phenol	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
naphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	0.1	<0.05	<0.05	<0.05	0.11
acenaphthylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.7	<0.05	<0.05	<0.05	<0.05	0.17	<0.05	0.1	<0.05	0.57
acenaphthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	0.12	<0.05	<0.05	0.36	<0.05	<0.05	<0.05	0.37
fluorene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	<0.05	0.14	<0.05	<0.05	0.32	<0.05	<0.05	<0.05	0.47
phenanthrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	0.09	4.2	<0.05	1.2	<0.05	<0.05	3.9	<0.05	0.44	<0.05	4.2
anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.5	<0.05	0.29	<0.05	<0.05	1.1	<0.05	0.16	<0.05	1.7
fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.85	0.26	16	<0.05	1.6	<0.05	<0.05	7.1	<0.05	1.7	<0.05	12
pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.78	0.27	16	<0.05	1.3	<0.05	<0.05	5.3	<0.05	1.3	<0.05	10
benzo[a]anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.57	0.15	12	<0.05	0.67	<0.05	<0.05	5.1	<0.05	1.3	<0.05	8.4
chrysene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.45	0.21	9.1	<0.05	0.64	<0.05	<0.05	2.3	<0.05	0.57	<0.05	3.8
benzo[b]fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.6	0.15	12	<0.05	0.48	<0.05	<0.05	6.2	<0.05	1.7	<0.05	9.8
benzo[k]fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.53	0.22	16	<0.05	0.57	<0.05	<0.05	1.6	<0.05	0.55	<0.05	3
benzo[a]pyrene; benzo[def]chrysene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.73	0.24	19	<0.05	0.67	<0.05	<0.05	5.2	<0.05	1.4	<0.05	8.3
indeno[123-cd]pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.42	0.13	11	<0.05	0.36	<0.05	<0.05	2.3	<0.05	0.78	<0.05	4.2
dibenz[a,h]anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	3.1	<0.05	0.08	<0.05	<0.05	0.43	<0.05	0.14	<0.05	0.79
benzo[ghi]perylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.48	0.15	12	<0.05	0.4	<0.05	<0.05	2.2	<0.05	0.78	<0.05	3.5
arsenic {arsenic trioxide}	mg/kg	18	13	14	9.2	9.9	12	8.9	8.3	12	11	18	14	7.4	15	9.3	14	15
boron {boron tribromide/trichloride/trifluoride (combined)}	mg/kg	1.2	0.8	0.5	0.9	0.6	1.2	1	1	0.9	1.1	0.8	0.5	1.5	1.4	0.8	0.6	0.9
cadmium {cadmium sulfide}	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex	mg/kg	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
chromium in chromium(III) compounds {chromium(III) oxide}	mg/kg	31	19	24	14	21	15	21	30	20	27	36	24	41	32	43	22	32
copper {dicopper oxide; copper (I) oxide}	mg/kg	18	14	13	16	8.9	23	14	36	11	13	15	9.7	13	15	34	8.5	11
lead {lead chromate}	mg/kg	31	24	12	38	8.9	47	17	44	15	31	22	11	36	19	30	11	60
mercury {mercury dichloride}	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
nickel {nickel dihydroxide}	mg/kg	33	10	26	5.1	16	11	14	29	22	24	44	33	27	29	21	22	27
selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.1	<1
zinc {zinc sulphate}	mg/kg	60	41	42	28	30	73	46	470	36	44	49	34	70	71	81	29	71
benzene	mg/kg					<1	<1		<1	<1	<1	<1	<1			<1		<1
toluene	mg/kg					<1	<1		<1	<1	<1	<1	<1			<1		<1
ethylbenzene	mg/kg					<1	<1		<1	<1	<1	<1	<1			<1		<1
o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	mg/kg					<1	<1		<1	<1	<1	<1	<1			<1		<1
tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	mg/kg					<1	<1		<1	<1	<1	<1	<1			<1		<1
TPH (C6 to C40) petroleum group	mg/kg					<10	38		1030	16	109	11	37			193		320
carbazole	mg/kg								0.5									
anthraquinone	mg/kg								0.5									

Notes

Asbestos fibres have been identified in the sample but not yet quantified. When WAC testing is undertaken by a waste carrier prior to removal of arisings, the waste will be classed as hazardous is greater than 0.1% loose asbestos fibres are found. If large individial pieces of asbestos tile are found they must be assessed seperately. Therefore without quantification the waste has been assessed as potentially hazardous.
Note: even if less than 0.1% asbestos fibres are found the landfill operator may decline to accept the waste

Otterpool Park HazWaste Assessment

Determinand (laboratory concentrations)	Unit	WS110	WS110[1]	WS111	WS112	HD101	HD102	HD103	BH103	BH102	BH105	BH105[1]	TP107	WS103	WS105	WS106	WS107	WS108
Initial Classification Result		Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous	Non Hazardous
Hazardous properties															HP7: Carcinogenic			
Comment/ justification															Asbestos fibres have been identified but quantification analysis has not yet been undertaken (see notes below)			
Arcadis classification															Potentially hazardous			
Depth	m	0.05-0.15	0.50-0.55	0.48-0.60	0.50-0.55	0.30	0.30	0.50	2.00	0.30	0.30	0.50	0.30	0.50-0.55	0.10-0.23	0.10-0.20	0.10-0.15	0.05-0.15
moisture {no correction}	%	13	11	8.3	12	11	10	9.9	21	13	12	11	13	11	14	11	11	14
asbestos	mg/kg	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Chrysotile- Loose Fibres	Not-detected	Not-detected	Not-detected
pH	pH	7	7.1	10	7.5	7.9	7.6	7.5	7.7	7.7	7.3	7.3	6.3	6.1	6.8	6.6	6.8	6.6
cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
phenol	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
naphthalene	mg/kg	0.14	<0.05	0.43	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
acenaphthylene	mg/kg	0.27	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05	<0.05
acenaphthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
fluorene	mg/kg	<0.05	<0.05	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
phenanthrene	mg/kg	0.97	<0.05	0.67	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.51	<0.05	<0.05	0.32
anthracene	mg/kg	0.26	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	<0.05	<0.05	<0.05
fluoranthene	mg/kg	4.4	<0.05	1.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.7	<0.05	<0.05	0.72
pyrene	mg/kg	3.4	<0.05	0.88	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.7	<0.05	<0.05	0.62
benzo[a]anthracene	mg/kg	2.3	<0.05	0.89	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.1	<0.05	<0.05	0.36
chrysene	mg/kg	1.2	<0.05	0.46	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.95	<0.05	<0.05	0.31
benzo[b]fluoranthene	mg/kg	3.5	<0.05	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.1	<0.05	<0.05	0.33
benzo[k]fluoranthene	mg/kg	1.1	<0.05	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.6	<0.05	<0.05	0.31
benzo[a]pyrene; benzo[def]chrysene	mg/kg	2.9	<0.05	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.5	<0.05	<0.05	0.32
indeno[123-cd]pyrene	mg/kg	1.5	<0.05	0.53	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.3	<0.05	<0.05	0.21
dibenz[a,h]anthracene	mg/kg	0.27	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.29	<0.05	<0.05	<0.05
benzo[ghi]perylene	mg/kg	1.4	<0.05	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.7	<0.05	<0.05	0.2
arsenic {arsenic trioxide}	mg/kg	14	5.5	16	1.1	12	8.8	8.8	10	13	8.7	9.6	16	9.5	4.9	15	21	14
boron {boron tribromide/trichloride/trifluoride (combined)}	mg/kg	4.3	1.2	2.3	0.4	1.6	1.1	0.6	0.2	1	0.5	0.8	0.4	0.5	1.3	0.8	1	0.8
cadmium {cadmium sulfide}	mg/kg	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2
chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex	mg/kg	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
chromium in chromium(III) compounds {chromium(III) oxide}	mg/kg	23	18	19	21	19	21	21	34	27	15	7.9	31	77	29	41	37	24
copper {dicopper oxide; copper (I) oxide}	mg/kg	61	9.7	64	9.7	14	13	18	34	50	19	12	10	3.9	21	12	15	22
lead {lead chromate}	mg/kg	340	27	64	14	14	12	12	13	14	20	13	18	10	40	27	20	140
mercury {mercury dichloride}	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.7	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
nickel {nickel dihydroxide}	mg/kg	22	5.6	29	14	22	20	23	40	24	8.8	5.2	29	67	17	19	24	12
selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
zinc {zinc sulphate}	mg/kg	240	28	140	40	37	35	36	48	47	17	20	57	71	110	56	58	63
benzene	mg/kg	<1		<1		<1	<1	<1			<1	<1						
toluene	mg/kg	<1		<1		<1	<1	<1			<1	<1						
ethylbenzene	mg/kg	<1		<1		<1	<1	<1			<1	<1						
o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	mg/kg	<1		<1		<1	<1	<1			<1	<1						
tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	mg/kg	<1		<1		<1	<1	<1			<1	<1						
TPH (C6 to C40) petroleum group	mg/kg	198		228		<10	<10	<10			<10	<10						
carbazole	mg/kg																	
anthraquinone	mg/kg																	

Notes

Asbestos fibres have been identified in the sample but not yet quantified. When WAC testing is undertaken by a waste carrier prior to removal of arisings, the waste will be classed as hazardous is greater than 0.1% loose asbestos fibres are found. If large individial pieces of asbestos tile are found they must be assessed seperately. Therefore without quantification the waste has been assessed as potentially hazardous.
Note: even if less than 0.1% asbestos fibres are found the landfill operator may decline to accept the waste

ARCADIS

HazWasteOnline™

Waste Classification Report

JUW3N-PPXVR-ZC47G

Job name

Otterpool Park

Description/Comments

Project

UA008926

Site

Otterpool Park

Waste Stream Template

Otterpool

Classified by

Name:
Fiona Waldron
Date:
01/11/2017 09:10:57 UTC
Telephone:
0117 3721231

Company:
Arcadis Consulting (UK) Ltd
The Pithay
5th Floor All Saints Street
Bristol
BS1 2NL

Report

Created by: Fiona Waldron
Created date: 01/11/2017 09:10 UTC

Job summary

Classification of sample: TP101

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

Sample details

Sample Name:
TP101
Sample Depth:
0.20 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.6	pH		6.6	pH	6.6 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				18	mg/kg	1.32	23.766	mg/kg	0.00238 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.2	mg/kg	13.43	16.116	mg/kg	0.00161 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				31	mg/kg	1.462	45.308	mg/kg	0.00453 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	31	mg/kg	1.56	48.354	mg/kg	0.0031 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				33	mg/kg	1.579	52.123	mg/kg	0.00521 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				60	mg/kg	2.469	148.158	mg/kg	0.0148 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0348 %		

Key

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

Classification of sample: TP102

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

Sample details

Sample Name:
TP102
Sample Depth:
0.30 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.3	pH		6.3	pH	6.3 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	24	mg/kg	1.56	37.436	mg/kg	0.0024 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				10	mg/kg	1.579	15.795	mg/kg	0.00158 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				41	mg/kg	2.469	101.241	mg/kg	0.0101 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0223 %		

Key

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

Classification of sample: TP104

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

Sample details

Sample Name:
TP104
Sample Depth:
0.50 m
Moisture content:
10%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 10% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.8	pH		6.8	pH	6.8 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.5	mg/kg	13.43	6.715	mg/kg	0.000672 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	12	mg/kg	1.56	18.718	mg/kg	0.0012 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				26	mg/kg	1.579	41.067	mg/kg	0.00411 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				42	mg/kg	2.469	103.71	mg/kg	0.0104 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0243 %		

Key

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

Classification of sample: TP106

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

Sample details

Sample Name:
TP106
Sample Depth:
0.20 m
Moisture content:
15%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		6.1 pH		6.1 pH	6.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				9.2	mg/kg	1.32	12.147	mg/kg	0.00121 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.9	mg/kg	13.43	12.087	mg/kg	0.00121 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				14	mg/kg	1.462	20.462	mg/kg	0.00205 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				16	mg/kg	1.126	18.014	mg/kg	0.0018 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	38	mg/kg	1.56	59.273	mg/kg	0.0038 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				5.1	mg/kg	1.579	8.055	mg/kg	0.000806 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				28	mg/kg	2.469	69.14	mg/kg	0.00691 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0189 %		

Key

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

Classification of sample: TP108

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

Sample details

Sample Name:
TP108
Sample Depth:
1.00 m
Moisture content:
7.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 7.9% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.1 pH		6.1 pH	6.1 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				9.9	mg/kg	1.32	13.071	mg/kg	0.00131 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.6	mg/kg	13.43	8.058	mg/kg	0.000806 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				8.9	mg/kg	1.126	10.02	mg/kg	0.001 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	8.9	mg/kg	1.56	13.882	mg/kg	0.00089 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				16	mg/kg	1.579	25.272	mg/kg	0.00253 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				30	mg/kg	2.469	74.079	mg/kg	0.00741 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
										Total:	0.0196 %		

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

Classification of sample: TP109

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

Sample details

Sample Name:
TP109
Sample Depth:
0.30 m
Moisture content:
12%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.3	pH		6.3	pH	6.3 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		0.2	mg/kg		0.2	mg/kg	0.00002 %		
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		0.85	mg/kg		0.85	mg/kg	0.000085 %		
11		pyrene		204-927-3	129-00-0		0.78	mg/kg		0.78	mg/kg	0.000078 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.57	mg/kg		0.57	mg/kg	0.000057 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		0.45	mg/kg		0.45	mg/kg	0.000045 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.6	mg/kg		0.6	mg/kg	0.00006 %		

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.53	mg/kg		0.53	mg/kg	0.000053 %		
16		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.73	mg/kg		0.73	mg/kg	0.000073 %		
17		indeno[123-cd]pyrene		205-893-2	193-39-5		0.42	mg/kg		0.42	mg/kg	0.000042 %		
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.12	mg/kg		0.12	mg/kg	0.000012 %		
19		benzo[ghi]perylene		205-883-8	191-24-2		0.48	mg/kg		0.48	mg/kg	0.000048 %		
20		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12	mg/kg	1.32	15.844	mg/kg	0.00158 %		
21		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		1.2	mg/kg	13.43	16.116	mg/kg	0.00161 %		
22		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex	024-017-00-8				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
24		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
25		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		23	mg/kg	1.126	25.895	mg/kg	0.00259 %		
26		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	47	mg/kg	1.56	73.311	mg/kg	0.0047 %		
27		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		11	mg/kg	1.579	17.374	mg/kg	0.00174 %		
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
30		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		73	mg/kg	2.469	180.259	mg/kg	0.018 %		
31		benzene	601-020-00-8	200-753-7	71-43-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
32		toluene	601-021-00-3	203-625-9	108-88-3		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
36		TPH (C6 to C40) petroleum group			TPH		38	mg/kg		38	mg/kg	0.0038 %		
											Total:	0.0383 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: TP110

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

Sample details

Sample Name:
TP110
Sample Depth:
0.30 m
Moisture content:
15%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15% No Moisture Correction applied (MC)

#		Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number / EC Number / CAS Number							
1		pH PH		7.7 pH		7.7 pH	7.7 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5		<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol 604-001-00-2 / 203-632-7 / 108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene 601-052-00-2 / 202-049-5 / 91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene 205-917-1 / 208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene 201-469-6 / 83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene 201-695-5 / 86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene 201-581-5 / 85-01-8		0.09 mg/kg		0.09 mg/kg	0.000009 %		
9		anthracene 204-371-1 / 120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene 205-912-4 / 206-44-0		0.26 mg/kg		0.26 mg/kg	0.000026 %		
11		pyrene 204-927-3 / 129-00-0		0.27 mg/kg		0.27 mg/kg	0.000027 %		
12		benzo[a]anthracene 601-033-00-9 / 200-280-6 / 56-55-3		0.15 mg/kg		0.15 mg/kg	0.000015 %		
13		chrysene 601-048-00-0 / 205-923-4 / 218-01-9		0.21 mg/kg		0.21 mg/kg	0.000021 %		
14		benzo[b]fluoranthene 601-034-00-4 / 205-911-9 / 205-99-2		0.15 mg/kg		0.15 mg/kg	0.000015 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				8.9	mg/kg	1.32	11.751	mg/kg	0.00118 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	17	mg/kg	1.56	26.517	mg/kg	0.0017 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				14	mg/kg	1.579	22.113	mg/kg	0.00221 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				46	mg/kg	2.469	113.588	mg/kg	0.0114 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0237 %		

Key

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

Classification of sample: TP113

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP113
Sample Depth:
0.30 m
Moisture content:
8.2%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

Hazard properties (substances considered hazardous until shown otherwise)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

Determinands

Moisture content: 8.2% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		pH		PH		9.1 pH		9.1 pH	9.1 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides,				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
		ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }											
		006-007-00-5											
3		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
4		naphthalene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
		601-052-00-2	202-049-5	91-20-3									
5		acenaphthylene				0.7	mg/kg		0.7	mg/kg	0.00007 %		
			205-917-1	208-96-8									
6		acenaphthene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
			201-469-6	83-32-9									
7		fluorene				0.27	mg/kg		0.27	mg/kg	0.000027 %		
			201-695-5	86-73-7									
8		phenanthrene				4.2	mg/kg		4.2	mg/kg	0.00042 %		
			201-581-5	85-01-8									
9		anthracene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
			204-371-1	120-12-7									
10		fluoranthene				16	mg/kg		16	mg/kg	0.0016 %		
			205-912-4	206-44-0									
11		pyrene				16	mg/kg		16	mg/kg	0.0016 %		
			204-927-3	129-00-0									
12		benzo[a]anthracene				12	mg/kg		12	mg/kg	0.0012 %		
		601-033-00-9	200-280-6	56-55-3									
13		chrysene				9.1	mg/kg		9.1	mg/kg	0.00091 %		
		601-048-00-0	205-923-4	218-01-9									
14		benzo[b]fluoranthene				12	mg/kg		12	mg/kg	0.0012 %		
		601-034-00-4	205-911-9	205-99-2									
15		benzo[k]fluoranthene				16	mg/kg		16	mg/kg	0.0016 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				19	mg/kg		19	mg/kg	0.0019 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				11	mg/kg		11	mg/kg	0.0011 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				3.1	mg/kg		3.1	mg/kg	0.00031 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				12	mg/kg		12	mg/kg	0.0012 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				8.3	mg/kg	1.32	10.959	mg/kg	0.0011 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				30	mg/kg	1.462	43.847	mg/kg	0.00438 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				36	mg/kg	1.126	40.532	mg/kg	0.00405 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	44	mg/kg	1.56	68.632	mg/kg	0.0044 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
28		nickel { nickel dihydroxide }				29	mg/kg	1.579	45.805	mg/kg	0.00458 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		**<LOD**
		034-002-00-8											
30		zinc { zinc sulphate }				470	mg/kg	2.469	1160.569	mg/kg	0.116 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				1030	mg/kg		1030	mg/kg	0.103 %		
				TPH									
37		carbazole				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			201-696-0	86-74-8									
38		anthraquinone				0.5	mg/kg		0.5	mg/kg	0.00005 %		
		606-151-00-4	201-549-0	84-65-1									
										Total:	0.254 %		

Key

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

Classification of sample: TP113[1]

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

Sample details

Sample Name:
TP113[1]
Sample Depth:
0.60 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.2	pH		7.2	pH	7.2 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				12	mg/kg	1.32	15.844	mg/kg	0.00158 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.9	mg/kg	13.43	12.087	mg/kg	0.00121 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				11	mg/kg	1.126	12.385	mg/kg	0.00124 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	15	mg/kg	1.56	23.397	mg/kg	0.0015 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				22	mg/kg	1.579	34.749	mg/kg	0.00347 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				36	mg/kg	2.469	88.895	mg/kg	0.00889 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				16	mg/kg		16	mg/kg	0.0016 %		
				TPH									
										Total:	0.024 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: TP113[2]

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

Sample details

Sample Name:
TP113[2]
Sample Depth:
1.40 m
Moisture content:
17%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.6	pH		7.6	pH	7.6 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		0.12	mg/kg		0.12	mg/kg	0.000012 %		
7		fluorene		201-695-5	86-73-7		0.14	mg/kg		0.14	mg/kg	0.000014 %		
8		phenanthrene		201-581-5	85-01-8		1.2	mg/kg		1.2	mg/kg	0.00012 %		
9		anthracene		204-371-1	120-12-7		0.29	mg/kg		0.29	mg/kg	0.000029 %		
10		fluoranthene		205-912-4	206-44-0		1.6	mg/kg		1.6	mg/kg	0.00016 %		
11		pyrene		204-927-3	129-00-0		1.3	mg/kg		1.3	mg/kg	0.00013 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.67	mg/kg		0.67	mg/kg	0.000067 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		0.64	mg/kg		0.64	mg/kg	0.000064 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.48	mg/kg		0.48	mg/kg	0.000048 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				0.57	mg/kg		0.57	mg/kg	0.000057 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				0.67	mg/kg		0.67	mg/kg	0.000067 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				0.36	mg/kg		0.36	mg/kg	0.000036 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				11	mg/kg	1.32	14.524	mg/kg	0.00145 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.1	mg/kg	13.43	14.773	mg/kg	0.00148 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				27	mg/kg	1.462	39.462	mg/kg	0.00395 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	31	mg/kg	1.56	48.354	mg/kg	0.0031 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				24	mg/kg	1.579	37.908	mg/kg	0.00379 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				44	mg/kg	2.469	108.649	mg/kg	0.0109 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				109	mg/kg		109	mg/kg	0.0109 %		
				TPH									
										Total:	0.0394 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: TP113[3]

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

Sample details

Sample Name:
TP113[3]
Sample Depth:
2.00 m
Moisture content:
19%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.6	pH		7.6	pH	7.6 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				18	mg/kg	1.32	23.766	mg/kg	0.00238 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				36	mg/kg	1.462	52.616	mg/kg	0.00526 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	22	mg/kg	1.56	34.316	mg/kg	0.0022 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				44	mg/kg	1.579	69.498	mg/kg	0.00695 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				49	mg/kg	2.469	120.996	mg/kg	0.0121 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				11	mg/kg		11	mg/kg	0.0011 %		
				TPH									
										Total:	0.0343 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: TP113[4]

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

Sample details

Sample Name:
TP113[4]
Sample Depth:
3.00 m
Moisture content:
19%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.7 pH		7.7 pH	7.7 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.5	mg/kg	13.43	6.715	mg/kg	0.000672 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				9.7	mg/kg	1.126	10.921	mg/kg	0.00109 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	11	mg/kg	1.56	17.158	mg/kg	0.0011 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				33	mg/kg	1.579	52.123	mg/kg	0.00521 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				34	mg/kg	2.469	83.956	mg/kg	0.0084 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				37	mg/kg		37	mg/kg	0.0037 %		
				TPH									
										Total:	0.0271 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: WS101

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

Sample details

Sample Name:
WS101
Sample Depth:
0.50-0.55 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.8	pH		7.8	pH	7.8 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		0.1	mg/kg		0.1	mg/kg	0.00001 %		
5		acenaphthylene		205-917-1	208-96-8		0.17	mg/kg		0.17	mg/kg	0.000017 %		
6		acenaphthene		201-469-6	83-32-9		0.36	mg/kg		0.36	mg/kg	0.000036 %		
7		fluorene		201-695-5	86-73-7		0.32	mg/kg		0.32	mg/kg	0.000032 %		
8		phenanthrene		201-581-5	85-01-8		3.9	mg/kg		3.9	mg/kg	0.00039 %		
9		anthracene		204-371-1	120-12-7		1.1	mg/kg		1.1	mg/kg	0.00011 %		
10		fluoranthene		205-912-4	206-44-0		7.1	mg/kg		7.1	mg/kg	0.00071 %		
11		pyrene		204-927-3	129-00-0		5.3	mg/kg		5.3	mg/kg	0.00053 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		5.1	mg/kg		5.1	mg/kg	0.00051 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		2.3	mg/kg		2.3	mg/kg	0.00023 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		6.2	mg/kg		6.2	mg/kg	0.00062 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				5.2	mg/kg		5.2	mg/kg	0.00052 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				2.3	mg/kg		2.3	mg/kg	0.00023 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.43	mg/kg		0.43	mg/kg	0.000043 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				2.2	mg/kg		2.2	mg/kg	0.00022 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				7.4	mg/kg	1.32	9.77	mg/kg	0.000977 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.5	mg/kg	13.43	20.145	mg/kg	0.00201 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				41	mg/kg	1.462	59.924	mg/kg	0.00599 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	36	mg/kg	1.56	56.153	mg/kg	0.0036 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				27	mg/kg	1.579	42.646	mg/kg	0.00426 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				70	mg/kg	2.469	172.851	mg/kg	0.0173 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.041 %		

Key

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

Classification of sample: WS102A

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

Sample details

Sample Name:
WS102A
Sample Depth:
0.00-0.20 m
Moisture content:
15%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.4	pH		7.4	pH	7.4 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				15	mg/kg	1.32	19.805	mg/kg	0.00198 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.4	mg/kg	13.43	18.802	mg/kg	0.00188 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				32	mg/kg	1.462	46.77	mg/kg	0.00468 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	19	mg/kg	1.56	29.636	mg/kg	0.0019 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				29	mg/kg	1.579	45.805	mg/kg	0.00458 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				71	mg/kg	2.469	175.32	mg/kg	0.0175 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0353 %		

Key

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

Classification of sample: WS104C

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

Sample details

Sample Name:
WS104C
Sample Depth:
0.10-0.20 m
Moisture content:
8.5%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 8.5% No Moisture Correction applied (MC)

#		Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number / EC Number / CAS Number							
1		pH PH		8.2 pH		8.2 pH	8.2 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5		<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol 604-001-00-2 / 203-632-7 / 108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene 601-052-00-2 / 202-049-5 / 91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene 205-917-1 / 208-96-8		0.1 mg/kg		0.1 mg/kg	0.00001 %		
6		acenaphthene 201-469-6 / 83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene 201-695-5 / 86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene 201-581-5 / 85-01-8		0.44 mg/kg		0.44 mg/kg	0.000044 %		
9		anthracene 204-371-1 / 120-12-7		0.16 mg/kg		0.16 mg/kg	0.000016 %		
10		fluoranthene 205-912-4 / 206-44-0		1.7 mg/kg		1.7 mg/kg	0.00017 %		
11		pyrene 204-927-3 / 129-00-0		1.3 mg/kg		1.3 mg/kg	0.00013 %		
12		benzo[a]anthracene 601-033-00-9 / 200-280-6 / 56-55-3		1.3 mg/kg		1.3 mg/kg	0.00013 %		
13		chrysene 601-048-00-0 / 205-923-4 / 218-01-9		0.57 mg/kg		0.57 mg/kg	0.000057 %		
14		benzo[b]fluoranthene 601-034-00-4 / 205-911-9 / 205-99-2		1.7 mg/kg		1.7 mg/kg	0.00017 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				0.55	mg/kg		0.55	mg/kg	0.000055 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				0.78	mg/kg		0.78	mg/kg	0.000078 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				0.78	mg/kg		0.78	mg/kg	0.000078 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				9.3	mg/kg	1.32	12.279	mg/kg	0.00123 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				43	mg/kg	1.462	62.847	mg/kg	0.00628 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				34	mg/kg	1.126	38.28	mg/kg	0.00383 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	30	mg/kg	1.56	46.794	mg/kg	0.003 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				21	mg/kg	1.579	33.169	mg/kg	0.00332 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				81	mg/kg	2.469	200.013	mg/kg	0.02 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				193	mg/kg		193	mg/kg	0.0193 %		
				TPH									
										Total:	0.0606 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: WS104C[1]

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

Sample details

Sample Name:
WS104C[1]
Sample Depth:
1.80-1.90 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.1 pH		8.1 pH	8.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.6	mg/kg	13.43	8.058	mg/kg	0.000806 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				8.5	mg/kg	1.126	9.57	mg/kg	0.000957 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	11	mg/kg	1.56	17.158	mg/kg	0.0011 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				22	mg/kg	1.579	34.749	mg/kg	0.00347 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.1	mg/kg	2.554	2.809	mg/kg	0.000281 %		
		034-002-00-8											
30		zinc { zinc sulphate }				29	mg/kg	2.469	71.61	mg/kg	0.00716 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0197 %		

Key

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

Classification of sample: WS109

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

Sample details

Sample Name:
WS109
Sample Depth:
0.10-0.20 m
Moisture content:
12%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.9	pH		7.9	pH	7.9 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		0.11	mg/kg		0.11	mg/kg	0.000011 %		
5		acenaphthylene		205-917-1	208-96-8		0.57	mg/kg		0.57	mg/kg	0.000057 %		
6		acenaphthene		201-469-6	83-32-9		0.37	mg/kg		0.37	mg/kg	0.000037 %		
7		fluorene		201-695-5	86-73-7		0.47	mg/kg		0.47	mg/kg	0.000047 %		
8		phenanthrene		201-581-5	85-01-8		4.2	mg/kg		4.2	mg/kg	0.00042 %		
9		anthracene		204-371-1	120-12-7		1.7	mg/kg		1.7	mg/kg	0.00017 %		
10		fluoranthene		205-912-4	206-44-0		12	mg/kg		12	mg/kg	0.0012 %		
11		pyrene		204-927-3	129-00-0		10	mg/kg		10	mg/kg	0.001 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		8.4	mg/kg		8.4	mg/kg	0.00084 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		3.8	mg/kg		3.8	mg/kg	0.00038 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		9.8	mg/kg		9.8	mg/kg	0.00098 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				3	mg/kg		3	mg/kg	0.0003 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				8.3	mg/kg		8.3	mg/kg	0.00083 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				4.2	mg/kg		4.2	mg/kg	0.00042 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.79	mg/kg		0.79	mg/kg	0.000079 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				3.5	mg/kg		3.5	mg/kg	0.00035 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				15	mg/kg	1.32	19.805	mg/kg	0.00198 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.9	mg/kg	13.43	12.087	mg/kg	0.00121 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				32	mg/kg	1.462	46.77	mg/kg	0.00468 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				11	mg/kg	1.126	12.385	mg/kg	0.00124 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	60	mg/kg	1.56	93.589	mg/kg	0.006 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				27	mg/kg	1.579	42.646	mg/kg	0.00426 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				71	mg/kg	2.469	175.32	mg/kg	0.0175 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				320	mg/kg		320	mg/kg	0.032 %		
				TPH									
										Total:	0.0775 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: WS110

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

Sample details

Sample Name:
WS110
Sample Depth:
0.05-0.15 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7	pH		7	pH	7pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		0.14	mg/kg		0.14	mg/kg	0.000014 %		
5		acenaphthylene		205-917-1	208-96-8		0.27	mg/kg		0.27	mg/kg	0.000027 %		
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		0.97	mg/kg		0.97	mg/kg	0.000097 %		
9		anthracene		204-371-1	120-12-7		0.26	mg/kg		0.26	mg/kg	0.000026 %		
10		fluoranthene		205-912-4	206-44-0		4.4	mg/kg		4.4	mg/kg	0.00044 %		
11		pyrene		204-927-3	129-00-0		3.4	mg/kg		3.4	mg/kg	0.00034 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		2.3	mg/kg		2.3	mg/kg	0.00023 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		1.2	mg/kg		1.2	mg/kg	0.00012 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		3.5	mg/kg		3.5	mg/kg	0.00035 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				1.1	mg/kg		1.1	mg/kg	0.00011 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				2.9	mg/kg		2.9	mg/kg	0.00029 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.27	mg/kg		0.27	mg/kg	0.000027 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				1.4	mg/kg		1.4	mg/kg	0.00014 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				4.3	mg/kg	13.43	57.749	mg/kg	0.00577 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	0.3	mg/kg	1.285	0.386	mg/kg	0.00003 %		
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				23	mg/kg	1.462	33.616	mg/kg	0.00336 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				61	mg/kg	1.126	68.679	mg/kg	0.00687 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	340	mg/kg	1.56	530.337	mg/kg	0.034 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				22	mg/kg	1.579	34.749	mg/kg	0.00347 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				240	mg/kg	2.469	592.631	mg/kg	0.0593 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				198	mg/kg		198	mg/kg	0.0198 %		
				TPH									
										Total:	0.138 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: WS110[1]

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

Sample details

Sample Name:
WS110[1]
Sample Depth:
0.50-0.55 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.1 pH		7.1 pH	7.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				5.5	mg/kg	1.32	7.262	mg/kg	0.000726 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.2	mg/kg	13.43	16.116	mg/kg	0.00161 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				9.7	mg/kg	1.126	10.921	mg/kg	0.00109 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	27	mg/kg	1.56	42.115	mg/kg	0.0027 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				5.6	mg/kg	1.579	8.845	mg/kg	0.000885 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				28	mg/kg	2.469	69.14	mg/kg	0.00691 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0176 %		

Key

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

Classification of sample: WS111

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

Sample details

Sample Name:
WS111
Sample Depth:
0.48-0.60 m
Moisture content:
8.3%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 8.3% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		10	pH		10	pH	10pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		0.43	mg/kg		0.43	mg/kg	0.000043 %		
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		0.19	mg/kg		0.19	mg/kg	0.000019 %		
8		phenanthrene		201-581-5	85-01-8		0.67	mg/kg		0.67	mg/kg	0.000067 %		
9		anthracene		204-371-1	120-12-7		0.13	mg/kg		0.13	mg/kg	0.000013 %		
10		fluoranthene		205-912-4	206-44-0		1.1	mg/kg		1.1	mg/kg	0.00011 %		
11		pyrene		204-927-3	129-00-0		0.88	mg/kg		0.88	mg/kg	0.000088 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.89	mg/kg		0.89	mg/kg	0.000089 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		0.46	mg/kg		0.46	mg/kg	0.000046 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1	mg/kg		1	mg/kg	0.0001 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				1	mg/kg		1	mg/kg	0.0001 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				0.53	mg/kg		0.53	mg/kg	0.000053 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				16	mg/kg	1.32	21.125	mg/kg	0.00211 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				2.3	mg/kg	13.43	30.889	mg/kg	0.00309 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				64	mg/kg	1.126	72.057	mg/kg	0.00721 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	64	mg/kg	1.56	99.828	mg/kg	0.0064 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				29	mg/kg	1.579	45.805	mg/kg	0.00458 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				140	mg/kg	2.469	345.701	mg/kg	0.0346 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				228	mg/kg		228	mg/kg	0.0228 %		
				TPH									
										Total:	0.0859 %		

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

Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: Force this Hazardous property to non hazardous because TPH in soils is unlikely to be flammable at concentrations less than 1000 mg/kg

Classification of sample: WS112

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

Sample details

Sample Name:
WS112
Sample Depth:
0.50-0.55 m
Moisture content:
12%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.5 pH		7.5 pH	7.5 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				1.1	mg/kg	1.32	1.452	mg/kg	0.000145 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.4	mg/kg	13.43	5.372	mg/kg	0.000537 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<**LOD**
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<**LOD**
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				9.7	mg/kg	1.126	10.921	mg/kg	0.00109 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	14	mg/kg	1.56	21.837	mg/kg	0.0014 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				14	mg/kg	1.579	22.113	mg/kg	0.00221 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		034-002-00-8											
30		zinc { zinc sulphate }				40	mg/kg	2.469	98.772	mg/kg	0.00988 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0194 %		

Key

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

Classification of sample: HD101

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

Sample details

Sample Name:
HD101
Sample Depth:
0.30 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.9 pH		7.9 pH	7.9 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				12	mg/kg	1.32	15.844	mg/kg	0.00158 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.6	mg/kg	13.43	21.488	mg/kg	0.00215 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	14	mg/kg	1.56	21.837	mg/kg	0.0014 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				22	mg/kg	1.579	34.749	mg/kg	0.00347 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				37	mg/kg	2.469	91.364	mg/kg	0.00914 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
										Total:	0.0247 %		

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

Classification of sample: HD102

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

Sample details

Sample Name:
HD102
Sample Depth:
0.30 m
Moisture content:
10%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 10% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.6	pH		7.6	pH	7.6 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				8.8	mg/kg	1.32	11.619	mg/kg	0.00116 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.1	mg/kg	13.43	14.773	mg/kg	0.00148 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	12	mg/kg	1.56	18.718	mg/kg	0.0012 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				20	mg/kg	1.579	31.59	mg/kg	0.00316 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				35	mg/kg	2.469	86.425	mg/kg	0.00864 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
										Total:	0.0228 %		

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

Classification of sample: HD103

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

Sample details

Sample Name:
HD103
Sample Depth:
0.50 m
Moisture content:
9.9%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.9% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.5 pH		7.5 pH	7.5 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				8.8	mg/kg	1.32	11.619	mg/kg	0.00116 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.6	mg/kg	13.43	8.058	mg/kg	0.000806 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				21	mg/kg	1.462	30.693	mg/kg	0.00307 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	12	mg/kg	1.56	18.718	mg/kg	0.0012 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				0.7	mg/kg	1.353	0.947	mg/kg	0.0000947 %		
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				23	mg/kg	1.579	36.328	mg/kg	0.00363 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				36	mg/kg	2.469	88.895	mg/kg	0.00889 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
										Total:	0.0234 %		

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

Classification of sample: BH103

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

Sample details

Sample Name:
BH103
Sample Depth:
2.00 m
Moisture content:
21%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.7 pH		7.7 pH	7.7 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				10	mg/kg	1.32	13.203	mg/kg	0.00132 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.2	mg/kg	13.43	2.686	mg/kg	0.000269 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				34	mg/kg	1.462	49.693	mg/kg	0.00497 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				34	mg/kg	1.126	38.28	mg/kg	0.00383 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	13	mg/kg	1.56	20.278	mg/kg	0.0013 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				40	mg/kg	1.579	63.18	mg/kg	0.00632 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				48	mg/kg	2.469	118.526	mg/kg	0.0119 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0309 %		

Key

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

Classification of sample: BH102

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

Sample details

Sample Name:
BH102
Sample Depth:
0.30 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.7	pH		7.7	pH	7.7 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				13	mg/kg	1.32	17.164	mg/kg	0.00172 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				27	mg/kg	1.462	39.462	mg/kg	0.00395 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				50	mg/kg	1.126	56.294	mg/kg	0.00563 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	14	mg/kg	1.56	21.837	mg/kg	0.0014 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				24	mg/kg	1.579	37.908	mg/kg	0.00379 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				47	mg/kg	2.469	116.057	mg/kg	0.0116 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0305 %		

Key

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

Classification of sample: BH105

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

Sample details

Sample Name:
BH105
Sample Depth:
0.30 m
Moisture content:
12%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.3 pH		7.3 pH	7.3 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				8.7	mg/kg	1.32	11.487	mg/kg	0.00115 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.5	mg/kg	13.43	6.715	mg/kg	0.000672 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	21.392	mg/kg	0.00214 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	20	mg/kg	1.56	31.196	mg/kg	0.002 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				8.8	mg/kg	1.579	13.9	mg/kg	0.00139 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				17	mg/kg	2.469	41.978	mg/kg	0.0042 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
										Total:	0.0163 %		

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

Classification of sample: BH105[1]

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

Sample details

Sample Name:
BH105[1]
Sample Depth:
0.50 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.3 pH		7.3 pH	7.3 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				9.6	mg/kg	1.32	12.675	mg/kg	0.00127 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				7.9	mg/kg	1.462	11.546	mg/kg	0.00115 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				12	mg/kg	1.126	13.511	mg/kg	0.00135 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	13	mg/kg	1.56	20.278	mg/kg	0.0013 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				5.2	mg/kg	1.579	8.213	mg/kg	0.000821 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				20	mg/kg	2.469	49.386	mg/kg	0.00494 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
31		benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
32		toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
33		ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
34		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
36		TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
										Total:	0.0145 %		

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

Classification of sample: TP107

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

Sample details

Sample Name:
TP107
Sample Depth:
0.30 m
Moisture content:
13%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.3	pH		6.3	pH	6.3 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				16	mg/kg	1.32	21.125	mg/kg	0.00211 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.4	mg/kg	13.43	5.372	mg/kg	0.000537 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				31	mg/kg	1.462	45.308	mg/kg	0.00453 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				10	mg/kg	1.126	11.259	mg/kg	0.00113 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	18	mg/kg	1.56	28.077	mg/kg	0.0018 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				29	mg/kg	1.579	45.805	mg/kg	0.00458 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				57	mg/kg	2.469	140.75	mg/kg	0.0141 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0298 %		

Key

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

Classification of sample: WS103

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

Sample details

Sample Name:
WS103
Sample Depth:
0.50-0.55 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.1 pH		6.1 pH	6.1 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				9.5	mg/kg	1.32	12.543	mg/kg	0.00125 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.5	mg/kg	13.43	6.715	mg/kg	0.000672 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				77	mg/kg	1.462	112.54	mg/kg	0.0113 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				3.9	mg/kg	1.126	4.391	mg/kg	0.000439 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	10	mg/kg	1.56	15.598	mg/kg	0.001 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				67	mg/kg	1.579	105.826	mg/kg	0.0106 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				71	mg/kg	2.469	175.32	mg/kg	0.0175 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0438 %		

Key

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

Classification of sample: WS105

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

Sample details

Sample Name:
WS105
Sample Depth:
0.10-0.23 m
Moisture content:
14%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 14% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.8	pH		6.8	pH	6.8 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		0.16	mg/kg		0.16	mg/kg	0.000016 %		
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		0.51	mg/kg		0.51	mg/kg	0.000051 %		
9		anthracene		204-371-1	120-12-7		0.18	mg/kg		0.18	mg/kg	0.000018 %		
10		fluoranthene		205-912-4	206-44-0		1.7	mg/kg		1.7	mg/kg	0.00017 %		
11		pyrene		204-927-3	129-00-0		1.7	mg/kg		1.7	mg/kg	0.00017 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.1	mg/kg		1.1	mg/kg	0.00011 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		0.95	mg/kg		0.95	mg/kg	0.000095 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.1	mg/kg		1.1	mg/kg	0.00011 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				1.6	mg/kg		1.6	mg/kg	0.00016 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				1.5	mg/kg		1.5	mg/kg	0.00015 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				1.7	mg/kg		1.7	mg/kg	0.00017 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				4.9	mg/kg	1.32	6.47	mg/kg	0.000647 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1.3	mg/kg	13.43	17.459	mg/kg	0.00175 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	0.3	mg/kg	1.285	0.386	mg/kg	0.00003 %		
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<**LOD**
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				29	mg/kg	1.462	42.385	mg/kg	0.00424 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				21	mg/kg	1.126	23.644	mg/kg	0.00236 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	40	mg/kg	1.56	62.393	mg/kg	0.004 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				17	mg/kg	1.579	26.851	mg/kg	0.00269 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		034-002-00-8											
30		zinc { zinc sulphate }				110	mg/kg	2.469	271.623	mg/kg	0.0272 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0453 %		

Key

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

Classification of sample: WS106

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

Sample details

Sample Name:
WS106
Sample Depth:
0.10-0.20 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		6.6 pH		6.6 pH	6.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13	chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				15	mg/kg	1.32	19.805	mg/kg	0.00198 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				41	mg/kg	1.462	59.924	mg/kg	0.00599 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				12	mg/kg	1.126	13.511	mg/kg	0.00135 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	27	mg/kg	1.56	42.115	mg/kg	0.0027 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				19	mg/kg	1.579	30.01	mg/kg	0.003 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				56	mg/kg	2.469	138.281	mg/kg	0.0138 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.031 %		

Key

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

Classification of sample: WS107

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

Sample details

Sample Name:
WS107
Sample Depth:
0.10-0.15 m
Moisture content:
11%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.8 pH		6.8 pH	6.8 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				21	mg/kg	1.32	27.727	mg/kg	0.00277 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				37	mg/kg	1.462	54.078	mg/kg	0.00541 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				15	mg/kg	1.126	16.888	mg/kg	0.00169 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	20	mg/kg	1.56	31.196	mg/kg	0.002 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				24	mg/kg	1.579	37.908	mg/kg	0.00379 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				58	mg/kg	2.469	143.219	mg/kg	0.0143 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0324 %		

Key

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

Classification of sample: WS108

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

Sample details

Sample Name:
WS108
Sample Depth:
0.05-0.15 m
Moisture content:
14%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 14% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		6.6	pH		6.6	pH	6.6 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		phenol	604-001-00-2	203-632-7	108-95-2		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		phenanthrene		201-581-5	85-01-8		0.32	mg/kg		0.32	mg/kg	0.000032 %		
9		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
10		fluoranthene		205-912-4	206-44-0		0.72	mg/kg		0.72	mg/kg	0.000072 %		
11		pyrene		204-927-3	129-00-0		0.62	mg/kg		0.62	mg/kg	0.000062 %		
12		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.36	mg/kg		0.36	mg/kg	0.000036 %		
13		chrysene	601-048-00-0	205-923-4	218-01-9		0.31	mg/kg		0.31	mg/kg	0.000031 %		
14		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.33	mg/kg		0.33	mg/kg	0.000033 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		benzo[k]fluoranthene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
		601-036-00-5	205-916-6	207-08-9									
16		benzo[a]pyrene; benzo[def]chrysene				0.32	mg/kg		0.32	mg/kg	0.000032 %		
		601-032-00-3	200-028-5	50-32-8									
17		indeno[123-cd]pyrene				0.21	mg/kg		0.21	mg/kg	0.000021 %		
			205-893-2	193-39-5									
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
19		benzo[ghi]perylene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			205-883-8	191-24-2									
20		arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
		033-003-00-0	215-481-4	1327-53-3									
21		boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
				10294-33-4, 10294-34-5, 7637-07-2									
22		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
		048-010-00-4	215-147-8	1306-23-6									
23		chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex				<4	mg/kg		<4	mg/kg	<0.0004 %		<LOD
		024-017-00-8											
24		chromium in chromium(III) compounds { chromium(III) oxide }				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
			215-160-9	1308-38-9									
25		copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	24.77	mg/kg	0.00248 %		
		029-002-00-X	215-270-7	1317-39-1									
26		lead { lead chromate }			1	140	mg/kg	1.56	218.374	mg/kg	0.014 %		
		082-004-00-2	231-846-0	7758-97-6									
27		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
28		nickel { nickel dihydroxide }				12	mg/kg	1.579	18.954	mg/kg	0.0019 %		
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
30		zinc { zinc sulphate }				63	mg/kg	2.469	155.566	mg/kg	0.0156 %		
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
										Total:	0.0418 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: None.
Hazard Statements: None.

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

CLP index number: 006-007-00-5
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Risk Phrases: None.
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s)/Risk Phrase(s):
14/12/2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R22 , R26 , R27 , R36 , R37 , R38
Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36 , R37 , R38 , N R50/53 , N R51/53
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R22 , R36 , R37 , R38 , R40 , R43 , N R50/53
Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36 , R37 , R38 , R43 , N R50/53
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xn R22 , N R50/53
Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xi R36/37/38 , N R50/53
Hazard Statements: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R40
Hazard Statements: Carc. 2 H351

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23/07/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **boron tribromide/trichloride/trifluoride (combined)** (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Conversion factor: 13.43
Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06/08/2015
Risk Phrases: R14 , T+ R26/28 , C R34 , C R35
Hazard Statements: EUH014 , Acute Tox. 2 H330 , Acute Tox. 2 H300 , Skin Corr. 1A H314 , Skin Corr. 1B H314

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

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R20 , R22 , R36 , R37 , R38 , R42 , R43 , R50/53 , R60 , R61
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **dicopper oxide; copper (I) oxide** (EC Number: 215-270-7, CAS Number: 1317-39-1)

CLP index number: 029-002-00-X
Data source: Regulation (EU) 2016/1179 of 19 July 2016 (ATP9)
Additional Risk Phrases: N R50/53 , N R50/53 >= 0.25 %
Additional Hazard Statement(s): None.
Reason for additional Hazards Statement(s)/Risk Phrase(s):
10/10/2016 - N R50/53 risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases
10/10/2016 - N R50/53 >= 0.25 % risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

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

CLP index number: 601-023-00-4
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Risk Phrases: None.
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03/06/2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: R10 , R45 , R46 , R51/53 , R63 , R65
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

carbazole (EC Number: 201-696-0, CAS Number: 86-74-8)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02/03/2017
Risk Phrases: R50/53
Hazard Statements: Acute Tox. 4 H302 , Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Muta. 2 H341 , Carc. 2 H351 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Acute Tox. 3 H331 , Acute Tox. 3 H311 , Acute Tox. 3 H301

Appendix B: Rationale for selection of metal species

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

Only available species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

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

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

lead {lead chromate}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

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

Worst case species based on hazard statements

zinc {zinc sulphate}

Insufficient concentration of chromium to for zinc chromate. Species changed to next worst case (zinc sulphate).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition, May 2015
HazWasteOnline Classification Engine Version: 2017.269.3405.6897 (26 Sep 2017)
HazWasteOnline Database: 2017.270.3406.6898 (28 Sep 2017)

This classification utilises the following guidance and legislation:
WM3 - Waste Classification - May 2015
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

Arcadis Consulting (UK) Limited

The Surrey Research Park
10 Medawar Road
Guildford
GU2 7AR
United Kingdom

T: +44 (0)1483 803 000

arcadis.com