

Stacey Inglis
Wrexham County Borough Council
Ruthin Road
Wrexham
LL13 7TU

Dear Stacey,

RE: P/2020/0636 – Discharge of Condition 7 (Contamination) of Planning Permission P/2018/0675

In response to your memorandum dated 13th November 2020 & conversation with my colleague Greg Jones we understand that you require a 'lines of evidence' approach with regard to the:

- Former back-up fuel tank;
- Historic timber yard;
- Electricity sub-station; and
- Ground gas.

We have presented our review of the above, findings of our additional investigation and updated assessment below.

FUEL TANK

A generator and small diesel tank were located within the former Police Headquarters building in the west of the site, with a visible external fuel filling point a ground level. Due to the insufficient space or headroom within this room, it was not possible to undertake a targeted investigation of this feature pre-demolition. Please refer to photos in Remada's Phase 1 report 525.01. The tank's dimensions were approximately 0.8m x 1.8m and it was seated in a concrete bund. No visual evidence of leakage was noted during the previous investigations or reported by Lidl's contractor, Braithwaites, prior to or during demolition.

The building was demolished by a specialist subcontractor on Sunday 1st November 2020, with the tank having been removed prior to demolition. In order to remove deep relict foundations it was necessary to excavate soils underlying the footprint, including those immediately underlying the diesel tank.

A photographic summary showing the position of the former diesel tank is provided below:



Photo 1: View eastwards across the site on 4th December 2020, with the former position of the tank being located underneath the demolition material stockpile on the right (as indicated by Braithwaites). A stockpile of crushed material is present to the left of the orange metal skip in the background.



Photo 2: View southwards across the site on 4th December 2020, with the former position of the tank being located in the left foreground.

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Braithwaites have not been able to provide Remada with photographs of the tank removal but there was visual or olfactory indications of spillage or leakage during Remada's site visit on 4th December 2020.

WS101 and WS102 were bored in the vicinity as Remada's Supplementary Phase 2 Ground Investigation 525.03. The concentrations of TPHCWG and PAH16 in near surface soils were less than the laboratory method detection limit.

In the New Year and following removal of the stockpile in the photo above we will take two samples of the soil in the location of the former tank. The samples will be scheduled for the analysis of TPHCWG, PAH16 and BTEX.

ELECTRICITY SUB-STATION

An electricity sub-station was identified as being present in the western area of the site. Remada's borehole WS101 in 2019 was located in the vicinity of this feature, with PCB analysis undertaken. None of the PCB analytes were present at levels greater than the laboratory method detection limit. Consequently, the feature is not considered to pose a risk to human health, whilst source removal has taken place as part of the site's redevelopment.

HISTORIC TIMBER YARD

Background

The earliest available mapping of 1899 shows a timber yard to be present within the north-western area of the site. The subsequent mapping of 1912 and 1915 shows this feature to remain on-site, but it had been removed by the mapping of 1937. In the absence of any structures within the confines of the wider timber yard area, it is assumed that only timber storage was being undertaken on-site, rather than timber manufacturing and/or treatment.

However, it is likely that treated timber would have been stored on-site and as such, reference has been made to Department of the Environment's (DoE's) Industry Profiles for timber treatment works. The main three types of treatment solution used are (i) creosote and creosote; (ii) water-based copper-chromium-arsenic solutions and (iii) light organic solvent solutions.

The DoE's investigations of timber treatment plants using copper-chromium-arsenic preservatives have indicated that where the preservatives have contaminated the soil, the copper, chromium and arsenic compounds have tended to remain in the upper surface layers of the soil and extensive vertical migration has not taken place. Likewise, many of the organic solvents associated with timber treatment are volatile with moderate to high vapour pressures. Organic contaminants with an inherently high mobility include the phenols, particularly phenol itself, which is very soluble and can migrate considerable distances from its source.

It is also considered likely that ash generation would be associated with the historic timber yard on-site.

Previous Intrusive Investigation

During Brownfield Solution Ltd's Phase 2 investigation on-site in November 2017, only one exploratory hole (WS12) was positioned within the footprint of the historic timber yard on-site. An environmental soil sample was taken of the granular made ground in this location (0.3m) and scheduled for chemical analysis comprising metals, PAHs, phenols, asbestos and cyanide.

Remada carried out a supplementary investigation in March 2019, with four exploratory holes (TP101, TP105, WS103 and WS105) being positioned within the footprint of the historic timber yard. Environmental soil samples were taken of the granular made ground in both window sample boreholes and scheduled for chemical analysis comprising TPHCWG and PAHs.

During both intrusive investigations, granular made ground was encountered within the timber yard footprint to depths of between 0.25m (TP101) and >2.2m bgl (TP105). The results of the chemical analyses were compared with the Generic Assessment Criteria (GAC) for the assessment of

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potential risks to human health. In order to present a conservative assessment, the more stringent SOM content of 1% was adopted for a commercial land use.

None of the analytes tested for were detected at concentrations that exceeded the human health GAC protective of on-site workers.

Additional Site Investigation – December 2020

Remada returned to site on 4th December 2020, in order to undertake additional investigation within the footprint of the former timber yard. Seven trial pits (TP201 – TP207) were excavated using a 13-tonne tracked excavator. The positions of these trial pits are presented on the appended

Made Ground was encountered within six of the seven trial pits (all except TP1, where the made ground had been removed to achieve proposed site levels) and ranged in depth between 0.2m and >0.6m bgl. Concrete obstructions were encountered within TP6 and TP7 preventing further excavation. Natural granular strata were encountered in five of the trial pits (all except TP6 and TP7), comprising brown slightly silty gravelly SAND with low cobble content.

Five (5 No.) soil samples of the made ground and two (2 No.) samples of the underlying natural strata were collected in amber glass jars and plastic tubs and retained in a cool box for transport to the laboratory. The majority of samples were scheduled for CLEA metals and PAH testing, with two being scheduled for an enhanced suite comprising CLEA metals, PAH, TPHCWG, BTEX and phenols.

The results of the chemical analyses were compared with the Generic Assessment Criteria (GAC) for the assessment of potential risks to human health. In order to present a conservative assessment, the more stringent SOM content of 1% was adopted for a commercial land use.

None of the analytes tested for were detected at concentrations that exceeded the human health GAC protective of on-site workers. The GAC comparison table is appended at the rear of this report.

GROUND GAS PROTECTION MEASURES

Background

The study site is located within an Intermediate Probability Radon Area, with 3 to 5% of the homes in the area being estimated to be at or above the Action Level. As such, basic radon protective measures are necessary within the design of the proposed Lidl store.

Potential sources of ground gas have been identified associated with the historic uses of the site, including general made ground and the timber yard. Potential off-site sources include historic landfill sites and an Asda fuel filling station.

Three ground gas and groundwater monitoring wells (WS3, WS10 and WS12) were installed by Brownfield Solutions Ltd (BSL) during their Phase 2 investigation on-site, with WS12 being located within the footprint of the former timber yard.

Three historic landfill sites were recorded within the vicinity of the study site; the nearest being 'The Dunks No. 2' located 674m to the south-east at the rear of Benjamin Road, Queens Park and situated in bedrock of the Salop Formation. Monitoring well WS3, located in the north-eastern area of the proposed building footprint, is closest to this historic landfill site and the Asda fuel filling station and was consequently used as an indicator for any ground gas impaction attributable to these potential off-site sources.

Four ground gas monitoring rounds were initially undertaken by BSL between the dates of 30th November 2017 and 7th February 2018. These appear to have been programmed based on CIRIA C665 guidance for a low sensitivity development (commercial) with very low generation potential of ground gas. The results of these four monitoring visits were presented in BSL's Gas Assessment Letter Report dated 28th June 2018.

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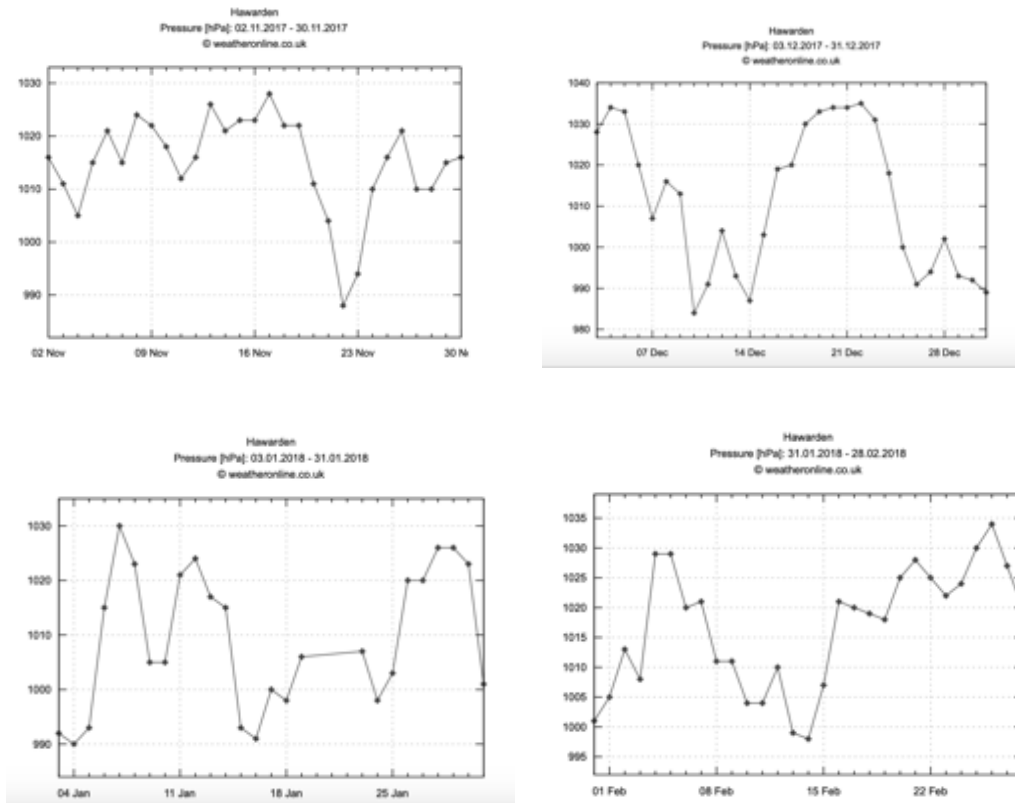
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Pressure Trends

The pressure trends presented by BSL indicate that the monitoring was undertaken during periods of steady or rising pressure conditions only; with none appearing to have been undertaken during falling pressure. However, publicly available historic barometric records for Wrexham (Hawarden) weather station, accessed via www.weatheronline.co.uk the period November 2017 – February 2018 are provided below for reference.



The 48-hour period preceding the first gas monitoring visit on 30th November 2017 does show demonstrate a rising pressure trend. However, the second (3rd January 2018) and fourth monitoring visits (7th February 2018) were preceded by falling pressure trends over the previous 48-hour period. As such, it would appear that the ground gas monitoring programme was undertaken during periods of rising and falling pressure trends.

Ground Conditions

During BSL's initial ground investigation and Remada's subsequent investigations on-site, the made ground has been found to be a relatively thin veneer between 0.6m and 1.4m thick. Deeper deposits of up to 2.4m thickness were encountered within the raised soft-landscaping embankments along the site's boundary with Powell Road. However, the proposed site development will result in the removal of these embankments.

All three monitoring wells recorded similar concentrations of ground gas during the monitoring programme. In the absence of any elevations, it was considered that the ground gas being recorded was attributable to the general made ground and alluvium on-site, rather than any off-site sources.

Gas Characteristic Situation

In order to understand the gassing regime at the site, a Characteristic Situation (as defined in CIRIA C665 and BS8576:2013) is determined for the site. CIRIA C665 and BS8576 provides definitions for each Characteristic Situation based on Gas Screening Values (GSV) which are calculated as follows:

$$\text{GSV} = \text{Gas Concentration (\% v/v)} \times \text{Measured Borehole Flow Rate (l/hr)}$$

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BS8576 makes a distinction between the GSV and the Hazardous Gas Flow Rate (Q_{hg}) which is also calculated using the above calculation. BS8576 states that Q_{hg} is calculated for each individual borehole for each monitoring visit, whereas the GSV is taken as the representative value for the site or site zone.

As a worst-case assessment, the GSV for the site is therefore taken as the maximum steady state carbon dioxide/methane concentration recorded in the boreholes which is multiplied by the maximum flow rate recorded during the same monitoring programme.

- Methane GSV = $0.1\% \times 0.2 \text{ l/hr} = 0.0002 \text{ l/hr}$ (methane concentration taken as equal to the instrument detection limit of 0.1%).
- Carbon Dioxide GSV = $3.3\% \times 0.2 \text{ l/hr} = 0.0066 \text{ l/hr}$

The calculated GSV for methane and carbon dioxide places the site into Characteristic Situation 1. BS8485 states that for Characteristic Situation 1 the methane concentration would typically be less than 1% and carbon dioxide less than 5% and that if concentrations are above these limits then consideration should be given to placing the site into Characteristic Situation 2. As the concentrations of methane and carbon dioxide were both within these typical limits it is considered that the Characteristic Situation 1 classification is appropriate for the site.

Whilst ground gas protection measures are not deemed necessary for the proposed development, basic radon protection measures are required, Lidl and their contractor, Braithwaites have agreed to install a gas resistant membrane.

Verification of Protection Measures

The radon / ground gas membrane will be installed and verified in accordance with CIRIA C735 Good Practice on the Testing & Verification of Protection Systems for Buildings Against Hazardous Ground Gases (2014) which sets out industry good practice.

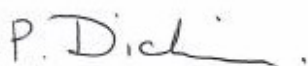
STOCKPILED MATERIAL

Site won demolition material is being crushed and processed on-site for use a capping and sub-base material and several stockpiles were observed by Remada's Engineer during a visit on 4th December. Four (4 No.) representative bulk samples and four (4 No.) soil samples were recovered from this stockpile and submitted for Particle Size Distribution (PSD) and asbestos analysis respectively.

The geotechnical results are still awaited.

Asbestos was identified within one of the four samples screened (sample B from samples A – D). The initial laboratory report indicates this to be fibres/clumps of amosite and chrysotile. Quantification analysis has been scheduled and the results will be forwarded upon completion. The interim laboratory results are appended at the rear of this report.

Yours sincerely,



Peter Dickinson
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peter.dickinson@remada.co.uk

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Enclosures:

- Study Limitations
- Exploratory Hole Location Plan
- Trial Pit Logs (TP201 – TP207)
- Chemtest Laboratory Report 20-33530-1
- GAC Comparison Table

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STUDY LIMITATIONS

IMPORTANT. This section should be read before reliance is placed on any of the information, opinions, advice, recommendations or conclusions contained in this report.

1. This report has been prepared by Remada, Ltd with all reasonable skill, care and diligence within the terms of the Appointment and with the resources and manpower agreed with (the 'Client'). Remada does not accept responsibility for any matters outside the agreed scope.

2. This report has been prepared for the sole benefit of the Client unless agreed otherwise in writing.

3. Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. Remada is unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have published, more stringent objectives. Further work may be required by these parties.

4. All work carried out in preparing this report has used, and is based on, Remada's professional knowledge and understanding of current relevant legislation. Changes in legislation or regulatory guidance may cause the opinion or advice contained in this report to become inappropriate or incorrect. In giving opinions and advice pending changes in legislation, of which Remada is aware, have been considered. Following delivery of the report Remada has no obligation to advise the Client or any other party of such changes or their repercussions.

5. This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report.

6. Whilst this report and the opinions made are to the best of Remada's belief, Remada cannot guarantee the accuracy or completeness of any information provided by third parties.

7. This report has been prepared based on the information reasonably available during the project programme. All information relevant to the scope may not have been received.

8. This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of changes in the condition of the site since the time of the investigation.

9. The content of this report represents the professional opinion of experienced environmental consultants. Remada does not provide specialist legal or other professional advice. The advice of other professionals may be required.

10. Where intrusive investigation techniques have been employed they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature of sampling, no investigation technique is capable of identifying all conditions present in all areas. In some cases the investigation is further limited by site operations, underground obstructions and above ground structures. Unless otherwise stated, areas beyond the boundary of the site have not been investigated.

11. If below ground intrusive investigations have been conducted as part of the scope, service tracing for safe location of exploratory holes has been carried out. The location of underground services shown on any drawing in this report has been determined by visual observations and electromagnetic techniques. No guarantee can be given that all services have been identified. Additional services, structures or other below ground obstructions, not indicated on the drawing, may be present on site.

12. Unless otherwise stated the report provides no comment on the nature of building materials, operational integrity of the facility or on any regulatory compliance issues.

13. Unless otherwise stated, samples from the site (soil, groundwater, building fabric or other samples) have NOT been analysed or assessed for waste classification purposes.

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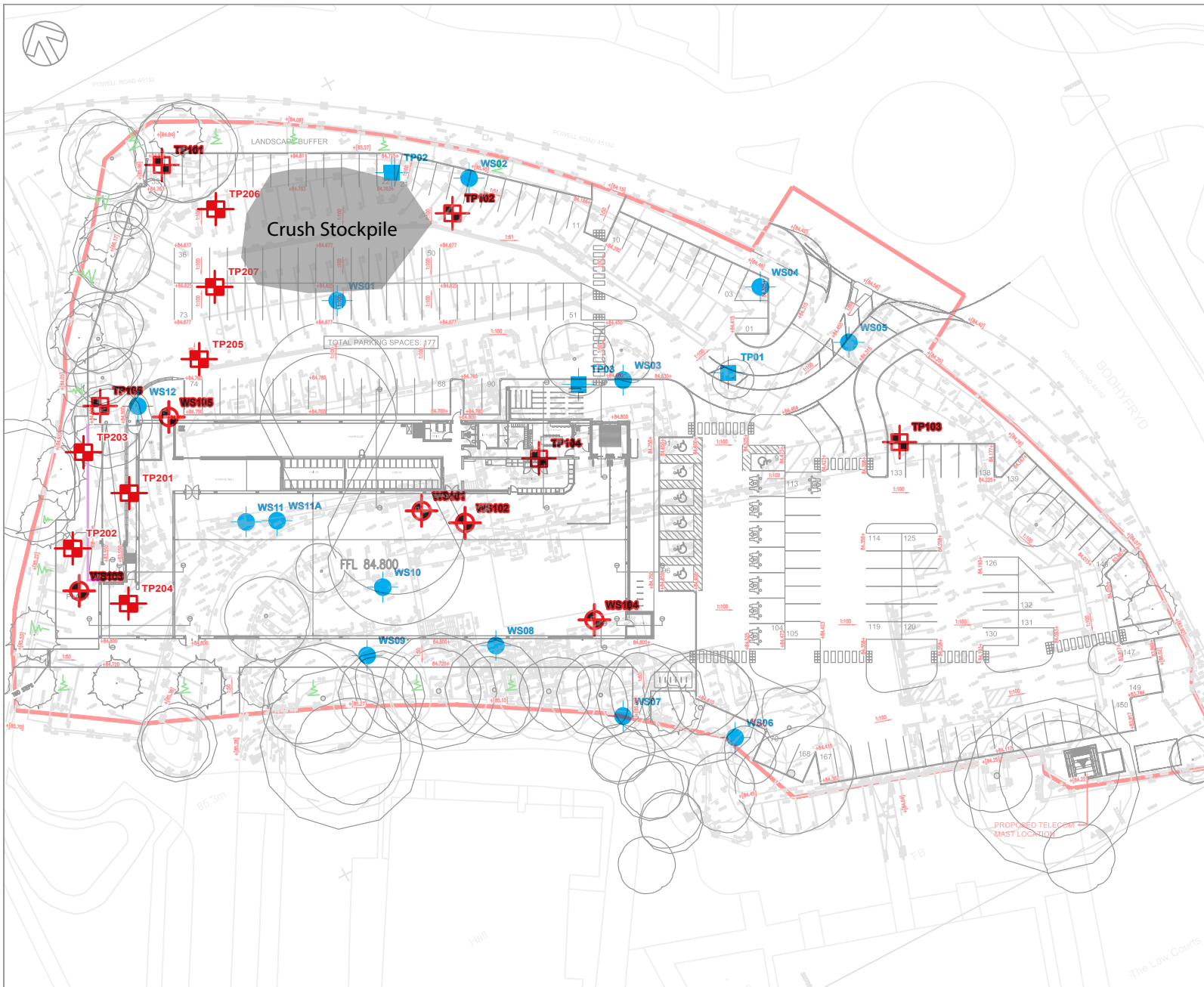
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EXPLORATORY HOLE LOCATION PLAN



General Notes

1. TO BE READ WITH ALL OTHER CD CONSULTANTS LID DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING.
3. CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT.
4. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH LID SPECIFICATION.

LEGEND

- +51.610 PROPOSED SPOT LEVEL
- +51.610 EXISTING/TIE-IN LEVEL
- 1:100 PROPOSED CROSSFALL
- RETAINING WALL
- EARTH BATTER 1:3 MAX. SIDE SLOPE (UNLESS INDICATED OTHERWISE)

NO	REVISION/ISSUE	DATE
101	FIRST ISSUE	20/03/10

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Drawing Title

PROPOSED LEVELS

Author

Project

LIDL WREXHAM

Scale	Date	Drawn By	Drawn No	Rev
1:250 @ A1	20/03/10	JDL	16056-001	101

Legend

- WS105** Remada Window Sample 2019
- TP103** Remada Trial Pit 2019
- WS01** BSL Window Sample 2017
- TP01** BSL Trial Pit 2017
- TP201** Remada Trial Pit (December 2020)

Notes

Project Title

Wrexham Police Headquarters

Drawing Title

Exploratory Location Plan

Client

Lidl Great Britain Ltd

Drawn	PD	Approved	GJ	Job No.	525.05
Scale	NTS	Size	A3	Date	27.03.19



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TRIAL PIT LOGS (TP201 – TP207)

Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment: 360 Tracked Excavator	
Location Number TP201 (TP1)	Location Type TP	Level	Logged By PD	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.00 - 1.20	ES		1.20			Brown slightly silty gravelly medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone and quartzite. Cobbles are rounded of sandstone.	1
								End of Borehole at 1.200m	2
									3
									4

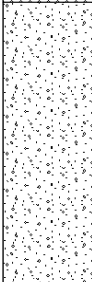
Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.50	1.20						

Remarks

- Overlying made ground stripped as part of Lidl foundation preparation works.
- No groundwater encountered. "

Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment: 360 Tracked Excavator	
Location Number TP202 (TP2)	Location Type TP	Level	Logged By PD	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.25	ES		0.25			MADE GROUND: Grey mottled dark grey sandy gravel with low cobble content. Gravel is angular to subangular fine to coarse of mixed lithologies including suspected shale, quartz and rare asphalt fragments.	
					1.00			Brown slightly silty gravelly medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone and quartzite. Cobbles are rounded of sandstone.	
								End of Borehole at 1.000m	1
									2
									3
									4

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.50	1.20						

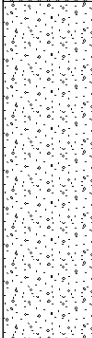
Remarks

1. No groundwater encountered.



Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment: 360 Tracked Excavator	
Location Number TP203 (TP3)	Location Type TP	Level	Logged By PD	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.60 - 0.90	ES		0.20		 	MADE GROUND: Grey mottled dark grey sandy gravel with low cobble content. Gravel is angular to subangular fine to coarse of mixed lithologies including suspected shale, quartz and rare asphalt fragments. Brown slightly silty gravelly medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone and quartzite. Cobbles are rounded of sandstone.	1
					1.10			End of Borehole at 1.100m	2
									3
									4

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.50	1.20						

Remarks

1. No groundwater encountered.



Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment: 360 Tracked Excavator	
Location Number TP204 (TP4)	Location Type TP	Level	Logged By PD	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.30	ES					MADE GROUND: Grey mottled dark grey sandy gravel with low cobble content. Gravel is angular to subangular fine to coarse of mixed lithologies including suspected shale, quartz and rare asphalt fragments.	
					0.30			Brown slightly silty gravelly medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone and quartzite. Cobbles are rounded of sandstone.	
					0.50			End of Borehole at 0.500m	
									1
									2
									3
									4

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.50	1.20						

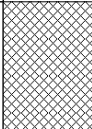
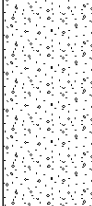
Remarks

1. No groundwater encountered.



Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment: 360 Tracked Excavator	
Location Number TP205 (TP5)	Location Type TP	Level	Logged By PD	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.35	ES					MADE GROUND: Dark brownish grey gravelly sand with low cobble content. Gravel is angular to subangular fine to coarse of brick, quartz and rare concrete. Cobbles are angular of intact brick.	
					0.35			MADE GROUND: Light brownish grey sandy angular to subangular fine to coarse gravel predominantly of limestone.	
					0.55			Brown slightly silty gravelly medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of mixed lithologies including sandstone and quartzite. Cobbles are rounded of sandstone.	
					1.10			End of Borehole at 1.000m	1
									2
									3
									4

Dimensions		Trench Support and Comment				Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Date	Rate	Remarks
4.50	1.20							

Remarks

1. No groundwater encountered.



Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment: 360 Tracked Excavator	
Location Number TP206 (TP6)	Location Type TP	Level	Logged By PD	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.45 - 0.60	ES		0.20			MADE GROUND: Dark brownish grey gravelly sand with low cobble content. Gravel is angular to subangular fine to coarse of brick, quartz and rare concrete. Cobbles are angular of intact brick.	
					0.45			MADE GROUND: Light brownish grey sandy angular to subangular fine to coarse gravel predominantly of limestone.	
					0.60			MADE GROUND: Dark brown fine sand with rare rootlets.	
								End of Borehole at 0.600m	
									1
									2
									3
									4

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.50	1.20						

Remarks

1. Terminated due to concrete beam encountered at the base of excavation.
2. No groundwater encountered.



Trial Pit Log

Project Name: Former Wrexham Police Station		Client: Lidl Great Britain Ltd		Date: 04/12/2020	
Location: Bodhyfryd, Wrexham, LL12 7BW		Contractor:			
Project No. : 525.05		Crew Name:		Equipment:	
Location Number TP207 (TP7)	Location Type TP	Level	Logged By	Scale 1:20	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.60	ES		0.60			MADE GROUND: Dark brownish grey gravelly sand with low cobble content. Gravel is angular to subangular fine to coarse of brick, quartz and rare concrete. Cobbles are angular of intact brick.	
								End of Borehole at 0.600m	
									1
									2
									3
									4

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Terminated due to concrete beam encountered at the base of excavation.
2. No groundwater encountered.

CHEMTEST LABORATORY REPORT 20-33530-1 & GAC COMPARISON TABLE

*Specialist in Land Condition
(SiLC)*

*National Quality Mark
Scheme*

Due Diligence

Desk Study

*Intrusive Ground
Investigation*

*Human Health Risk
Assessment*

*Water Resource Risk
Assessment*

Mining Risk Assessment

*Preliminary Foundation
Design Recommendations*

*Remediation Strategies &
Method Statements*

Pre-acquisition Advice

Abnormal Cost Assessment

*Materials Management Plans
& Declarations*

UST Decommissioning

Soil Bio-remediation

Soil Stabilisation

*In-situ Groundwater
Remediation*

EA Remediation Permit

*Verification & Completion
Reports*

WAMITAB

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Henley in Arden
B95 5AA*

*Registered in England
& Wales 08302458*

Table 1: Comparison of Soil Chemical Analyses with GAC

Laboratory ID					20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	20-33530
Sample ID		Client Sample ID	Commercial GAC	1%	1109543	1109544	1109545	1109546	1109547	1109548	1109549
Borehole		Sample Location	SOM		ES1	ES2	ES3	ES4	ES5	ES6	ES7
Depth		Top Depth (m)			1.00 - 1.20	0.20 - 0.25	0.60 - 0.90	0.00 - 0.30	0.00 - 0.35	0.45 - 0.60	0.30 - 0.6
Sample Date		Date Sampled (\$)			04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020
Determinand	Accred.	SOP	Units	LOD	(mg/kg unless stated)						
ACM Type	U	2192	%	N/A	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	-	-	-	No Asbestos Detected	-	-	No Asbestos Detected
ACM Detection Stage	U	2192	%	N/A	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	6.0	3.4	7.9	7.7	5.9	7.1	5.3
pH	M	2010		N/A	-	-	-	8.3	-	-	11.3
Arsenic	U	2450	mg/kg	1.0	640	9.3	23	9.6	13	16	22
Beryllium	U	2450	mg/kg	1.0	12	-	-	< 1.0	-	-	< 1.0
Cadmium	U	2450	mg/kg	0.10	190	< 0.10	0.18	< 0.10	0.24	0.38	0.22
Copper	U	2450	mg/kg	1.0	68000	14	16	15	36	12	13
Mercury	U	2450	mg/kg	0.50	58 ^{mg} (25.8)	< 0.10	< 0.10	< 0.10	0.31	< 0.10	0.54
Nickel	U	2450	mg/kg	0.10	960	18	5.6	17	19	13	9.6
Lead	U	2450	mg/kg	0.50	2300	78	32	61	170	78	60
Selenium	U	2450	mg/kg	0.50	12000	0.32	< 0.20	< 0.20	0.32	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	0.20	9000	-	-	-	22	-	15
Zinc	U	2450	mg/kg	5.0	730000	47	14	52	100	37	64
Chromium	U	2450	mg/kg	0.50		14	6.4	17	-	13	8.9
Chromium (Trivalent)	N	2490	mg/kg	1.0	8600	-	-	-	15	-	14
Chromium (Hexavalent)	N	2490	mg/kg	0.50	33	-	-	-	< 0.50	-	< 0.50
Fraction of Organic Carbon	M	2625		0.0010	-	-	-	-	0.024	-	0.0052
Calculated SOM from FOC					-	-	-	-	4.738	-	0.897
Calculated TOC from FOC					-	-	-	-	2.400	-	0.520
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	3200sol (304)	-	-	-	< 1.0	-	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	7800sol (144)	-	-	-	< 1.0	-	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	2000sol (78)	-	-	-	< 1.0	-	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	9700sol (48)	-	-	-	< 1.0	-	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	59000sol (24)	-	-	-	< 1.0	-	15
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		-	-	-	< 1.0	-	22
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	1600000	-	-	-	< 1.0	-	120
Total Aliphatic Hydrocarbons:	N	2680	mg/kg	5.0		-	-	-	< 5.0	-	160
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	26000sol (1220)	-	-	-	< 1.0	-	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	56000vap (869)	-	-	-	< 1.0	-	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	3500vap (613)	-	-	-	< 1.0	-	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	16000sol (394)	-	-	-	< 1.0	-	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	36000sol (169)	-	-	-	< 1.0	-	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	28000	-	-	-	< 1.0	-	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	28000	-	-	-	< 1.0	-	580
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		-	-	-	< 5.0	-	580
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		-	-	-	< 10	-	740
Naphthalene	M	2700	mg/kg	0.10	190sol (76.4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	63000sol (86.1)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	84000sol (57)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	63000sol (30.9)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	22000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	520000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	23000	< 0.10	0.25	< 0.10	0.22	0.40	< 0.10
Pyrene	M	2700	mg/kg	0.10	54000	< 0.10	0.28	< 0.10	0.34	0.44	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	170	< 0.10	< 0.10	< 0.10	< 0.10	0.77	< 0.10
Chrysene	M	2700	mg/kg	0.10	350	< 0.10	< 0.10	< 0.10	< 0.10	1.4	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	44	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	1200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	500	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz[a,h]Anthracene	M	2700	mg/kg	0.10	3.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	3900	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total of 17 PAH's	M	2700	mg/kg	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	M	2760	µg/kg	1.0	27	-	-	-	<0.001	-	<0.001
Toluene	M	2760	µg/kg	1.0	5600vap (869)	-	-	-	<0.001	-	<0.001
Ethylbenzene	M	2760	µg/kg	1.0	5700vap (518)	-	-	-	<0.001	-	<0.001
m-Xylene	M	2760	µg/kg	1.0	6600sol (478)	-	-	-	<0.001	-	<0.001
p-Xylene	M	2760	µg/kg	1.0	6200vap (625)	-	-	-	<0.001	-	<0.001
o-Xylene	M	2760	µg/kg	1.0	5900sol (576)	-	-	-	<0.001	-	<0.001
Total Phenols	M	2920	mg/kg	0.30	4400dir 26000	-	-	-	< 0.30	-	< 0.30



Determinand concentration below the GAC
 Determinand concentration in exceedance of GAC
 Determinand concentration in exceedance of the vapour/solubility saturation limit.

NC: No published criteria

vap: Screening criteria presented exceed the vapour saturation limit, which is presented in brackets.

sol: Screening criteria presented exceed the solubility saturation limit, which is presented in brackets.

dir: Screening criteria based on threshold protective of direct skin contact (guideline in brackets based on health effects following long term exposure provided for illustration only).

(1): For assessment based on the use of the surrogate marker approach the GAC for Coal Tar must be used instead of benzo[a]pyrene.



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Final Report

Report No.:	20-33530-1		
Initial Date of Issue:	14-Dec-2020		
Client	Remada Ltd		
Client Address:	Forward House 17 High Street Henley in Arden B95 5AA		
Contact(s):	Greg Jones Peter Dickinson		
Project	525.05		
Quotation No.:		Date Received:	04-Dec-2020
Order No.:	525.05 Wrexham	Date Instructed:	07-Dec-2020
No. of Samples:	11		
Turnaround (Wkdays):	7	Results Due:	15-Dec-2020
Date Approved:	14-Dec-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:				20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	20-33530
Quotation No.:	Chemtest Sample ID.:				1109543	1109544	1109545	1109546	1109547	1109548	1109549	1109550
Order No.: 525.05 Wrexham	Client Sample Ref.:				ES1	ES2	ES3	ES4	ES5	ES6	ES7	A
	Sample Location:				TP1	TP2	TP3	TP4	TP5	TP6	TP7	Stockpile
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				1.00	0.20	0.60	0.00	0.00	0.45	0.30	
	Bottom Depth (m):				1.20	0.25	0.90	0.30	0.35	0.60	0.60	
	Date Sampled:				04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020
	Asbestos Lab:							COVENTRY			COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A				-			-	Fibres/Clumps
Asbestos Identification	U	2192		N/A				No Asbestos Detected			No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A				-			-	Stereo Microscopy
Moisture	N	2030	%	0.020	6.0	3.4	7.9	7.7	5.9	7.1	5.3	
Chromatogram (TPH)	N			N/A				See Attached			See Attached	
pH	U	2010		4.0				8.3			11.3	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40				0.64			0.68	
Arsenic	U	2450	mg/kg	1.0	9.3	23	9.6	13	16	18	22	
Beryllium	U	2450	mg/kg	1.0				< 1.0			< 1.0	
Cadmium	U	2450	mg/kg	0.10	< 0.10	0.18	< 0.10	0.24	0.23	0.38	0.22	
Chromium	U	2450	mg/kg	1.0	14	6.4	17		13	8.9		
Copper	U	2450	mg/kg	0.50	14	16	15	36	12	13	12	
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.31	< 0.10	0.54	< 0.10	
Nickel	U	2450	mg/kg	0.50	18	5.6	17	19	13	9.6	15	
Lead	U	2450	mg/kg	0.50	78	32	61	170	78	70	60	
Selenium	U	2450	mg/kg	0.20	0.32	< 0.20	< 0.20	0.32	< 0.20	< 0.20	< 0.20	
Vanadium	U	2450	mg/kg	5.0				22			15	
Zinc	U	2450	mg/kg	0.50	47	14	52	100	37	64	40	
Chromium (Trivalent)	N	2490	mg/kg	1.0				15			14	
Chromium (Hexavalent)	N	2490	mg/kg	0.50				< 0.50			< 0.50	
Fraction of Organic Carbon	U	2625		0.0010				0.024			0.0052	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0				< 1.0			15	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0				< 1.0			22	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0				< 1.0			120	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0			160	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0				< 1.0			< 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0				< 1.0			< 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0				< 1.0			< 1.0	

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:									
Quotation No.:	Chemtest Sample ID.:									
Order No.: 525.05 Wrexham	Client Sample Ref.:	ES1	ES2	ES3	ES4	ES5	ES6	ES7	A	B
	Sample Location:	TP1	TP2	TP3	TP4	TP5	TP6	TP7	Stockpile	Stockpile
	Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):	1.00	0.20	0.60	0.00	0.00	0.45	0.30		
	Bottom Depth (m):	1.20	0.25	0.90	0.30	0.35	0.60	0.60		
	Date Sampled:	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020
	Asbestos Lab:				COVENTRY			COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD						
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0			< 1.0		< 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0			< 1.0		580	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			< 1.0		< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			< 5.0		580	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			< 10		740	
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.25	< 0.10	0.22	0.53	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	0.28	< 0.10	0.24	0.54	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.77	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	1.4	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	U	2700	mg/kg	2.0			< 2.0		< 2.0	
Total Of 17 PAH's	N	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	3.0	< 2.0	
Benzene	U	2760	µg/kg	1.0			< 1.0		< 1.0	
Toluene	U	2760	µg/kg	1.0			< 1.0		< 1.0	
Ethylbenzene	U	2760	µg/kg	1.0			< 1.0		< 1.0	
m & p-Xylene	U	2760	µg/kg	1.0			< 1.0		< 1.0	
o-Xylene	U	2760	µg/kg	1.0			< 1.0		< 1.0	
Total Phenols	U	2920	mg/kg	0.30			< 0.30		< 0.30	

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:				20-33530	20-33530
Quotation No.:	Chemtest Sample ID.:				1109552	1109553
Order No.: 525.05 Wrexham	Client Sample Ref.:				C	D
	Sample Location:				Stockpile	Stockpile
	Sample Type:				SOIL	SOIL
	Top Depth (m):					
	Bottom Depth (m):					
	Date Sampled:				04-Dec-2020	04-Dec-2020
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Moisture	N	2030	%	0.020		
Chromatogram (TPH)	N			N/A		
pH	U	2010		4.0		
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		
Arsenic	U	2450	mg/kg	1.0		
Beryllium	U	2450	mg/kg	1.0		
Cadmium	U	2450	mg/kg	0.10		
Chromium	U	2450	mg/kg	1.0		
Copper	U	2450	mg/kg	0.50		
Mercury	U	2450	mg/kg	0.10		
Nickel	U	2450	mg/kg	0.50		
Lead	U	2450	mg/kg	0.50		
Selenium	U	2450	mg/kg	0.20		
Vanadium	U	2450	mg/kg	5.0		
Zinc	U	2450	mg/kg	0.50		
Chromium (Trivalent)	N	2490	mg/kg	1.0		
Chromium (Hexavalent)	N	2490	mg/kg	0.50		
Fraction of Organic Carbon	U	2625		0.0010		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:		20-33530	20-33530
Quotation No.:	Chemtest Sample ID.:		1109552	1109553
Order No.: 525.05 Wrexham	Client Sample Ref.:		C	D
	Sample Location:		Stockpile	Stockpile
	Sample Type:		SOIL	SOIL
	Top Depth (m):			
	Bottom Depth (m):			
	Date Sampled:		04-Dec-2020	04-Dec-2020
	Asbestos Lab:		COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0
Naphthalene	U	2700	mg/kg	0.10
Acenaphthylene	U	2700	mg/kg	0.10
Acenaphthene	U	2700	mg/kg	0.10
Fluorene	U	2700	mg/kg	0.10
Phenanthrene	U	2700	mg/kg	0.10
Anthracene	U	2700	mg/kg	0.10
Fluoranthene	U	2700	mg/kg	0.10
Pyrene	U	2700	mg/kg	0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10
Chrysene	U	2700	mg/kg	0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10
Coronene	N	2700	mg/kg	0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0
Total Of 17 PAH's	N	2700	mg/kg	2.0
Benzene	U	2760	µg/kg	1.0
Toluene	U	2760	µg/kg	1.0
Ethylbenzene	U	2760	µg/kg	1.0
m & p-Xylene	U	2760	µg/kg	1.0
o-Xylene	U	2760	µg/kg	1.0
Total Phenols	U	2920	mg/kg	0.30

TPH Chromatogram on Soil Sample: 1109546

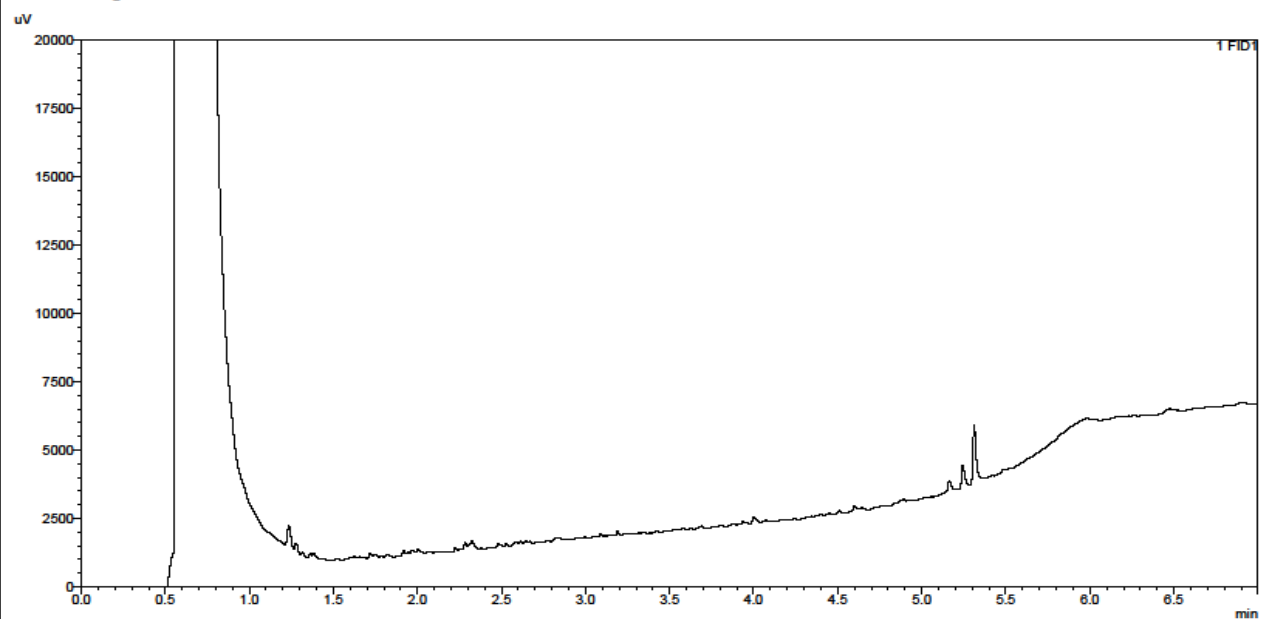
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Sample Name : 1109546 20-33530
Data Filename : 09 December 2020_09122020_1109546 20-33530_031.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 18
Date Acquired : 09/12/2020 18:50:11
Date Processed : 09/12/2020



Chemtest

<Chromatogram>



TPH Chromatogram on Soil Sample: 1109549

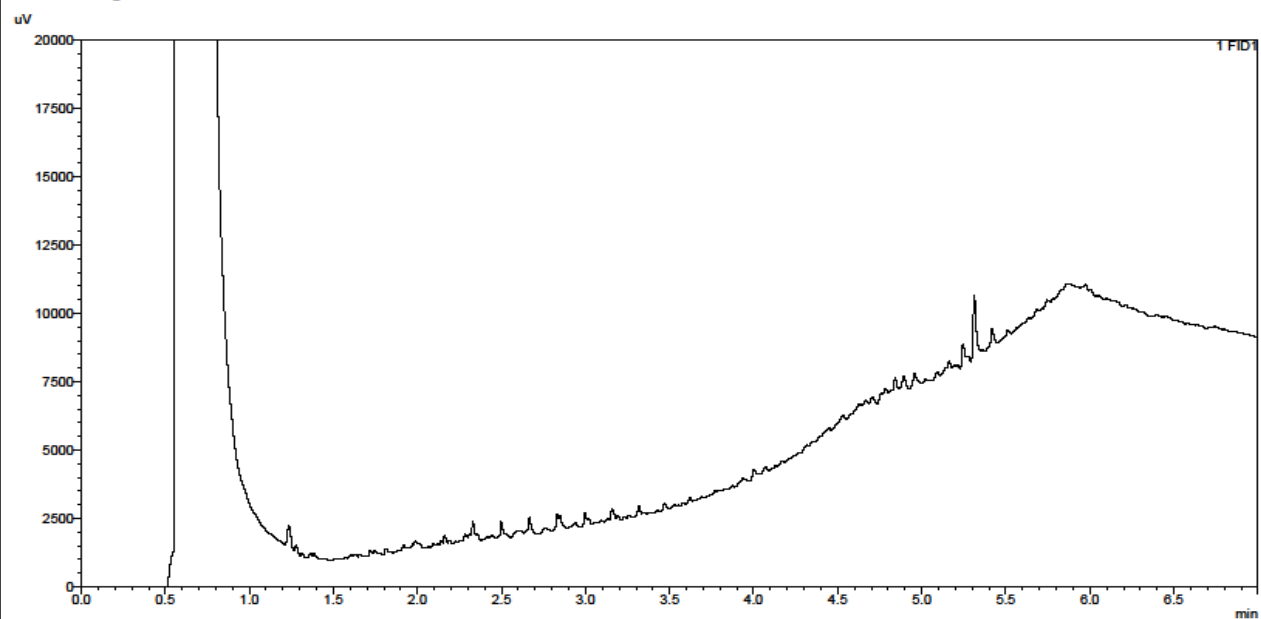
<Sample Information>

Sample Name : 1109549 20-33530
Data Filename : 09 December 2020_09122020_1109549 20-33530_033.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 17
Date Acquired : 09/12/2020 20:02:46
Date Processed : 09/12/2020



Chemtest

<Chromatogram>



Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com