

DRAWINGS











Project Id: C4380 Project Title: LATHOM	PASTURES (PHASE 2)	Title: CROS Vertical Sca	S SECTION A - A' le: 1:314							BRO	WNFIELD
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Project Id: C4380 Project Title: LATHOM PASTURES (PHASE 2) Location: SKELMERSDALE Client: BELLWAY HOMES LIMITED (NORTH WEST)	Title: CROSS SECTION C - C' Vertical Scale: 1:238 Horizontal Scale: 1:562 Engineer: TM		
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APPENDIX A

BSL Methodology and Guidance



BSL Methodology and Guidance – Geo-Environmental Assessment Reports

This Appendix provides information on the approaches, methods and guidance used by Brownfield Solutions Ltd in the preparation of this report.

The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential soils and groundwater contamination). The term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). It should be noted that this is an integrated investigation and these two main aspects are related, unless otherwise specified within the report.

Desk Studies are written in broad agreement with BS 10175:2011+A2:2017. The first stage of a twostaged investigation and assessment of a site is the Preliminary Investigation (BS 10175:2011+A2:2017), often referred to as a Phase 1 Desk Study Assessment, comprising a desk study and walk-over survey, which culminates in the Preliminary Risk Assessment. A preliminary conceptual site model (CSM) is developed. From this are identified any geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them.

From the geo-environmental perspective, the hazard Identification process uses professional judgement to evaluate all the hazards in terms of possible contaminant linkages (of source-pathway-receptor). Possible contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The Ground Investigation comprises field work and laboratory testing based on the findings of the Preliminary Risk Assessment, to reduce uncertainty in the geotechnical and geo-environmental hazard identification. This may include the exploratory, main and supplementary Investigations described in BS 10175:2011+A2:2017.



Legislative Background

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act;
- The Contaminated Land (England) Regulations 2000;
- The DETR circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

- 1) Significant harm is being caused or there is a significant possibility of such harm being caused;
- 2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

- Source substances that are potential contaminants or pollutants that may cause harm;
- **Pathway** a potential route by which contaminants can move from the source to the receptor;
- **Receptor** a receptor that may be harmed, for example the water environment, humans and water.

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused. The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the SPR approach is 'suitable for use' criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents

This report has been prepared in accordance with the list of guidance below however the list is not exhaustive:

- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990.
- CLR11 Model Procedures.
- Brownfields Managing the development of previously developed land A client's guide, CIRIA 2002.
- DEFRA and Environment Agency publications CLR7 10, supported by the TOX guides and SGV guides, dated March 2002.
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
- Contamination and Environmental Matters Their implications for Property Professionals (2nd Edition RICS Nov 2003).
- BS 10175:2011+A2:2017.

Relevant Legislative Documents

The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012).
- The Environment Protection Act (1990).
- The Water Resources Act (1991).
- The Environment Act (1995).
- The Contaminated Land (England) Act (2000).
- The Pollution Prevention and Control (England and Wales) Regulations (2000).
- The Landfill Regulations (England and Wales) Regulations (2002).
- The Landfill (England and Wales) (Amendment) Regulations (2004).
- Contaminated Land (England) Regulations (2012).
- Health and Safety at Work Act.



Contaminated Land Risk Assessment

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:

Hazard Identification Hazard Assessment Risk Estimation Risk Evaluation

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under CLR11, three tiers of risk assessment exist - Preliminary, Generic Quantitative and Detailed Quantitative.

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552:

- **High likelihood**: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution;
- Likely: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term;
- Low likelihood: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term;
- Unlikely: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

The severity is also classified using a system based on CIRIA C552. The terms and definitions are:

- Severe: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000); Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse;
- Medium: Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
 Examples Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve;
- Mild: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment; Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.
- Minor: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Nonpermanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.



Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

			Conseq	uences	
		Severe	Medium	Mild	Minor
	Highly likely	Very high	High	Moderate	Moderate/low
Ę	Likely	High	Moderate	Moderate/low	Low
babili	Low likelihood	Moderate	Moderate/low	Low	Very low
Pro	Unlikely	Moderate/low	Low	Very Low	Very low
	No Linkage		No	risk	

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

- Very high: There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required;
- **High**: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term;
- **Moderate**: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term;
- Low: It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild;
- Very Low: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled 'no linkage' in the summary table and no further action is required.



Ground Gas Guidance

Redevelopment on brownfield sites is an ever increasing occurrence, including those sites where a potential ground gas issue is present.

BS8485:2015+A1:2019 and CIRIA C665 is the current guidance which gives up-to-date advice on all aspects of ground gas. It outlines good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to gas contaminated land. Two semi-quantitative methods are set out for the assessment of risk:

- 1 For low rise housing with a ventilated under floor void at minimum 150 mm (Boyle and Witherington);
- 2 For all other development types (Wilson and Card).

Both methods use the concept of Gas Screening Values (GSVs) to identify levels of risk. The mitigation and management of potentially unacceptable risk is described with reference to both passive and active systems of gas. Source removal is also discussed as an option.

CIRIA C665 and the advice it contains has been prepared to be generally consistent with CLR11 *Model Procedures for the management of land contamination* (Defra and Environment Agency, 2004a). The aim of CIRIA C665 is a consistent approach to decision making, particularly relating to the scope of protective design measures on a site specific basis.

Legislative Framework

CIRIA C665 provides technical guidance however also recognises the context into which the guidance has to be employed. Government policy is based upon a "suitable for use approach", which is relevant to both the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the "source" in a "pollutant linkage" which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be "contaminated land" under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 Statutory guidance on contaminated land (DETR, 2000a).

Frequency and Duration of Monitoring

The monitoring period for a specific site covers the "worst case" scenario. A "worst case" scenario will occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather.

The benefits of the additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with soil gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection.

Below are matrices that will aid in determining an appropriate number of gas monitoring visits and the length of monitoring period.

Typical/idealised periods of monitoring

			Generati	on of Potenti	al Source	
		Very Low	Low	Moderate	High	Very High
of	Low (Commercial)	1 month	2 months	3 months	6 months	12 months
tivity (lopme	Moderate (Flats)	2 months	3 months	6 months	12 months	24 months
Sensi Deve	High (Residential with Gardens)	3 months	6 months	6 months	12 months	24 months



Typical/idealised frequency of monitoring

			Generat	ion of Potentia	l Source	
		Very Low	Low	Moderate	High	Very High
u of	Low (Commercial)	4	6	6	12	12
itivity (lopme	Moderate (Flats)	6	6	9	12	24
Sensi Devel	High (Residential with Gardens)	6	9	12	24	24

Note

- 1 NHBC guidance also recommends this period of monitoring (Boyle and Witherington, 2007).
- 2 There is no industry consent over "high", "medium" or "low" generation potential of source.
- 3 At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

It is recommended that newly installed monitoring wells are left for 24 hours to allow the soil gas to reach equilibrium. It should be recognised, however, that some soil gas regimes could take considerably longer (up to seven days). Interpretation of any initial readings should take this equilibrium process into account.



Contaminated Land Screening Values

In assessing the potential for contamination Brownfield Solutions Limited (BSL) follows UK guidance and current best practice.

General

The current recommended method for assessing contamination is on the basis of:

Source-Pathway-Receptor

Where any one of these "pollution linkages" is absent there is deemed to be no risk.

Fundamentally receptors can be considered as humans and controlled waters (surface and ground waters).

The purpose of using Tier 1 screening levels is to have a simple means of assessing the potential contamination of a site and to inform decisions on whether further investigation is warranted or whether an option to undertake clean up based on the data to hand is cost effective.

Human Health

Current UK guidance is provided by DEFRA and the Environment Agency (EA). Publications forming part of the guidance include; CLEA Model, toxicological reports and soil guideline values (SGV), collectively referred to as the CLEA Guidance. The CLEA Guidance has included a number of publications which have provided initial screening values for soil contamination based on standard land uses and soil assumptions.

CLEA guidance has gone through a number of revisions, all of the original SGV's that were published have been withdrawn and publication of new SGV's commenced in 2009.

For determinands where no SGVs are available, S4UL values have been published using the CLEA 1.06 Model. These are the third set of generic assessment criteria generated by CIEH, and replace the previous two sets of GACs. The revised S4UL values are based on greater knowledge of relevant toxicology and further consideration of exposure frequencies.

No SGV or S4UL is available for lead as this is derived based on blood lead levels. C4SL values for six determinands including lead was published by DEFRA/CL:AIRE in December 2014 and they represent a low risk as opposed to minimal risk. The C4SL values are based on a sandy loam with 6% Soil Organic Matter. These screening values were published by DEFRA for Part 2A use, although with the dual purpose for use under planning. However these have not been officially accepted by Local Government for use under planning. S4ULs remain the first reference due to the broader range of end uses and soil organic content.

The preference from the EA is that site specific screening levels are used wherever possible. Due to numerous factors it is not always possible to utilise site specific values. In these instances the following data sources are used in the order of preference given below:

- CIEH S4UL values (derived by CIEH/LQM)
- DEFRA/CL:AIRE C4SL's
- CL:AIRE GAC values
- Current UK SGV's
- Guidance from other European countries
- Guidance from the outside Europe

Controlled Waters

The European Water Framework Directive (WFD) became UK law in December 2003. It was created to ensure that European countries manage their rivers, groundwater and lakes so that they stay healthy for people and for wildlife.

This is achieved by the use of chemical standards for surface waters and groundwater. These values describe concentrations of chemicals that are not expected to cause harm to environmental organisms or human health, provided they are not exceeded. The same chemical may have several standards for different environmental regimes, and for different protection objectives.

Statutory Standards are set in legislation and if exceeded, this constitutes non-compliance with statutory obligations. European Directives are implemented in England and Wales by corresponding statutory instruments (i.e. regulations). The statutory instruments can be the exact same standards as they appear in the Directive or be more stringent.

A number of non-statutory standards also exist, these are set by various organisations (including the EA) for chemicals that are considered to be of concern, but are not covered by any specific legislation.



BSL Methodology and Guidance

The chemical standards used in the UK to control impaction of contamination on controlled waters are Environmental Quality Standards (EQS). The EQS's cover a large number of compounds.

Where certain compounds are not covered by the EQS these are commonly compared to the UK Drinking Water Standards (DWS).

Further Assessment

When screening values are exceeded then further consideration is required. This could include the use of simple measures to break the pollution pathway and mitigate the risk, further more detailed investigation, including the deriving of site specific values to better define the risk and to design appropriate remedial measures.



Proposed End U

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LQM S4UL	Arsenic	mg/kg	37	37	37	40	40	40	640	640	640	79	79	79	170	170	170
LQM S4UL	Cadmium	mg/kg	11	11	11	85	85	85	190	190	190	120	120	120	532	532	532
LQM S4UL	Chromium (III)	mg/kg	910	910	910	910	910	910	8600	8600	8600	1500	1500	1500	33000	33000	33000
LQM S4UL	Chromium (VI)	mg/kg	9	9	9	9	9	9	33	33	33	7.7	7.7	7.7	220	220	220
LQM S4UL	Copper	mg/kg	2400	2400	2400	7100	7100	7100	68000	68000	68000	12000	12000	12000	44000	44000	44000
C4SL	Lead	mg/kg	200	200	200	330	330	330	2300	2300	2300	760	760	760	1400	1400	1400
LQM S4UL	Mercury, Elemental	mg/kg	1.2	1.2	1.2	1.2	1.2	1.2	58	28	58	16	16	16	30	30	30
LQM 54UL	NICKEI	mg/ kg m a/ha	JED	18U	18U	02T	00V	US1	12000	12000	12000	1100	1100	1100	1 000	1 000	1900
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LQM S4UL	Benz(a)anthracene	mg/kg	7.2	11	13	11	14	15	170	170	180	29	29	29	49	56	62
LQM S4UL	Benzo(a)pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2	35	35	36	5.7	5.7	5.7	11	12	13
LQM S4UL	Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	3.9	4	4	44	44	45	7.1	7.2	7.2	13	15	16
LQM S4UL	Benzo(ghi)perylene	mg/kg	320	340	350	360	360	360	3900	4000	4000	640	640	640	1400	1500	1600
LQM S4UL	Benzo(k)fluoranthene	mg/kg	77	93	100	110	110	110	1200	1200	1200	190	190	190	370	410	440
LQM S4UL	Chrysene	mg/kg	15	22	27	30	31	32	350	350	350	57	57	57	93	110	120
LQM S4UL	Dibenz(a,h)anthracene	mg/kg	0.24	0.28	0.30	0.31	0.32	0.32	3.5	3.6	3.6	0.57	0.57	0.58	1.1	1.3	1.4
LQM 54UL	Fluorantnene	mg/ kg	120	095	068	1500	1600	1600	23000	23000	23000	3100	3100	3100	6300	0300	20000
LQM 54UL	Fluorene	mg/kg	0/I	400	860	2800	3800	4500	63000	68000	/1000	0066	0066	0066	20000	00007	20000
LQMI 54UL	Indeno(1, 2, 3, ca)pyrene	mg/kg	/7 /7	30	41	45	40	4 0	005	010	1100	7000	82	7000	1200	1000	180
	Naprtnalene	mg/ kg	2.3 OF	0.c	130 140	2.3	0.0 1F00	1 FOO	000CC	1000	DOTT	4900	4900	4900	0021	DUGLE	2000
LQIVI 54UL	Priendmuntene	mg/ kg	003	0021	1000	0020	DUCT	0000	22 UUU	22.000	23000	0012	0012	DOTE	1 5000	15000	15000
	Potroloum Budroconhour Alinhatic EC E	mg/Kg mg/bg	020	00.71	160	00/6	0000	160		24000	000001	1400	7400	00000	DUDOL		DODOCT
LQM 5411	Petroleum Hydrocarbons Aliphatic EC 5 - 9 Detroleum Hydrocarbons Aliphatic FC 6 - 8	ma/ka	100	030	100	100	230	100	7800	17000	40000	00000	610000	620000	150000	220000	320000
I OM S4UI	Petroleum Hydrocarbons Aliphatic EC 8 - 10	mg/kg mg/kg	27	65	150	27	65	150	2000	4800	11000	13000	13000	13000	14000	18000	21000
LOM S4UL	Petroleum Hydrocarbons Aliphatic EC 10 - 12	me/ke	130	330	760	130	330	770	9700	23000	47000	13000	13000	13000	21000	23000	24000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 12 - 16	mg/kg	1100	2400	4300	1100	2400	4400	59000	82000	00006	13000	13000	13000	25000	25000	26000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 16 - 35	mg/kg	65000	92000	110000	65000	92000	110000 1	600000 1	700000	1800000	250000	250000	250000	450000	480000	490000
LQM S4UL	Petroleum Hydrocarbons Aliphatic EC 35 - 44	mg/kg	65000	92000	110000	65000	92000	110000 1	600000 1	700000	1800000	250000	250000	250000	450000	480000	490000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 5 - 7	mg/kg	70	140	300	370	069	1400	26000	46000	86000	56000	56000	56000	76000	84000	92000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 7 - 8	mg/kg	130	290	660	860	1800	3900	56000	110000	180000	56000	56000	56000	87000	95000	100000
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 8 - 10	mg/kg	34	83	190	47	110	270	3500	8100	17000	5000	5000	5000	7200	8500	9300
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 10 - 12	mg/kg	74	180	380	250	590	1200	16000	28000	34000	5000	5000	5000	9200	9700	10000
LQM 54UL	Petroleum Hydrocarbons Aromatic EC 12 -16	mg/kg mg/bg	140	330	090	1000	1000	1000	36000	3/000	38000	5100	2000	2000	10000	10000	7800
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 21 - 35	mg/kg	1100	1500	1700	1900	1900	1900	28000	28000	28000	3800	3800	3800	7800	7800	7900
LQM S4UL	Petroleum Hydrocarbons Aromatic EC 35 - 44	mg/kg	1100	1500	1700	1900	1900	1900	28200	28200	28200	3800	3800	3800	7800	7800	7900
LQM S4UL	Benzene	mg/kg	0.087	0.17	0.37	0.38	0.7	1.4	27	47	6	72	72	73	6	100	110
LQM S4UL	Toluene	mg/kg	130	290	660	880	1900	3900	56000	110000	180000	56000	56000	56000	87000	95000	100000
LQM S4UL	Ethyl Benzene	mg/kg	47	110	260	83	190	440	5700	13000	27000	24000	24000	25000	17000	22000	27000
LQM S4UL	Xylene - o	mg/kg	09	140	330	88	210	480	6600	15000	33000	41000	42000	43000	17000	24000	33000
LQM S4UL	Xylene - m	mg/kg	59	140	320	82	190	450	6200	14000	31000	41000	42000	43000	17000	24000	32000
LQM 54UL	Xylene - p	mg/kg	56	130	310	6/	180	430	2000	14000	30000	41000	42000	43000	17000	23000	31000
CL:AIKE ZUIU	Milbe (metnyi tert-butyi etner) Chloroothono (Visuvi Chlorida)	mg/Kg mg/bg	49	24 0 000 07	16U	49	0 00 1	100015	0.050	0.077	24000	о 19 10	о 2 г 2	16U	44	¥ u	190 191
LQM SALL	2. Dickhoroethane (1.2. DCA)	ma/ba	0.0004	0.011	0.019	0.000.0	0.013	0.033	200.0	0.07	1 7	000	00	0°C	0; 1	г 70	7.C
LQM SAUL	1,1-ULTINO UPUIRINE (1,2-UCA)	mg/kg	0.00	110.0	0.013	2600.0	610.0	070.0	0.0/ 660	1300	3000	14000	1 4000	1 4000	57000	76000	100000
LQM 5411	1 1 2 2-Tetrachloroethane	mg/kg mg/kg	0.0 1 f	3.4	57	n 0 1	oj ∝	17	000	250 1300	11000	1400	1400	1400	1800	2100	DODDOT
LQM S4UL	1.1.1.2-Tetrachloroethane	mg/kg	1.2	2.8	6.4	1.5	3.5	8.2	0.79	1.9	4.4	1400	1400	1400	1500	1800	2100
LQM S4UL	Tetrachloroethene (PCE)	mg/kg	0.18	0.39	6.0	0.18	0.4	0.92	19	42	95	1400	1400	1400	810	1100	1500
LQM S4UL	Tetrachloromethane (carbon tetrachloride)	mg/kg	0.026	0.056	0.13	0.026	0.056	0.13	2.9	6.3	14	890	920	950	190	270	400



									Proposed	End Use							
Source	Contaminant	Unit	Residential <u>v</u> Pr	<u>with</u> Homegra oduce	own Re	esidential <u>wi</u> Pn	<u>thout</u> Homegr oduce	uwo	Comm	ercial	đ	ıblic Open Sp	oace (POS) re	isi Pr	ublic Open S	oace (POS) p	ark
		SOM (%)	1	2.5	9	1	2.5		1 2.	5 6		1 2.	5	50	1 2	ù	9
LQM S4UL	Trichloroethene (TCE)	mg/kg	0.016	0.034	0.075	0.017	0.036	0.08	1.2	2.6	5.7	120	120	120	70	91	120
LQM S4UL	Trichloromethane (chloroform)	mg/kg	0.91	1.7	3.4	1.2	2.1	4.2	66	170	350	2500	2500	2500	2600	2800	3100
LQM S4UL	Chlorobenzene	mg/kg	0.45	1	2.4	0.46	1	2.4	56	130	290	1000	13000	14000	1300	2000	2900
LQM S4UL	1, 2 Dichlorobenzene	mg/kg	23	55	130	24	57	130	2000	4800 1	1000	5 0000	95000	00086	24000	26000	51000
LQM S4UL	1, 3 Dichlorobenzene	mg/kg	0.4	1	2.3	0.44	1.1	2.5	30	73	170	300	300	300	390	440	470
LQM S4UL	1, 4 Dichlorobenzene	mg/kg	61	150	350	61	150	340	4400 1	0000	5000	2000	L7000	17000	26000	36000	36000
LQM S4UL	1, 2, 3 Trichlorobenzene	mg/kg	1.5	3.6	8.6	1.5	3.7	8.8	102	250	590	1800	1800	1800	770	1100	1600
LQM S4UL	1, 2, 4 Trichlorobenzene	mg/kg	2.6	6.4	15	2.6	6.4	15	220	530	1300	5000	L7000	19000	1700	2600	4000
LQM S4UL	1, 2, 3, 4 Trichlorobenzene	mg/kg	0.33	0.81	1.9	0.33	0.81	1.9	23	55	130	1700	1700	1800	280	580	860
LQM S4UL	1, 2, 3, 4 Tetrachlorobenzene	mg/kg	15	36	78	24	56	120	1700	3080	4400	830	830	830	1500	1600	1600
LQM S4UL	1, 2, 3, 5 Tetrachlorobenzene	mg/kg	0.66	1.6	3.7	0.75	1.9	4.3	49	120	240	78	79	79	110	120	130
LQM S4UL	1, 2, 4, 5 Tetrachlorobenzene	mg/kg	0.33	0.77	1.6	0.73	1.7	3.5	42	72	96	13	13	13	25	26	26
LQM S4UL	Pentachlorobenzene	mg/kg	5.8	12	22	19	30	38	640	770	830	100	100	100	190	190	190
LQM S4UL	Hexachlorobenze	mg/kg	1.8	3.3	4.9	4.1	5.7	6.7	110	120	120	16	16	16	30	30	30

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Re-Use Of Waste - Guidance Note

Definition of Waste

The Environment Agency considers waste to be "...any material that is discarded, or intended to be discarded..." This includes any soil from trenches, footing, site strip etc. It is no longer required in its original location, therefore it is considered to be waste.

CL:AIRE: Code of Practice

Where materials are excavated for construction purposes, wherever possible these should be retained on site for engineering purposes if they are suitable for use. This can be implemented under the CL:AIRE "Development Industry Code of Practice for the Definition of Waste" (CL:AIRE DoWCoP), also commonly referred to as a "Materials Management Plan".

The developer/contractor is advised to complete all works under the DoWCoP.

Potential scenarios where soils may be able to be re-used:

- Material capable of being used in another place on the same site without treatment.
- Material capable of being used in another place on the same site following ex-situ treatment on site.
- Material capable of being used in another development site without treatment (Direct Transfer).
- Material capable of being used in another development site following ex-situ treatment on another site eg Hub site.

The Code of Practice requires 4 No. Factors to be addressed:

- 1. Protection of human health and protection of the environment.
- 2. Suitability of use, without further treatment.
- 3. Certainty of use.
- 4. Quantity of material.

In order to satisfy these requirements the following are required:

- i) Consultation/approval with Local Authority & Environment Agency to confirm they have no objections to the proposed re-use of waste soils, or the risk assessments for the site.
- ii) Risk Assessments to demonstrate that the site does not present an Environmental Hazard.
- iii) Remediation Strategy for contaminated sites (or Design Statement for non-contaminated sites).
- iv) Materials Management Plan (MMP) which details material generated stockpiles and the end use.
- v) Volume calculations.
- vi) Planning permission for the development.
- vii) Contractual details to be clear, regarding who steps in is a contractor goes into administration/liquidation.

The use of the CoP is effectively industry regulated, there is a requirement to appoint an independent Qualified Person (QP) who checks all the requirements have been met and registers the documentation with the Environment Agency. This person must not have had any involvement with the preparing of the risk assessments or remedial strategy on the site.

Soils which require treatment on site (eg bioremediation, stabilisation) will require an Environmental Permit for treatment, together with justification and validation to prove, once treated, this material is suitable for use.

Site management procedures need to be in place to ensure that material is tracked through from excavation stockpiling, treatment and remediation processes. Should the process of material tracking be considered non-robust, or not adhered to, this may fail the test whether excavated materials may be considered non-waste.



Waste Classification For Soils

Introduction

Waste producers have a duty of care to classify the waste they are producing:

- before it is collected, disposed of or recovered.
- to identify the controls that apply to the movement of the waste.
- to complete waste documents and records.
- to identify suitably authorised waste management options.
- to prevent harm to people and the environment.

The most sustainable and economic method of dealing with waste soil is usually the retention and re-use on site. Where this is not possible there are three main options for the disposal of soils:

- 1. Disposal to a permitted waste recycling facility.
- 2. Re-use on another site (subject to the suitability).
- 3. Disposal to a landfill site.

The disposal to a permitted facility will be subject to the **specific conditions of the permits for each individual facility** and will vary dependent on location and environmental sensitivity of the receiving site. Re-use on another site will also be subject to the acceptability criteria of that site.

The guidance below relates to disposal to landfill sites only.

Background for Landfill Disposal

In July 2005 the United Kingdom implemented the European Directive 1999/31/EC (The Landfill Directive), this introduced the current regime for waste and waste disposal to landfill. The Landfill Directive places controls on waste disposal. These controls include requirements to follow the waste acceptance procedures and criteria that have been agreed by the Council of the European Union and are laid out in Council Decision 2003/33/EC.

Before a waste can be accepted at a landfill site, the landfill **operator** must be satisfied that the waste meets his permit conditions, the waste acceptance procedures (WAP) and waste acceptance criteria (WAC).

If disposal to landfill is the best management option for the waste soils, these procedures **must** be followed or the operator may refuse to accept the waste.

Key Points

- Not all waste can be landfilled
- Landfills are classified according to whether they can accept hazardous, non-hazardous or inert wastes.
- Wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill.
- Most wastes must be treated before you can send them to landfill.
- There are formal processes for identifying and checking wastes that must be followed before wastes can be accepted at a landfill site.

Classification

Wastes are listed in the European Waste Catalogue (EWC 2002) and grouped according to generic industry, process or waste types. Wastes within the EWC are either hazardous or non-hazardous. Some of these wastes are hazardous without further assessment (absolute entries) or are 'mirror' entries that require further assessment of their hazardous properties in order to determine whether they are hazardous waste.

Waste soil has mirror entries on the EWC and as such the first phase of the waste classification process is that of determining if the waste is hazardous or not i.e the hazard assessment. The most common EWC waste codes related to soil are:

17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 03*	soil and stones containing dangerous substances
17 05 04	soil and stones other than those mentioned in 17 05 03

Soils may contain certain contaminants (eg asbestos, oil,) which have prescribed concentration thresholds, that if breached will render the material hazardous waste. These are based on specific "hazardous properties" which include hazards such as carcinogenicity, flammability and toxicity.



In the first instance the concentrations of plausible contaminants within the soil should be identified and wastes should be **classified based on their total concentrations**.

Waste Definitions

Inert	 Will not undergo any significant physical, chemical or biological transformations. Will not dissolve. Will not burn. Will not physically or chemically react. Will not biodegrade. Will not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health. Has insignificant total leachability and pollutant content. Produces a leachate with an ecotoxicity that is insignificant (if it produces leachate).
Non-Hazardous	Is not inert (see above) Is not hazardous (see below)
Hazardous	Soil has hazardous properties as defined in WM3 (Guidance on the classification and assessment of waste (1st edition 2015)- Technical Guidance)
Stable Non-reactive hazardous waste#	Hazardous waste, the leaching behaviour of which will not change adversely in the long-term, under landfill design conditions or foreseeable accidents either: in the waste alone (for example, by biodegradation), under the impact of long-term ambient conditions (for example, water, air, temperature or mechanical constraints) or by the impact of other wastes (including waste products such as leachate and gas).

This option allows hazardous waste that is stable and thus has a low leaching potential to be deposited in cells with a standard of containment consistent with non-hazardous wastes.

WAC Testing

The purpose of WAC analysis is to confirm that the waste complies with the relevant WAC for the receiving landfill. If the waste has any disposal route other than a landfill site (e.g. recycling facility, incineration etc) the **WAC is not relevant.** Furthermore the WAC limits **cannot be used to make an assessment of whether a waste is hazardous**. WAC testing does however define if a non-hazardous waste is suitable for an inert landfill.

Classification based on Total Concentrations ¹	Non-Hazard	lous Waste	Hazardo	us Waste
WAC testing	Below inert WAC limit values:	Above inert WAC limit values:	Below hazardous WAC limit values	Above hazardous WAC limit values
Landfill requirements	INERT landfill	NON-HAZARDOUS landfill ²	HAZARDOUS landfill	PRE-TREATMENT ³

1 Total concentrations are defined as tests results on solids as opposed to leachate (i.e. a liquid).

2 Individual sites may have certain limit values pre-determined in their licence.

3 After pre-treatment the material characteristics may have changed to an extent that allow the soil to be re-classified.

Hydrocarbons in Soils

WM3 uses the term Oil or Waste Oil to cover hydrocarbons products such as fuel oil, petrol or diesel. These are defined by WM3 as hazardous under an absolute entry in the List of Wastes. However hydrocarbons in soils are a mixture rather than a pure product and are therefore not absolute entries.

Known Oils

The simplest scenario is where the identity of the contaminating oil is known or can be identified. If the oil is known the manufacturer's or supplier's REACH compliant safety data sheet for the specific oil can be obtained and the hazard statement codes on that Safety Data Sheet can be used for the hazardous waste assessment.

Where the identity of the oil can only be identified down to a petroleum group level (i.e. the contaminating oil is known to be diesel, but the specific type/brand is unknown), then the classification of that petroleum group should be used in the assessment. The marker compounds associated with that petroleum group may be used to confirm carcinogenicity.

Oils may contain a range of hydrocarbons, so the presence of for instance Diesel Range Organics (DRO) does not enable the assessor to conclude that diesel is present. These hydrocarbons may have arisen from other oils, the laboratory needs



to provide an interpretation of the chromatograph to determine if it is consistent with diesel or weathered diesel as a whole.

The concentration of known oils should be determined using a method that as a minimum spans the range in which the carbon numbers for that known oil fall.

Unknown Oils

Where hydrocarbons are contaminating soils it is likely that the oil will be unknown or cannot be determined.

WM3 states that:

For contaminated land specific consideration must be given to the following before proceeding;

- The presence of other organic contaminants, for example solvents or coal tar that could be detected as hydrocarbons. Coal Tar is not an oil and is considered separately in WM3 example 2. Where the site history or investigation indicates the presence of hydrocarbons from oil and other sources (e.g. coal tar), and the origin of the hydrocarbons cannot reliably be assigned to either, then a worst case approach of considering the hydrocarbons both as waste oil (in accordance with this example) and from other sources, for example coal tar should be taken.
- The presence of diesel, or weathered diesel, should be specifically considered by the laboratory and where this is confirmed by the hydrocarbon profile the oil should be assessed as a known or identified oil (diesel).

The use of **marker compounds** is optional; however it is recommended that where possible the marker compounds should be used. WM3 states:

If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic/mutagenic due to the presence of oil if all three of the following criteria are met:

- The waste contains benzo[a]pyrene (BaP) at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.1 of the CLP for BaP)
- This has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D of WM3, and
- The analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel.

For example:

TPH Concentration (mg/kg)	Petrol or Diesel	BaP (mg/kg)	Classification
10,000	No	0.9	Non- Hazardous
1,000	No	Not available	Hazardous
1,000	Yes	Not relevant	Hazardous

References

1. Environmental Permitting (England and Wales) Regulations 2010 (as amended) (EP Regulations), the Landfill Directive (1999/31/EC) and the subsequent Council Decisions.

Environment Agency Environmental Permitting Regulations: "Inert Waste Guidance- Standards and Measures for the Deposit of Inert Waste on Land" 2009.
 Environment Agency "Waste acceptance at landfills - Guidance on waste acceptance procedures and criteria" Nov 2010.

Environment Agency "Guidance on the classification and assessment of waste (Technical Guidance WM3)".

5. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).

6. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

7. 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament

8. Environmental Permitting Guidance The Landfill Directive For the Environmental Permitting (England and Wales) Regulations 2010 Updated March 2010 Version 3.1

9. Classification, Labelling and Packaging of Substances Regulation (EC 1272/2008) (CLP).



Additional Asbestos Guidance Notes

Disposal

The 1st Edition of WM3 "Guidance on the classification and assessment of waste", details the way in which Asbestos is assessed within soils.

The assessment of asbestos containing waste is dependent on whether the asbestos is present as:

- Fibres that are free and dispersed, or
- Identifiable pieces of asbestos containing materials (ACM's)



Identifiable pieces of asbestos are any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. The result is that commonly soils with visible ACM's are sorted and the ACM's removed by hand picking and separate disposal.

Asbestos concentrations below 0.001% by mass are below standard laboratory detection limits and are not currently regarded as containing asbestos for the purposes of disposal and may be disposed of to an inert landfill site¹. These levels are often termed "trace" by laboratories.

Asbestos concentrations between 0.001% and 0.1% are stable non-reactive hazardous waste (SNRHW)¹. Waste transfer stations where soil recycling takes place may be able to take SNRHW, but are unlikely to take soils containing asbestos above trace concentrations.

The following codes should be assigned to the asbestos waste as appropriate:

17 06	Insulation materials and asbestos-containing construction materials
17 06 01	Insulation materials containing asbestos
17 06 03	Other insulation materials consisting of or containing hazardous substances
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05	Construction material containing asbestos

WM3 indicates that 17 06 05 would normally be used in preference to 17 06 01 for the asbestos in asbestos contaminated soil and stones.



BSL Methodology and Guidance

Construction materials containing asbestos and "other suitable materials" may be landfilled at landfills for non-hazardous waste in accordance with the Landfill Directive without testing.

This means that wastes that are only hazardous because of their asbestos content can be disposed of at landfills for nonhazardous waste in separate landfill cells that only accept asbestos wastes and other suitable materials. The Landfill Directive requires that stable non-reactive hazardous waste shall not be deposited with biodegradable waste (for example organic material, household waste, paper etc..) and must meet the waste acceptance criteria set out in accordance with Annex II.

Construction

Health and Safety Executive (HSE) guidance on asbestos is not directly related to soil and much of the guidance focuses on the removal of asbestos from buildings. The overarching legislation is the Control of Asbestos Regulation (CAR 2012). However where work involves (or is likely to involve) contact with asbestos then CAR 2012 requires a risk assessment including whether or not the work is licensed or notifiable non-licensed work and may require an Asbestos Management Plan. Work becomes notifiable if it is considered that the control limit could be exceeded.

Brownfield sites frequently have soils that contain asbestos and the presence of asbestos needs to be considered within the context of construction, particularly in relation to groundworks. The exposure of soils and the use of excavators and plant to move soil around increases the possibility of fibres becoming airborne. However it is good site practice to not generate dusts and to employ dust suppression on all sites regardless of the presence of asbestos.

The legal control limit for asbestos is 0.1f/ml over a continuous four hour period. The control limit is not a '*safe*' level and exposure from work activities involving asbestos must be reduced to as far below the control limit as possible.

Clearly the higher the concentrations in the soil the greater potential there is for fibres to be released, however IOM publication TM/88/14 "the release of dispersed asbestos fibres from soil" 1988 concludes that:

- Mixtures of asbestos in dry soils with asbestos content as low as 0.001% can produce airborne respirable asbestos concentrations greater than 0.1f/ml in dust clouds where the respirable dust concentrations are less than 5mg/m³.
- An action limit is recommended of no higher than 0.001% asbestos in soils above which steps should be taken to minimise exposure to airborne fibres (eg by wetting).
- The addition of relatively small quantities (10%) of water can reduce the airborne fibre concentrations by an order of magnitude.

Where asbestos has been identified at concentrations above 0.001% as free and dispersed fibres in the soil precautions need to be adopted. Concentrations below this are considered to be normal background, although good site practice dictates that the generation of dusts should be avoided and therefore any fugitive fibre release from minor concentrations should be kept to a practical minimum.

End Use

The use of materials containing asbestos and material containing asbestos is prohibited under EU legislation. There is currently a Joint Industry Working Group (JIWG) tasked with producing a Code of Practice for Asbestos in Soil, Made Ground and Construction & Demolition Material that will clarify in due course the position of the various government agencies.

Asbestos containing materials can remain in situ under a suitable cover system which may be hardsurfacing or soft landscaping (with or without hard dig layers and markers).

There is a risk that future maintenance may compromise such systems and details of the presence of asbestos should be kept in the Health and Safety File.

Preliminary publications from JIWG (April 2015) provide guides for decision making in relation to construction. These are at a "Beta" test stage and further publications will be provided in due course.

The re-use of waste soils should be undertaken in accordance with the CL:AIRE Code of Practice and is subject to suitable risk assessments demonstrating low risk. There is nothing that specifically excludes the re-use of soils containing asbestos as fill to raise levels. However the movement of materials increases the risk of fibres becoming airborne and suitable precautions will be required.

The re-use of soils containing asbestos at concentrations above hazardous waste levels is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be feasible where there is a long program for implementation.



Asbestos in Soil as Free Fibres

Concentration (by	Waste Dis	sposal			Construction Issues	End Use	
weight)	Recycle	Inert	SNR	Hazardous		Suitable for re-use on	Precautions
			Hazardous			site	
Not detected	>	λ			No precautions necessary, however on a brownfield site asbestos not previously identified may be found during works and a statement within the contractors method statement for how they will deal with this unforeseen asbestos would be good practice to ensure compliance with CAR2012.	Yes	None
Trace (<0.001%)		V ²			 Precautions are unlikely to be required, however a detailed method statement may be required to ensure compliance with CAR2012. Basic asbestos management good practice will be required. Typically precautions would include: Ensuring soils do not dry out to become dusty. Site personnel have the risk communicated at induction stage. 	Yes Soils can be re-used under CL:AIRE CoP with the correct precautions in place.	Generally clean cover or hardstanding cover required.
0.001% - 0.099%			>	>	 Contractor needs to produce an Asbestos Management Plan in accordance with CAR2012 as part of their method statement. Typical precautions would include: Site personnel have the risk communicated at induction stage. Ensuring personnel have suitable training. Task monitoring to inform PPE requirements. Task monitoring to inform PPE requirements. Ensuring solis do not dry out to become dusty and that misting is available during groundworks. Separate stockpling. Clean haulage routes. Contractor needs to produce an Asbestos Management Plan in accordance with CAR2012 as part of their method statement. Typical precautions would include: Site personnel have the risk communicated at induction stage. Fiste personnel have the risk communicated at induction stage. Site personnel have the risk communicated at induction stage. Ensuring personnel have the risk communicated at induction stage. Site personnel have the risk communicated at induction stage. Ensuring personnel have to become dusty and that misting is available during groundworks. Cean during personnel have the risk communicated at induction stage. Ensuring personnel have the risk communicated at induction stage. 	Possibly Soils may be able to be re-used under CL:AIRE CoP, subject to a astisfactory Risk Assessment and regulatory agreement with the correct precautions in place. Unlikely ³ Re-use of soils containing asbestos within an earthworks scheme will involve significant engineering and the risk for generating dusts will be significantly increased with repeated handling and compaction.	Clean cover or hardstanding cover required. Clean cover and a hard dig layer. A plan should dig layer. A plan should dig layer. A plan should the Health and Safety File.
					Decontamination unit		

- The standard laboratory detection limit is normally 0.001%. Below 0.001% is trace and currently regarded as not containing asbestos for the purposes of disposal off site. However the waste producer has a duty to fully classify the waste and the presence of trace asbestos should be declared. Consequently it is unlikely that a waste treatment site will take this soil and an inert landfill may make a commercial decision to only take it under some circumstances. 2
- The re-use of soils containing asbestos at concentrations above hazardous waste is likely to meet with regulatory opposition. Assuming a suitable strategy could be agreed this would take a considerable amount of time and is only likely to be warranted where there a long program for implementation. m



APPENDIX B

Exploratory Hole Logs

			BROWNFIELD				Trial Pit Log	TP	1 of 1
PROJE	CT NO:	C4380				CO-ORD	S: 346186E, 406803N	Hole	Туре
DROIE	CT NAME.						62.20m.0D	T Sc	P ale
PROJE	CT NAIVIE.		IORES (PHASE 2)			LEVEL.	62.2011 OD	1: Logged	25 Checked
CLIEN	Г:	BELLWAY HO	OMES LIMITED (NO	ORTH WE	EST)	DATES:	13/01/20	JM	JMC
Water Strikes	Sam Denth (m)	ple and In Si Type	tu Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
Strikes	Depth (m) 1.00 1.50 2.00 3.00	ES HSV D HSV ES	Results 78kPa 92kPa	(m) 0.40 0.60 2.45 3.00	(m OD) 61.80 61.60 59.75 59.20		Grass over dark brown slightly gravelly sligh to coarse SAND with rootlets. Gravel is subs subrounded fine to coarse of mudstone and (TOPSOIL). Greyish brown clayey fine to coarse SAND. Firm to stiff brown slightly sandy gravelly C to coarse. Gravel is subangular fine to coarse and mudstone. Very weak light grey MUDSTONE, partially v End of Trial Pit at 3.00m	Atly clayey fin angular to d sandstone	e
Remar	ks 1. G 2. Ba	roundwater in ackfilled with a	igress at 0.60mbgl. arisings upon compi	letion.			ES = En D = Dis B = Bull LB = La U = Un UT = UI SPT = S P[D = P PPM =	vironmental Sample turbed Sample k Sample ge Bulk Sample ndisturbed Sample ndisturbed Thin Wall S tandard Penetration T hotoionization Detect Part Per Million	ample est or (ppm)

			BROWNFIELD SOLUTIONS LTD				Trial Pit Log		o. 02
PROIF	CT NO:	C4380				CO-ORD	S: 346175F 406749N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	61.30m QD	Т Sca) Ile
CLIENT	ст. т., шт.2. Г•	BELLWAY H		IORTH WI	EST)	DATES	13/01/20	1:2 Logged	25 Checked
Water	Sa	mple and In Si	itu Testing	Denth		DAILS.	13/01/20	ML	JMC
Strikes	Depth (m) Type	Results	(m)	(m OD)	Legend	Stratum Descriptio	n	
▼	0.30	ES		0.40	60.90		Grass over dark brown slightly gravelly to coarse SAND with rootlets. Gravel is subrounded fine to coarse of mudston (TOPSOIL). Greyish brown clayey fine to coarse SA	slightly clayey find subangular to e and sandstone ND.	<u>.</u>
	0.80	ES							
	1.00	D HSV	73kPa	0.90	60.40		Firm to stiff brown slightly sandy grave to coarse. Gravel is subangular fine to and mudstone.	elly CLAY. Sand is fir	ne 1.0
	2.00	HSV	92kPa 107kPa						2.0 -
	2.80	D		2.75	58.55		Very weak light grey MUDSTONE, parti	ially weathered.	3.0 -
				3.30	58.00		End of Trial Pit at 3.30r	n	
									4.0
Remar	ks 1. 2. 3.	Groundwater in Sides slightly co Backfilled with	ngress at 0.40mbgl. ollapsing between (arisings upon com	0.45mbgl a	nd 0.90mb	gl.		ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Si SPT = Standard Penetration Te PID = Photoinization Detecto PPM = Part Per Million HSV = Hand Shear Vane	, imple st r (ppm)

			BROWNFIELD				Trial Pit Log	TP	o. 03
PROJE	CT NO:	C4380				CO-ORD	S: 346146E, 406737N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	62.50m OD	Sc a 1:	ale 25
CLIENT	Г:	BELLWAY H	OMES LIMITED (N	IORTH WI	EST)	DATES:	13/01/20	Logged	Checked JMC
Water Strikes	Sai	mple and In S	itu Testing	Depth	Level	Legend	Stratum Description		
	0.30	ES	Results	0.35	62.15		Grass over dark brown slightly gravelly sligh to coarse SAND with rootlets. Gravel is sub- subrounded fine to coarse of mudstone and (TOPSOIL). Brownish orange fine to medium SAND.	ntly clayey fin angular to d sandstone	e
▼	0.80	ES							1.0
	1.20	HSV	73kPa	1.05	61.45		Firm to stiff brown slightly sandy gravelly C to coarse. Gravel is subangular fine to coars and mudstone.	LAY. Sand is fi se of sandstor	ne ne
	1.50	D							-
	2.00	HSV	89kPa						2.0
	2.50	D		2.50	60.00		Very weak light grey MUDSTONE, partially	weathered.	
				3.00	59.50		End of Trial Pit at 3.00m		3.0
									-
									4.0-
									5.0 -
Remark	(S 1. 2. 3.	Groundwater in Sides slightly co Backfilled with	ngress at 0.80mbgl. Ollapsing between (arisings upon comp).35mbgl a oletion.	nd 1.05mb	gl.	ES = En D = Dis B = Buil LB = La U = Un UT = Ui SPT = 5 P[D = P PPM = HSV = H	vironmental Sample turbed Sample k Sample ge Bulk Sample disturbed Sample ndisturbed Thin Wall S tandard Penetration T hotoionization Detecto Part Per Million 4and Shear Vane	ample est or (ppm)

		1	BROWNFIELD SOLUTIONS LTD				Trial Pit Log).)4
								Sheet : Hole :	l of 1 Type
PROJE	CT NO:	C4380				CO-ORD	S: 346166E, 406698N	TF)
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	62.50m OD	1:2	1e .5
CLIEN	Г:	BELLWAY H	OMES LIMITED (N	ORTH WE	EST)	DATES:	13/01/20	Logged	Checked
Water Strikes	Sa Donth (m	mple and In S	itu Testing	Depth (m)	Level (m OD)	Legend	Stratum Description	n	
	0.30	ES		0.30	62.20		Grass over dark brown slightly gravelly to coarse SAND with rootlets. Gravel is subrounded fine to coarse of mudston (TOPSOIL). Brownish orange fine to medium SAND	slightly clayey fine subangular to e and sandstone).	
	0.80	ES		1.05	61.45		Firm to stiff brown slightly sandy grave to coarse. Gravel is subangular fine to and mudstone.	Ily CLAY. Sand is fir coarse of sandston	1.0 e
	1.50	D HSV	69kPa						-
	2.00	HSV	79kPa						2.0
	2.50	D HSV	111kPa	2 90	59.60				-
							Very weak light grey MUDSTONE, parti	ally weathered.	3.0
				3.30	59.20		End of Trial Pit at 3.30n	n	
									-
									4.0-
									5.0
Remarl	(S 1. 2. 3.	Groundwater i Sides slightly c Backfilled with	ngress at 0.50mbgl. Jllapsing between 0 arisings upon comp).30mbgl a pletion.	nd 1.05mb	gl.		ES = Environmental Sample D = Disturbed Sample B = Bulk Sample UB = Large Bulk Sample U = Undisturbed Tample UT = Undisturbed Thin Wall Sa SPT = Standard Penetration Ter PID = Photoionization Detector PPM = Part Per Million HSV = Hand Shear Vane	mple st · (ppm)

			BROWNFIELD				Trial Pit Log)5
								Sheet 2	l of 1 Type
PROJE	CT NO:	C4380				CO-ORD	S: 346190E, 406754N	TP))
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	60.80m OD	Sca 1:2	le 5
CLIENT	Γ:	BELLWAY HO	omes limited (N	ORTH WI	EST)	DATES:	13/01/20	Logged	Checked
Water	Sar	mple and In Si	itu Testing	Depth	Level	Legend	Stratum Description		
	0.20	ES	Kesuits	0.40	60.40		Grass over dark brown slightly gravelly st to coarse SAND with rootlets. Gravel is s subrounded fine to coarse of mudstone (TOPSOIL). Greyish brown clayey fine to coarse SAN	lightly clayey fine ubangular to and sandstone D.	
	0.80	ES HSV	73kPa	0.70	60.10		Firm to stiff brown slightly sandy gravelly to coarse. Gravel is subangular fine to co and mudstone.	y CLAY. Sand is fin arse of sandston	e e
	1.50	D							-
	2.00	HSV HSV	85kPa 109kPa						2.0
	2.80	D		2.70	58.10		Very weak light grey MUDSTONE, partial	ly weathered.	3.0-
				3.30	57.50		End of Trial Pit at 3.30m		
									4.0-
									5.0 —
Remark	(S 1. 2. 3.	Groundwater ir Sides slightly co Backfilled with	ngress at 0.30mbgl. ollapsing between 0 arisings upon comp	.40mbgl a letion.	nd 0.70mb	gl.	ES D B B U U U T S P P I U S P P P P P P S	= Environmental Sample = Disturbed Sample = Bulk Sample = Large Bulk Sample = Undisturbed Sample = Undisturbed Thin Wall Sal T = Standard Penetration Tes D = Photoionization Detector M = Part Per Million V = Hand Shear Vane	mple t (ppm)

			ROWNFIELD OLUTIONS LTD				Trial Pit Log	 TP	10. 206
PROJE	CT NO:	C4380				CO-ORD	S: 346261E, 406728N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAST	URES (PHASE 2)			LEVEL:	60.60m OD	Sc	P ale 25
CLIENT	Γ:	BELLWAY HC	MES LIMITED (NO	ORTH WE	EST)	DATES:	13/01/20	Logged	Checked
Water Strikes	Sam Depth (m)	ple and In Si	tu Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
▼	0.30	ES ES	73kPa	0.35	60.25 60.00		Grass over dark brown slightly gravelly slig to coarse SAND with rootlets. Gravel is sub subrounded fine to coarse of mudstone an (TOPSOIL). Greyish brown clayey fine to coarse SAND. Firm to stiff brown slightly sandy gravelly C to coarse. Gravel is subangular fine to coar and mudstone.	htly clayey fin angular to d sandstone LAY. Sand is fi se of sandsto	e ne ne
	1.50	D	72869						1.0
	2.00	HSV	91kPa						2.0-
	2.50	D HSV	108kPa	3.05	57.55		End of Trial Pit at 3.05m		3.0
Domosi	. 16		gress at 0.40mbg				End of Trial Pit at 3.05m	nvironmental Samole	4.0
Remark	(S 1. G 2. B	proundwater in	gress at 0.40mbgl. arisings upon comp	letion.			ES = ET D = Dit B = Bu UB = LE U = Ur UT = U SPT = 5 PID = 7 PPM = HSV =	nvironmental Sample sturbed Sample Ik Sample Indisturbed Sample Indisturbed Sample Standard Penetration T Photoionization Detect Part Per Million Hand Shear Vane	Sample iest or (ppm)

			BROWNFIELD				Trial Pit Log	TP	1 of 1
PROIE		C/1380					S. 346267E 406626N	Sheet Hole	1 of 1 Type
FROJE	crivo.	04380				CO-ORD	5. 540207L, 400020N	T Sc	P ale
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	62.30m OD	1:	25
CLIENT	Г:	BELLWAY HO	OMES LIMITED (N	orth We	EST)	DATES:	14/01/20	Logged	Checked
Water	Sar	nple and In Si	itu Testing	Depth	Level	Legend	Stratum Description		
	0.30	ES	Kesuits	0.45	61.85		Grass over dark brown slightly gravelly slig to coarse SAND with rootlets. Gravel is sub subrounded fine to coarse of mudstone ar (TOPSOIL). Greyish brown clayey fine to coarse SAND.	htly clayey fin bangular to id sandstone	e
	0.80	ES							-
	1.00	HSV	73kPa	0.90	61.40		Firm to stiff brown slightly sandy gravelly C to coarse. Gravel is subangular fine to coar and mudstone.	CLAY. Sand is fi rse of sandsto	ne 1.0
	1.50	D							-
	2.00	D HSV	92kPa						2.0
	3.00	HSV	103kPa	2 20	50.00				3.0 -
				5.50	39.00		End of Trial Pit at 3.30m		-
									4.0
Remarl	(S 1. 2. 3.	Groundwater ir Sides slightly co Backfilled with	ngress at 0.50mbgl. Jllapsing between 0 arisings upon comp	.45mbgl a letion.	nd 0.90mbį	gl.	ES = E D = Di B = B LB = L U = U UT = 1 SPT = PID = PPM + HSV =	nvironmental Sample sturbed Sample arge Bulk Sample arge Bulk Sample Indisturbed Sample Judisturbed Thin Wall S Standard Penetration T Photoionization Detect Part Per Million Hand Shear Vane	sample est or (ppm)
			BROWNFIELD SOLUTIONS LTD				Trial Pit Log	∾ TP	 08
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PROJE	CT NO:	C4380				CO-ORD	S: 346276E, 406650N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	62.60m OD	Sca	le
CLIEN	Г:	BELLWAY H	omes limited (N	IORTH WE	EST)	DATES:	14/01/20	Logged	Checked
Water	Sa	mple and In S	itu Testing	Depth	Level	Legend	Stratum Description		
Strikes	0.20 0.60	ES ES	Results	(m)	(m OD) 62.25		Grass over dark brown slightly gravelly slig to coarse SAND with rootlets. Gravel is sul subrounded fine to coarse of mudstone ar (TOPSOIL). Greyish brown clayey fine to coarse SAND	shtly clayey find bangular to nd sandstone	2
	1.00	HSV	79kPa	1.10	61.50		Firm to stiff brown slightly sandy gravelly to coarse. Gravel is subangular fine to coa	CLAY. Sand is fi rse of sandstor	1.0
	1.50	D					and mudstone.		-
	2.00	HSV	88kPa						2.0
	2.50	HZV	109/23	3.00	59.60				
	3.00	нзv	ТЛЭКЬЯ	3.00	59.60		End of Trial Pit at 3.00m		4.0-
Remarl	ks 1 2 3	. Groundwater i . Sides readily co . Backfilled with	ngress at 0.50mbgl. ollapsing between 0 arisings upon comp	1.35mbgl a pletion.	nd 1.10mbį	gl.	ES = D = D B = B LB = U = U U T U SPT PID = PPM HSV:	Environmental Sample listurbed Sample Large Bulk Sample Indisturbed Sample Undisturbed Thin Wall S - Standard Penetration Te Photoionization Deter Photoionization Deter Part Per Million = Hand Shear Vane	smple st r (ppm)

			BROWNFIELD				Trial Pit Log	 TP	o. 09
PROJE	CT NO:	C4380				CO-ORD	S: 346342E, 406676N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	61.40m OD	Sc.	ale
CLIENT	Г:	BELLWAY HO	DMES LIMITED (N	ORTH WI	EST)	DATES:	16/01/20	Logged	Checked
Water	Sar	nple and In Si	tu Testing	Depth	Level	Legend	Stratum Description		
	0.20	ES	Results	(m)	(m OD)		Grass over dark brown clayey fine to coarse rootlets (TOPSOIL).	SAND with	
	0.50	ES		0.45	60.95		Orangish brown clayey fine to coarse SAND		1.0
	1.50	D HSV	71kPa	1.40	60.00		Firm to stiff brown slightly sandy gravelly Cl to coarse. Gravel is subangular fine to coars and mudstone.	LAY. Sand is fi se of sandsto	ne ne
	2.00	HSV	111kPa						2.0
	3.00	HSV	120kPa						3.0
				3.40	58.00		End of Trial Pit at 3.40m		4.0
Remar	(S 1. 2. 3.	Groundwater ir Sides readily cc Backfilled with	ngress at 0.30mbgl. Illapsing between 0 arisings upon comp	.45mbgl a oletion.	nd 1.40mbį	gl.	ES = En D = Dis B = Buil LB = La U = Unm UT = U; SPT = S P[D = P PPM = HSV = H	vironmental Sample turbed Sample k Sample rge Bulk Sample disturbed Sample disturbed Thin Wall S tandard Penetration Th hotoionization Detectr Part Per Million 1and Shear Vane	ample est or (ppm)

			BROWNFIELD				Trial Pit Log	TP	10. 10
PROJE	CT NO:	C4380				CO-ORD	S: 346316E, 406634N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	62.30m OD	Sc 1:	ale 25
CLIENT	Г:	BELLWAY HO	DMES LIMITED (N	NORTH WI	EST)	DATES:	16/01/20	Logged	Checked
Water Strikes	San	nple and In Si	tu Testing	Depth	Level	Legend	Stratum Description	I	
	0.30	ES	Results	0.40	61.90		Grass over dark brown clayey fine to coar rootlets (TOPSOIL). Orangish brown clayey fine to coarse SAN	se SAND with	
	0.80	ES							1.0
	1.50	D HSV	72kPa	1.40	60.90		Firm to stiff brown slightly sandy gravelly to coarse. Gravel is subangular fine to coa and mudstone.	CLAY. Sand is fi Irse of sandsto	ne
	2.00	D HSV	100kPa						2.0-
	3.00	HSV	120kPa	3.40	58.90				3.0
				2.40			End of Trial Pit at 3.40m		4.0 -
Remark	(S 1. 1 2. 3	Groundwater ir Sides readily co Backfilled with	ngress at 0.20mbgl Illapsing between (arisings upon com	D.40mbgl a pletion.	nd 1.40mbg	gl.	ES = D = 1 B = 1 LB = U = 1	Environmental Sample Disturbed Sample Julk Sample Large Bulk Sample Judisturbed Sample	5.0 —
							UT SPT PID PPM HSV	Undisturbed Thin Wall S = Standard Penetration T = Photoionization Detect = Part Per Million = Hand Shear Vane	ample est or (ppm)

			BROWNFIELD				Trial Pit Log	TP	10. 11
PROJE	CT NO:	C4380				CO-ORD	S: 346288E, 406585N	Hole	Tor I Type
PROJE	CT NAME:	lathom pas	TURES (PHASE 2)			LEVEL:	62.90m OD	Sc	ale 25
CLIENT	Г:	BELLWAY HO	OMES LIMITED (N	ORTH WI	EST)	DATES:	16/01/20	Logged	Checked
Water Strikes	Sar	nple and In Si	itu Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
	0.30	ES		0.40	62.50		Grass over dark brown clayey fine to coar rootlets (TOPSOIL). Brown clayey fine to coarse SAND.	se SAND with	
	0.80	ES		1 10	61 80				1.0
	1.20	D HSV	67kPa	1.10	61.80		Firm to stiff brown slightly sandy gravelly to coarse. Gravel is subangular fine to coa and mudstone.	CLAY. Sand is fi irse of sandsto	ne
	2.00	D HSV	128kPa						2.0
	3.00	HSV	130kPa	3.50	59.40				3.0 -
				3.50	<u>35.40</u>		End of Trial Pit at 3.50m		4.0
Remarl	ks 1. 2. 3.	Groundwater in Sides slightly co Backfilled with	ngress at 0.40mbgl. Jllapsing between 0 arisings upon comp).40mbgl a bletion.	nd 1.10mb	gl.	ES = D = 1 B = 2 U = 1 U = 1 SPT PDD PPM HSV	Environmental Sample Disturbed Sample Julk Sample Large Bulk Sample Undisturbed Sample : Undisturbed Thin Wall S = Standard Penetration T = Photoionization Detect I = Part Per Million = Hand Shear Vane	sample est or (ppm)

		10						N	0.
			BROWNFIELD				Trial Pit Log	TP1	L 1A
PROJE	CT NO:	C4380				CO-ORD	S: 346322E, 406578N	Sheet Hole	1 of 1 Type P
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	63.50m OD	Sc a	ale 25
CLIENT	Г:	BELLWAY HO	DMES LIMITED (N	orth We	EST)	DATES:	16/01/20	Logged	Checked JMC
Water Strikes	San	nple and In Si	tu Testing	Depth	Level	Legend	Stratum Description	I	
	0.30 0.50	ES	Results	0.40	63.10		Grass over dark brown clayey fine to coar rootlets (TOPSOIL). Brown clayey fine to coarse SAND.	rse SAND with	
	1.20	D HSV	75kPa	1.10	62.40		Firm to stiff brown slightly gravelly slightl Sand is fine to coarse. Gravel is subangula of sandstone and mudstone.	y sandy CLAY. ar fine to coarse	1.0 -
	2.00	D HSV	99kPa						2.0-
	3.00	HSV	127kPa						3.0-
	3.50	HSV	130kPa	3.50	60.00		End of Trial Pit at 3.50m		
									4.0-
									-
									5.0 -
Remark	(S 1. 1. 2. 3. 1. 3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	No groundwate Sides slightly cc Backfilled with	er encountered. Ser encountered. Arisings upon comp).40mbgl a oletion.	nd 1.10mb	gl.	ES : D = B = U = UT SPT PDD PPA HSU	Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Sample = Undisturbed Thin Wall S = Standard Penetration T = Photoionization Detector A = Part Per Million '= Hand Shear Vane	ample est or (ppm)

				_				N) .
			BROWNFIELD				Trial Pit Log	TP Sheet	12
PROJE	CT NO:	C4380				CO-ORD	S: 346339E, 406526N	Hole	Гуре
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	63.10m OD	Sca	le 5
CLIENT	Г:	BELLWAY HO	DMES LIMITED (N	ORTH WI	EST)	DATES:	16/01/20	Logged	Checked
Water	San	nple and In Si	tu Testing	Depth	Level	Legend	Stratum Description	1	
	0.30 0.50	ES ES	Kesults	0.35	62.75		Grass over dark brown clayey fine to co rootlets (TOPSOIL). Orangish brown clayey fine to coarse SA	arse SAND with	
	1.00	HSV D	84kPa	0.95	62.15		Firm to stiff brown slightly sandy gravel to coarse. Gravel is subangular fine to c and mudstone.	ly CLAY. Sand is fir oarse of sandstor	ne 1.0-
	2.00	D HSV	123kPa						2.0-
	3.00	HSV	130kPa	3.10	60.00		End of Trial Pit at 3.10m	1	3.0-
									4.0
Remark	(S 1. 2. 3.	Groundwater ir Sides slightly cc Backfilled with	ngress at 0.20mbgl. ollapsing between C arisings upon comp).35mbgl a pletion.	nd 0.95mb	gl.		ES = Environmental Sample > Disturbed Sample B = Bulk Sample B = Large Bulk Sample J = Undisturbed Sample J = Undisturbed Thin Wall SS SPT = Standard Penetration Te PID = Photoionization Detecto PPM = Part Per Million HSV = Hand Shear Vane	mple st r (ppm)

			BROWNFIELD				Trial Pit Log	TP1	o. L 2A
PROJE	CT NO:	C4380				CO-ORD	S: 346337E, 406506N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	lathom pas	TURES (PHASE 2)			LEVEL:	63.00m OD	Sc :	ale 25
CLIENT	Г:	BELLWAY HO	OMES LIMITED (N	ORTH WI	EST)	DATES:	16/01/20	Logged	Checked
Water Strikes	Sar Denth (m	nple and In Si	itu Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
	0.30	ES	Results	0.40	62.60		Grass over dark brown clayey fine to coarse rootlets (TOPSOIL). Greyish brown clayey fine to coarse SAND.	SAND with	
	0.80	ES							1.0
	1.50	D HSV	65kPa	1.30	61.70		Firm to stiff brown slightly sandy gravelly C to coarse. Gravel is subangular fine to coars and mudstone.	LAY. Sand is fi se of sandsto	ne
	2.00	D HSV	91kPa						2.0 -
	3.00	HSV	107kPa	3.05	59.95		End of Trial Pit at 3.05m		3.0 -
									4.0 -
									5.0
Remarl	ks 1. 2. 3.	Groundwater in Sides slightly co Backfilled with	ngress at 0.20mbgl. ollapsing between 0 arisings upon comp	0.40mbgl a	nd 1.30mbį	gl.	ES = EC D = Dis B = Buil LB = La U = UIN UT = U SPT = S P(D = P PPM = HSV = H	vironmental Sample turbed Sample Sample rge Bulk Sample disturbed Sample disturbed Thin Wall S tandard Penetration T hotoionization Detectr Part Per Million fand Shear Vane	ample est or (ppm)

			BROWNFIELD SOLUTIONS LTD				Trial Pit Log	TP Sheet	10. 13 1 of 1
PROJE	CT NO:	C4380				CO-ORD	S: 346333E, 406593N	Hole	Type P
PROJE	CT NAME:	LATHOM PAS	STURES (PHASE 2)			LEVEL:	62.20m OD	Sc :	ale 25
CLIENT	:	BELLWAY H	OMES LIMITED (NO	ORTH WE	ST)	DATES:	16/01/20	Logged	Checked
Water Strikes	San	nple and In S	itu Testing	Depth (m)	Level	Legend	Stratum Description		
	0.20 0.80 1.00	ES ES HSV	74kPa	0.40	61.80 61.35 61.20		MADE GROUND: Grass over dark brown clar coarse sand topsoil with rootlets. MADE GROUND: Greyish brown slightly gra fine to coarse sand. Gravel is subangular to fine to coarse of mudstone and sandstone. <i>Railway sleeper (timber) at 0.80mbgl with a faint hydroca</i> Greyish brown slightly gravelly clayey fine to Gravel is subangular to subrounded fine to a mudstone and sandstone.	yey fine to velly clayey subrounded rbon odour. o coarse SAN coarse of	D. 1.0
	1.50	D D HSV	96kPa				Firm to stiff brown slightly sandy gravelly CL to coarse. Gravel is subangular fine to coars and mudstone.	AY. Sand is fi	ne
	2.80	HSV	120kPa	2.90	59.30		End of Trial Pit at 2.90m		3.0-
									4.0
Remark	(S 1.) 2.	Groundwater i Backfilled with	ngress at 0.30mbgl. arisings upon compl	etion.			ES = Em D = Dist B = Bulk LB = Lan U = Un UT = Un SPT = ST PID = P PPM = F HSV = H	vironmental Sample urbed Sample : Sample ge Bulk Sample disturbed Sample disturbed Thin Wall S andard Penetration T notoionization Detect Part Per Million and Shear Vane	iample est or (ppm)

			ROWNFIELD				Trial Pit Log	TP	o. 14
PROJE	CT NO:	C4380				CO-ORD	S: 346370E, 406624N	Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAST	TURES (PHASE 2)			LEVEL:	61.60m OD	Sca	P ale 25
CLIENT	Γ:	BELLWAY HC	OMES LIMITED (N	orth We	EST)	DATES:	16/01/20	Logged	Checked
Water	Sam	ple and In Si	tu Testing	Depth	Level	Legend	Stratum Description		
	Depth (m) 0.30	Type	Results	(m)	(m OD)		Grass over dark brown clayey fine to coarse rootlets (TOPSOIL).	SAND with	
	1.00	ES		0.45	61.15		Greyish brown slightly gravelly clayey fine to Gravel is subangular to subrounded fine to mudstone and sandstone.	o coarse SANI coarse of	D
	1.30	HSV D	71kPa	1.25	60.35		Firm to stiff brown slightly sandy gravelly Cl to coarse. Gravel is subangular fine to coars and mudstone.	AY. Sand is fin	ne -
	2.00	HSV D	120kPa						2.0
	3.00	HSV	130kPa	3.00	58.60		End of Trial Pit at 3.00m		3.0
Remarl	(S 1. G 2. B	Groundwater in Packfilled with a	gress at 0.20mbgl. arisings upon comp	letion.			ES = Em D = Dist B = Bulk LB = Lar U = Unc UT = Ur SPT = ST PID = P PPM = F HSV = H	vironmental Sample urbed Sample Sample ge Bulk Sample disturbed Sample didsturbed Thin Wall Si andard Penetration Te notionization Detecto Part Per Million land Shear Vane	ample ist ir (ppm)

		B	ROWNFIELD OLUTIONS LTD				Trial Pit Log	 TP	o. 15
PROJE	CT NO:	C4380				CO-ORD	S: 346388E, 406643N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAST	URES (PHASE 2)			LEVEL:	61.30m OD		ale
CLIENT	Г:	BELLWAY HO	MES LIMITED (N	IORTH WE	EST)	DATES:	16/01/20	Logged	Checked
Water	San	nple and In Sit	tu Testing	Depth	Level	Legend	Stratum Description]	
	0.20 0.80	ES	Results	0.30	61.00		Grass over dark brown clayey fine to coar rootlets (TOPSOIL). Greyish brown slightly gravelly clayey fine Gravel is subangular to subrounded fine t mudstone and sandstone.	rse SAND with to coarse SAN to coarse of	D.
	1.20	HSV D	64kPa	1.20	60.10		Firm to stiff brown slightly sandy gravelly to coarse. Gravel is subangular fine to coa and mudstone.	CLAY. Sand is fi arse of sandsto	ne
	2.00	D HSV	73kPa						2.0
	3.00	HSV	127kPa	3.00	58.30		End of Trial Pit at 3.00m		3.0
									4.0
Remark	(S 1. (2.)	Groundwater in Backfilled with a	gress at 0.30mbgl arisings upon comp	pletion.			ES = D = B = LB = U = U T SPT PID PPN HSV	Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall S = Standard Penetration T = Photoionization Detect A = Part Per Million f = Hand Shear Vane	ample est or (ppm)

	,		ROWNFIELD				Trial Dit Log	N(». N1	
			OLUTIONS LTD				Indi Pit Log	Sheet	1 of 1	
PROJE	CT NO:	C4380				CO-ORD	S: 346174E, 406820N	Hole	Туре	
PROJE	CT NAME:	LATHOM PAST	TURES (PHASE 2)			LEVEL:	62.20m OD	Sca	1 e 25	
CLIENT	Γ:	BELLWAY HO	OMES LIMITED (NO	ORTH WE	EST)	DATES:	14/01/20	Logged	Checked	
Water Strikes	Sam	ple and In Si	tu Testing Bosults	Depth (m)	Level (m OD)	Legend	Stratum Description			
	0.30	ES	Kesuits	0.35	61.85		Grass over dark brown slightly gravelly sli to coarse SAND with rootlets. Gravel is su subrounded fine to coarse of mudstone a (TOPSOIL). Greyish brown clayey fine to coarse SANI	ightly clayey fine ubangular to and sandstone D.	2	
	0.80	ES		1.05	61.15		Firm to stiff brown slightly sandy gravelly	CLAY. Sand is fir	1.0	
	1.50	D HSV	79kPa				to coarse. Gravel is subangular fine to coarse and mudstone.	arse of sandstor	1e 2.0-	
	2.50	D		2.20	60.00		Very weak light grey MUDSTONE partially weathered, recovered as a gravelly clay with medium cobble content.			
				4.20	58.00		End of Trial Pit at 4.20m		4.0-	
Remark	(S 1. C 2. S 3. T 4. E	froundwater ir ides readily co rench excavate ackfilled with a	gress at 0.20mbgl. llapsing between 0. ed in attempt to loca arisings upon compi	35mbgl a ate coal se letion.	nd 1.05mbg eam. Dimer	gl. nsions 7.00r	n by 0.80m. U = U = U = U = UT SPT PDD HSV	Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Sample Endisturbed Thin Wall Sa Standard Penetration Te Photoionization Detecto M = Part Per Million / = Hand Shear Vane	imple st r (ppm)	

								N	0.
		B	ROWNFIELD				Trial Pit Log	ТТ	02
								Sheet	1 of 1
PROJE	CT NO:	C4380				CO-ORD	S: 346142E, 406811N	Hole	Type
PROIF		LATHOM PAST	TURES (PHASE 2)			I EVEL.	61 80m OD	Sca	ale
FROJE	CI NAME.	LATHONTAS				LLVLL.	01.001100	1:2	25 Chasked
CLIENT	:	BELLWAY HC	OMES LIMITED (NO	ORTH WE	EST)	DATES:	14/01/20	JM	ЈМС
Water Strikes	Sam Depth (m)	ple and In Si	tu Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
✓	0.20	ES		0.40	61.40		Grass over dark brown slightly gravelly sl to coarse SAND with rootlets. Gravel is su subrounded fine to coarse of mudstone a (TOPSOIL). Greyish brown clayey fine to coarse SANI	ightly clayey find ubangular to and sandstone D.	e
	1.00	ES		1.05	60.75		Firm to stiff brown slightly sandy gravelly to coarse. Gravel is subangular fine to co and mudstone.	CLAY. Sand is finarse of sandstor	1.0
	1.50	D HSV	75kPa						-
	2.50	D		2.00	59.80		Very weak light grey MUDSTONE partially recovered as a gravelly clay with medium	y weathered, a cobble content	2.0
									3.0
									-
				4.15	57.65		End of Trial Pit at 4.15m		4.0 -
									5.0
Remark	(S 1. C 2. S 3. T 4. E	Groundwater in ides readily co rench excavate Backfilled with a	ngress at 0.30mbgl. Ilapsing between 0. ed in attempt to loca arisings upon comp	40mbgl at ate coal se letion.	nd 1.05mbg eam. Dimen	gl. Isions 8.00m	n by 0.80m. B U U U U U V P P D P P P P P P P P P P P P P P P P	 Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Si Standard Penetration Te Photoionization Detector M = Part Per Million J = Hand Shear Vane 	ample est r (ppm)

	(B	ROWNFIELD				Trial Pit Log		io. 103
PROJE	CT NO:	C4380				CO-ORD	S: 346293E, 406775N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAST	URES (PHASE 2)			LEVEL:	61.50m OD	Sc	ale
CLIENT	Г:	BELLWAY HO	MES LIMITED (N	ORTH WI	EST)	DATES:	13/01/20	Logged	Checked
Water	Sam	ple and In Sit	tu Testing	Depth	Level	Lagand	Stratum Description	IMI	JMIC
Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legena	Stratum Description		
¥	0.20	ES ES		0.35	61.15		Grass over dark brown slightly gravelly slig to coarse SAND with rootlets. Gravel is sub subrounded fine to coarse of mudstone ar (TOPSOIL). Greyish brown clayey fine to coarse SAND.	htly clayey fin bangular to id sandstone	e
	1.00	HSV	66kPa	0.95	60.55		Firm brown slightly sandy gravelly CLAY. Sa coarse. Gravel is subangular fine to coarse and mudstone.	nd is fine to of sandstone	
	2.00	D HSV D	94kPa				Becoming stiff from 2.00mbgl.		2.0
	3.00	HSV	99kPa						3.0-
	4.00	HSV	125kPa	4.95	56.55		End of Trial Pit at 4.05m		4.0
				4.33	30.35		End of Trial Pit at 4.95m		5.0 —
Remar	(S 1. C 2. S 3. T 4. E	Groundwater in ides readily col rench excavate Backfilled with a	gress at 0.60mbgl. lapsing between 0 d in attempt to loc arisings upon comp	.35mbgl a ate coal so letion.	nd 0.95mb _i eam. Dimer	gl. nsions 10.20	ES = E D = D B = B LB = I U = U U T = SPT PID = PPM HSV =	nvironmental Sample sturbed Sample arge Bulk Sample ndisturbed Sample Indisturbed Thin Wall S Standard Penetration T Photoionization Detect Part Per Million Hand Shear Vane	iample est or (ppm)

			BROWNFIELD				Trial Pit Log	N TT	o. 04
PROJE	CT NO:	C4380				CO-ORD	S: 346260E, 406700N	Hole T	Type P
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	61.70m OD	Sca	ale 25
CLIENT	Г:	BELLWAY HO	DMES LIMITED (N	ORTH WI	EST)	DATES:	13/01/20	Logged	Checked
Water Strikes	Sam	ple and In Si	tu Testing	Depth	Level	Legend	Stratum Description	· · · · · · · · · · · · · · · · · · ·	
	2.00 4.00	ES ES HSV D HSV HSV	90kPa 122kPa 122kPa 122kPa	0.35	61.35 61.15		Grass over dark brown slightly gravelly slig SAND with rootlets. Sand is fine to coarse subangular to subrounded fine to coarse sandstone (TOPSOIL). Greyish brown clayey fine to coarse SAND Firm brown slightly sandy gravelly CLAY. S coarse. Gravel is subangular fine to coarse and mudstone. Becoming stiff from 1.00mbgl.	ghtly clayey . Gravel is of mudstone ar o. and is fine to e of sandstone	nd
	4.65	D		4.65	57.05		Black COAL		
				4.85	56.85		End of Trial Pit at 4.85m		
									5.0 —
Remarl	(S 1. G 2. Si 3. Tr 4. Co not very 5. Bi	roundwater ing des readily colla ench excavated oal seam encou proven due to r weak light grey ackfilled with ar	ress at 0.55mbgl. apsing between 0.35n l in attempt to locate ntered at base of trial each of plant equipm y mudstone partially v isings upon completio	nbgl and 0. coal seam. I trench wit ent. Bedro veathered. on.	55mbgl. Dimensions th an outcrop ck outcroppin	10.30m by 0. o length of 1.0 ng east and w	80m. Dm, dipping towards the south-east. Thickness vest of the seam comprised extremely weak to PPM HSV	Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample - Undisturbed Sample = Standard Penetration Te = Photoionization Detect = Photoionization Detect = Part Per Million = Hand Shear Vane	ample est or (ppm)

			BROWNFIELD				Trial Pit Log	TT	io. '05
PROJE	CT NO:	C4380				CO-ORD	S: 346211E, 406658N	Sheet Hole	1 of 1 Type
PROJE	CT NAME:	LATHOM PAS	TURES (PHASE 2)			LEVEL:	60.29m OD	Sc	ale
CLIENT	Γ:	BELLWAY HO	DMES LIMITED (N	orth We	EST)	DATES:	13/01/20	Logged	Checked
Water	Sam	ple and In Si	tu Testing	Depth	Level	Legend	Stratum Description		
Strikes	Depth (m)	Туре	Results	(m)	(m OD)		Black fine to medium SAND with rootlets. (TOPSOIL)	
	0.10	ES		0.25	60.04		Orange fine to medium SAND.		
	0.60	ES		0.85	59.44				
	1.00	D HSV	46kPa	0.05	55.44		Soft to firm light grey sandy CLAY. Sand is fi	ne to mediur	n. 1.0 –
							Becoming brown and slightly gravelly from 1.40mbgl. Gra subangular to subrounded fine to coarse of mudstone.	vel is	-
	2.00	D HSV	102kPa				Becoming stiff from 2.00mbgl.		2.0 -
	3.40	D		3.40	56.89		Black COAL.		
				3.50	56.79		End of Trial Pit at 3.50m		
									4.0
									5.0
Remark	(S 1. G 2. Si 3. Cr oute 4. U 5. Br	roundwater end ides readily colla oal seam encou cropping east ar nable to excava ackfilled with ar	countered with mediu apsing between 0.40r ntered at base of tria nd west of the seam c te deeper than 3.50m isings.	Im flow at (nbgl and 1. I trench wit omprised e nbgl due to	D.80mbgl. 50mbgl. h an outcrop extremely we large collaps	o length of 1.0 eak to very we se of trench si	Dm, dipping towards the south-east. Bedrock beak light grey partially weathered mudstone. U = Unu Uf = Un Uf =	vironmental Sample urbed Sample sample ge Bulk Sample Idisturbed Sample disturbed Thin Wall S andard Penetration T otoionization Detect Part Per Million land Shear Vane	Sample fest or (ppm)

			в	ROWNFIELD				Borehole Log	Window S	ampler No. 501
			so	DUTIONS LTD					Sheet	1 of 1
PRO	JECT NO:	C4380)				CO-ORD	S: 346168E, 406793N	Hole	Type
PRO	JECT NAM	ME: LATHO	om pas	TURES (PHASE 2)			LEVEL:	62.30m OD		ale 30
CLIE	NT:	BELLW	/AY HOI	MES LIMITED (NO	DRTH WE	EST)	DATES:	14/01/20 - 16/01/20	Logged	Checked
Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Descripti	on	
	Strikes	Depth (m)	Type ES ES SPT SPT D SPT	N=5 (1,1/1,1,1,2) N=24 (2,3/4,5,7,8) (25 for 30mm/50 for 10mm)	2.50 2.54	(m OD) 61.90 61.60 59.80 59.76		Black brown clayey fine to medium SAND (TOPSOIL). Reddish brown fine to medium SAND. Soft light grey slightly gravelly slightly san coarse. Gravel is subangular to subrounde mudstone and sandstone. Becoming stiff from 2.00mbgl. Very weak light grey MUDSTONE, partiall End of Borehole at 2.5	on with rootlets. dy CLAY. Sand is fine to ed fine to medium of gy weathered.	to 1.0- 2.0- 3.0- 4.0-
Rema	arks	1. Hand dug 2. Groundwa 3. Casing inst 4. Borehole i	pit excav ter ingre called fro	vated to 1.20mbgl t ess with medium flo om GL to 2.00mbgl. c GL to 0.50m plain	to check t ow at 0.2 , 0.50m t	or buried s Ombgl. o 2.50m slc	ervices. otted, 2.50m	n to 2.54m backfilled with arisings.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample U = Undisturbed Thin Wall SS SPT = Standard Penetration Te PID = Photoionization Detecto PPM = Part Per Million HSV = Hand Shear Vane	5.0

			B	ROWNFIELD				Borehole Log	Window S	ampler No. 502
								-	Sheet Hole	1 of 1 Type
PROJ	IECT NO:	C438C)				CO-ORD	S: 346184E, 406740N	V Sc	VS ale
PRO	IECT NAI	ME: LATHO	om pas	TURES (PHASE 2)			LEVEL:	61.40m OD	1:	30
CLIE	NT:	BELLW	/AY HO	MES LIMITED (NO	DRTH WE	EST)	DATES:	14/01/20	TM	лескеа лмс
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
			ES ES D SPT D SPT D SPT	N=4 (1,1/1,1,1,1) N=12 (1,2/3,3,3,3) N=14 (8,7/4,3,3,4) N≥50 (9,14/50 for 200mm)	0.30 0.50 2.25	61.10 60.90 59.15 57.05		Black brown clayey fine to medium SAND with (TOPSOIL). Reddish brown fine to medium SAND. Soft light grey slightly gravelly slightly sandy Comedium. Gravel is subangular to subrounded finudstone and sandstone. Becoming reddish brown from 1.20mbgl. Becoming firm from 1.70mbgl. Extremely weak light grey MUDSTONE, partial Extremely weak light grey MUDSTONE, partial	I rootlets.	to of 1.0 2.0 3.0 4.0 5.0 6.0
Rema	ırks	 Hand dug Groundwa Casing inst Backfilled 	pit exca ter ingro alled fro with aris	vated to 1.20mbgl t ess with small flow om GL to 2.00mbgl. sings.	to check f at 0.20m	for buried s bgl.	ervices.	ES = B = I B = I U = U = U T PID PPM HSV	Environmental Sample Disturbed Sample Julk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sa = Standard Penetration Te = Photoionization Detecto I = Part Per Million = Hand Shear Vane	ample st r (ppm)

			B					Devekeleter	Window Sa	ampler No.
			so	LUTIONS LTD				Borenole Log	Sheet	1 of 1
PRO.	IECT NO:	C4380)				CO-ORDS	: 346264E, 406697N	Hole	Type
PRO.	IECT NAI	ME: LATHO	om pas	TURES (PHASE 2)		LEVEL:	62.00m OD	Sca	ale 30
CLIEI	NT:	BELLW	/AY HOI	MES LIMITED (N	orth We	ST)	DATES:	14/01/20	Logged	Checked
Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description		
		0.20 0.50	ES ES	Results	0.35	61.65		Black brown clayey fine to coarse SAND with Light brown slightly gravelly fine to coarse SA subrounded fine to medium of mudstone.	rootlets. (TOPSOII ND. Gravel is	_).
		1.20	ES SPT	N=5 (1,1/1,1,1,2)	1.00	61.00		Soft light grey brown slightly gravelly slightly fine to medium. Gravel is subangular to subro medium of mudstone and sandstone. Becoming reddish brown from 1.20mbgl. Becoming firm from 1.50mbgl.	sandy CLAY. Sand bunded fine to	is 1.0 -
		2.00-2.45 2.00	D SPT	N=7 (1,1/1,2,2,2)						2.0 -
		3.00-3.45 3.00	D SPT	N=9 (1,2/2,2,2,3)						3.0 -
		4.00	SPT	N=16 (2,3/3,4,4,5)				Becoming stiff from 4.00mbgl.		4.0
					4.45	57.55		End of Borehole at 4.45m		5.0
Rema	ırks	1. Hand dug 2. Groundwa 3. Casing inst 4. Backfilled	pit excav ter ingre called fro with aris	vated to 1.20mbgl ess with small flow om GL to 2.00mbg ings.	to check f v at 0.30m l.	or buried s bgl.	ervices.	23 0 = 8 = 18 0 = 10 17 90 17 90 190 190 190 191 191	= Environmental Sample Disturbed Sample Bulk Sample = Large Bulk Sample = Undisturbed Sample = Undisturbed Thin Wall Sa F = Standard Penetration Ter = Photoionization Detector W = Part Per Million V = Hand Shear Vane	mple it (ppm)

				POWNELELD				Devekeletee	Window Sa	ampler No.
		-	s	DUTIONS LTD				Borenole Log	Sheet	1 of 1
PROJ	ECT NO:	C4380)				CO-ORD	5: 346269E, 406781N	Hole	Type
PROJ		ME: LATHO	om pas	TURES (PHASE 2)			LEVEL:	62.41m OD	Sca	ale 30
CLIEN	NT:	BELLW	/AY HO	MES LIMITED (NO	DRTH WE	EST)	DATES:	14/01/20	Logged	Checkee
Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description		
	Strikes	Depth (m) 0.20	ES	Results	(m)	(m OD)		MADE GROUND: Black slightly gravelly fine to with low cobble content. Gravel is angular to s coarse of brick, mudstone, sandstone and coal angular to subangular up to 80mm in diameter	coarse sand tops ubrounded fine f . Cobbles are r of brick.	oil :o
					0.50	61.91	*****	Reddish brown fine to medium SAND.		
		4 20 4 55			0.70	61.71		Soft light grey slightly gravelly slightly sandy Cl medium. Gravel is subangular to subrounded f mudstone and sandstone.	AY. Sand is fine t ine to medium o	o f 1.0
		1.20-1.65	SPT	N=7 (1,1/1,2,2,2)				Becoming brown from 1.40mbgl. Becoming firm from 1.60mbgl.		
		2.00	SPT	N=12 (1,2/3,3,3,3)						2.0
		2.80 3.00 3.20	D SPT D	N=7 (1,1/1,2,2,2)						3.0
		4.00	SPT	N≥50 (3,3/50 for 220mm)	4.20 4.37	58.21 58.04		Extremely weak light grey MUDSTONE, partial End of Borehole at 4.37m	ly weathered.	4.0
										5.0
Rema	rks	1. Hand dug	pit exca	vated to 1.20mbgl t	to check f	for buried s	ervices.	ES = D = f	Environmental Sample Disturbed Sample	6.0
		3. Casing inst 4. Backfilled	alled fro with aris	om GL to 2.00mbgl.	αι υ.20m	νgι.		B = B LB = U = L UT SPT = PID = PPM HSV	ulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sa Standard Penetration Tes Photoionization Detector = Part Per Million = Hand Shear Vane	mple t (ppm)

			BR	OWNFIELD				Borehole Log	Window Sa	ampler No.
			-						Sheet Hole	1 of 1 Type
PRO.	JECT NO:	C4380					CO-ORD	S: 346235E, 406654N	W	/S
PRO.	JECT NAI	ME: LATHC)m past	URES (PHASE 2)		LEVEL:	59.59m OD	1::	30
CLIEI	NT:	BELLW	AY HON	MES LIMITED (N	ORTH WE	EST)	DATES:	14/01/20	Logged TM	Checked
Well	Water Strikes	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
		0.30	ES	RESULTS	0.50	50.00		Black clayey fine to medium SAND. (TOPSOIL)	
		0.70	ES		0.50	55.05		Reddish brown fine to medium SAND.		1.0-
		1.20	SPT ES	N=7 (1,1/1,2,2,2)	1.20	58.39		Soft light orangish grey slightly gravelly slight is fine to medium. Gravel is subangular to sul medium of mudstone and sandstone. Occasi fragments.	tly sandy CLAY. San brounded fine to onal wood	d
		2.00	SPT	N=6 (1,1/1,1,2,2)						2.0-
		3.00	SPT	N=15 (2,3/3,4,4,4)				Becoming stiff from 3.00mbgl.		3.0
		4.00-4.45 4.00	D SPT	N=14 (2,2/3,3,4,4)	4.00	55.59		Extremely weak light grey MUDSTONE, partia	ally weathered.	4.0
					4.45	55.14		End of Borehole at 4.45m		
										5.0 -
										6.0 -
Rema	ırks	 Hand dug Groundwa Casing inst Borehole in 	pit excav ter ingre alled fro nstalled:	ated to 1.20mbgl ss with small flow m GL to 2.00mbg GL to 1.00m plain	to check f v at 0.80m l. n, 1.00m t	for buried s ibgl, rising t o 3.00m slo	ervices. co 0.45mbgl i otted, 3.00m	after 20 minutes. b to 4.45m backfilled with arisings. P P P P P P P P P P P P P	S = Environmental Sample = Disturbed Sample = Bulk Sample = Bulk Sample = Undisturbed Sample T = Undisturbed Thin Wall Sa T = Standard Penetration Tes D = Photoionization Detector PM = Part Per Million SV = Hand Shear Vane	mple :t (ppm)

			BF	OWNFIELD				Borehole Log	Window Sa	ampler No.
PRO.	IECT NO:	C4380					CO-ORD	S: 346350E, 406637N	Sheet Hole	1 of 1 Type
PRO.		ME: LATHO)m past	URES (PHASE 2	.)		LEVEL:	61.60m OD	Sca 1:	75 ale 30
CLIEI	NT:	BELLW	AY HON	MES LIMITED (N	ORTH WE	EST)	DATES:	16/01/20	Logged	Checked JMC
Well	Water Strikes	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
		0.30	ES	Results		(22)		Black-brown very sandy CLAY with roots and fine to coarse. (TOPSOIL).	rootlets. Sand is	
		0.80	ES		0.70	60.90	¥/A\¥/A\¥/	Brown fine to medium SAND.		1.0 -
		1.20	SPT	N=4 (0,0/1,1,1,1)				Loose from 1.20mbgl.		-
	1.80 D 2.00 SPT N=12 (1,1/2,3,3,4)					59.90		Firm brown slightly gravelly slightly sandy CL/ coarse. Gravel is subangular to subrounded fi mudstone.	AY. Sand is fine to ne to medium of	2.0-
		3.00 3.20	SPT D	N=21 (3,3/4,5,6,6)	3.00 3.10	58.60 58.50		Brown fine to medium SAND. Stiff brown slightly gravelly slightly sandy CLA coarse. Gravel is subangular to subrounded fi	Y. Sand is fine to ne to medium of	3.0
		4.00	SPT	N=23 (4,4/5,5,6,7)				mudstone.		4.0 -
<i>¥117¥11</i>					4.45	57.15	<u></u>	End of Borehole at 4.45m		5.0 -
										6.0 -
Rema	ırks	 Hand dug Groundwa Running sa Casing inst Borehole i 	pit excav ter ingre inds enco alled fro nstalled:	ated to 1.20mbgl ss with small flov ountered betwee m GL to 2.00mbg GL to 1.00m plain	to check 1 v at 0.50m n 0.70mb jl. n, 1.00m t	for buried s bgl. gl and 1.70ı o 4.00m slc	ervices. mbgl. otted, 4.00m	es D B B U U U T to 4.45m backfilled with arisings. P P P HS	 Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sa T = Standard Penetration Te- Photoionization Detector M = Part Per Million V = Hand Shear Vane 	mple st (ppm)

									Window S	ampler No.
			BI	NOWNFIELD				Borehole Log	WS	507
PROJ	ECT NO:	C4380)				CO-ORD	S: 346308E, 406396N	Sheet Hole	1 of 1 Type
PROJ	ECT NAM	/IE: LATHC)M PAS	TURES (PHASE 2)		LEVEL:	61.94m OD		ale
CLIEN	IT:	BELLW	/AY HOI	MES LIMITED (N	ORTH WE	EST)	DATES:	16/01/20	Logged	Checked
	Water	Sample	and In	Situ Testing	Depth	Level			IM	JIVIC
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description		
		0.30	ES		0.70	61.24		Light brown fine to coarse SAND.	ar to subrounded	
	1.20 SPT N=8 (0,1/2,2,2,2) 1.80 D 1.75 60.1 1.85 60.0								1.0	
	1.80 D 1.75 60.1 1.85 60.0				60.19 60.09		Brown clayey peaty fine to coarse SAND with	natural organic		
	2.00 SPT N=9 (2,2/2,3,2,2) 2.50 D						odour. Soft to firm light grey-brown slightly gravelly slightly sandy CLA Sand is fine to coarse. Gravel is subangular to subrounded fine coarse of mudstone and sandstone. Becoming brown from 2.00mbgl.			
		3.00	SPT	N=16 (2,3/3,4,4,5)	2.90	59.04		Medium dense brown fine to medium SAND.		3.0-
					3.40 3.45	58.54 58.49 58.04		Firm brown slightly sandy CLAY. Sand is fine to Brown fine to medium SAND.	o coarse.	
		4.00	SPT	N=21 (3,4/5,5,5,6)	5.50	56.04		Stiff brown slightly sandy CLAY. Sand is fine to	o coarse.	4.0
					4.45	57.49		End of Borehole at 4.45m		5.0
Rema	rks	 Hand dug Groundwa Running sa Casing inst Backfilled v 	pit excav ter ingre ands enc alled fro with aris	rated to 1.20mbgl ess with small flow ountered betwee im GL to 2.00mbg ings.	to check 1 v at 0.30m n 0.70mb; l.	for buried s bgl. gl and 1.75	mbgl.	ES D : B = LB U : SP PIL PP HS	= Environmental Sample = Disturbed Sample = Bulk Sample = Large Bulk Sample = Undisturbed Sample = Undisturbed Thin Wall Sa T = Standard Penetration Te = Photoionization Detecto M = Part Per Million V = Hand Shear Vane	imple st r (ppm)

		1							Window S	ampler No.
			BI	OWNFIELD				Borehole Log	W	508
									Sheet	1 of 1
PRO.	JECT NO:	C4380)				CO-ORD	S: 346296E, 406422N	Hole V	lype /S
PRO.	JECT NAI	ME: LATHO)m past	URES (PHASE 2	2)		LEVEL:	61.84m OD	Sc	ale 30
CLIE	NT:	BELLW	/AY HON	MES LIMITED (N	IORTH WE	EST)	DATES:	16/01/20	Logged	Checked
Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description		
	Strikes	Depth (m)	Туре	Results	(m)	(m OD)		MADE GROUND: Black brown slightly gravel	v clavey fine to	
		0.10 0.50 1.20 1.90 2.00 2.70 3.00 3.80 4.00	ES ES SPT D SPT D SPT	N=4 (0,0/1,1,1,1) N=4 (0,0/1,1,1,1) N=21 (2,2/4,5,6,6) N=13 (2,2/2,3,4,4)	0.40	61.44		medium sand topsoil with roots and rootlets subangular fine to coarse of mudstone and g Light brown fine to medium SAND. Sand becoming dark brown from 0.85mbgl. Loose from 1.20mbgl. Very soft to soft brown slightly gravelly slightly is fine to coarse. Gravel is subangular to subr medium of mudstone and sandstone. Becoming firm from 2.60mbgl Becoming firm to stiff from 3.00mbgl.	ly sandy CLAY. Sar ounded fine to	to
Remarks 1. H 2. C 3. F 4. C 5. E		1. Hand dug pit excavated to 1.20mbgl to ch 2. Groundwater ingress with small flow at 0 3. Running sands encountered between 0.4 4. Casing installed from GL to 2.00mbgl. 5. Backfilled with arisings.			l to check t v at 0.10m en 0.40mbg gl.	for buried s Ibgl. gl and 1.80	ervices. mbgl.	65 D B L E U U S S S P P P F H H	i = Environmental Sample = Disturbed Sample = Bulk Sample = Lundisturbed Sample = Undisturbed Thin Wall S T = Standard Penetration Te D = Photoionization Detector 2M = Part Per Million SV = Hand Shear Vane	5.0 6.0 st r (ppm)

		ВР					Porchololog	Window Sa	ampler No.
		so	LUTIONS LTD				borenoie Log	Sheet	1 of 1
PROJECT N	I O: C4380)				CO-ORD	S: 346333E, 406343N	Hole	Type
PROJECT N	IAME: LATHO	om past	URES (PHASE 2)		LEVEL:	61.51m OD	Sca	ale 30
CLIENT:	BELLW	/AY HON	AES LIMITED (N	orth We	EST)	DATES:	17/01/20	Logged	Checked
Well Wate	er Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description		
Strik	 Depth (m) 0.20 0.40 0.70 1.00 1.20 1.60 1.80 2.00 3.00 3.20 	Type D ES D ES SPT D ES SPT D ES SPT D SPT SPT	N=4 (0,1/1,1,1,1) N=10 (1,1/2,2,3,3) N=25 (2,3/6,6,6,7) N=27 (5,5/5,7,7,8)	(m) 0.30 0.60 1.55 1.65	(m OD) 61.21 60.91 59.96 59.86 59.86		MADE GROUND: Grass over dark brown slight sandy clay topsoil with rootlets. Sand is fine to angular to subrounded fine to coarse of mudst brick, plastic and rare glass. Dark grey slightly gravelly SAND. Sand is fine to fine to coarse subangular to subrounded of bri Light brown fine to medium SAND. Becoming brown from 0.80mbgl. Loose from 1.20mbgl. Plastic dark brown fibrous PEAT. Organic odour Soft mottled grey and brown silty CLAY. Becoming firm from 1.90mbgl. Becoming stiff from 2.50mbgl. End of Borehole at 4.45m	ly gravelly slightly o coarse. Gravel is tone, sandstone, o coarse. Gravel i ick and mudstone	S S e. 1.0 2.0 3.0 4.0 5.0
Remarks	1. Hand dug 2. Groundwa 3. Running sa 4. Casing inst 5. Borehole i	pit excav ter ingre ands ence alled fro nstalled:	ated to 1.20mbgl ss with small flow ountered betwee m GL to 2.00mbg GL to 1.00m plair	to check f v at 1.00m n 0.60mbį l. n, 1.00m tr	or buried s bgl. gl and 1.55 o 4.00m slo	nervices. mbgl. ptted, 4.00m	ES = D = C B = E U = U U = U U = U U = U U = U PID = PPD	Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sa Standard Penetration Tee Photoionization Detectoi = Part Per Million	mple st (ppm)

		1			_				Window S	ampler No.
			BI	OWNFIELD				Borehole Log	WS	510
PROJECT	NO	C/1380					CO-ORD	S. 346365E 406393N	Sheet Hole	1 of 1 Type
FROJECT	NO.	04380					CO-ORD	3. 540505L, 400555N	۷ Sc	/S ale
PROJECT	NAME:	LATHC	IM PAST	URES (PHASE 2	.)		LEVEL:	62.31m OD	1:	30 Chashad
CLIENT:		BELLW	AY HON	/IES LIMITED (N	orth we	ST)	DATES:	17/01/20	SM	Спескеа ЈМС
Well Wat	ter	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
	$ \begin{array}{ c c c c c c c } \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & $		61.96 60.81 57.86		MADE GROUND: Grass over black slightly grave topsoil with rootlets. Sand is fine to coarse. Gra subrounded fine to coarse of mudstone, occasi glass and plastic. Light brown fine to coarse SAND. Becoming brown from 0.80mbgl. Loose from 1.20mbgl. Soft brown slightly gravelly silty CLAY. Gravel is sub-rounded to angular of mudstone and sands Becoming firm from 2.50mbgl Becoming stiff from 2.80mbgl. End of Borehole at 4.45m	fine to medium stone.	2.0 - 2.0 - 3.0 - 4.0 -			
Remarks	1. 2. 3. 4. 5.	Hand dug p Groundwat Running sa Casing inst Backfilled v	bit excav ter ingre nds enc alled fro with aris	ated to 1.20mbg ss with small flov ountered betwee m GL to 2.00mbg ings.	to check f v at 0.90m n 0.35mbg l.	or buried s bgl. gl and 1.50	ervices. mbgl.	ES = E D = Di B = Bu U = U U = U U T = 1 SPT PID = DD	nvironmental Sample sturbed Sample lik Sample andisturbed Sample Indisturbed Thin Wall Si Standard Penetration Te Photoionization Detecto Bard Pen Million	6.0 st r (ppm)

					_				Window S	ampler No.
			BI	ROWNFIELD				Borehole Log	WS	511
									Sheet Hole	1 of 1
PROJ	ECT NO:	C4380)				CO-ORD	S: 346290E, 406478N	W Noice	/S
PROJ	ECT NAM	/IE: LATHC)M PAS	FURES (PHASE 2)		LEVEL:	61.92m OD	Sc	ale
	17	DELLIA			ODTUNA		DATEC	15/01/20	Logged	Checked
CLIEF	NI:	BELLW	AY HUI	VIES LIIVITTED (N	ORTH WI	_51)	DATES:	15/01/20	TM	JMC
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
	0.50 1.20 1.40 2.00 3.00	ES SPT D SPT SPT	N=4 (0,0/1,1,1,1) N=5 (0,0/1,1,1,2) N=14 (1,2/3,4,3,4) N=16 (2,2/3,4,4,5)	0.30 1.95 2.00 2.45 3.45 3.90 4.45	61.62 59.97 59.92 59.47 58.47 58.02 57.47		 Very soft dark brown-black slightly gravelly ver roots and rootlets. Sand is fine to coarse. Grave subrounded fine to medium of mudstone and (TOPSOIL) Reddish brown-grey fine to medium SAND. Loose from 1.20mbgl. Loose from 1.20mbgl. Loose from 1.20mbgl. Brown clayey peaty SAND with natural organic Very soft slightly gravelly slightly sandy CLAY. S coarse. Gravel is subangular to subrounded fine to me and rare coal. Soft slightly gravelly slightly sandy CLAY. Sand i Gravel is subangular to subrounded fine to me and rare coal. Becoming firm from 3.00mbgl. Brown fine to medium SAND. Firm to stiff slightly gravelly slightly sandy CLAY coarse. Gravel is subangular to subrounded fine mudstone and rare coal. End of Borehole at 4.45m 	y sandy CLAY wi el is subangular sandstone.	th to 1.0- ne 3.0- 5.0-	
Rema	rks	1. Hand dug	pit excav	rated to 1.20mbg	to check t	for buried s	ervices.	ES =	Environmental Sample	6.0
	Remarks 1. H 2. G 3. R 4. C 5. B		ter ingre ands enc alled fro with aris	ess with small flov ountered betwee m GL to 2.00mbg ings.	v at 0.30m n 0.30mb; il.	bgl. gl and 1.95i	mbgl.	D = C B = B LB = U = L UT = SPT = P[D PPM HSV	Issurbed Sample ulk Sample Indisturbed Sample Undisturbed Sample Undisturbed Thin Wall Sa Standard Penetration Te Photoionization Detecto = Part Per Million = Hand Shear Vane	imple st r (ppm)

					_				Window Sa	ampler No.
			BI	ROWNFIELD				Borehole Log	WS	512
PROJ	ECT NO:	C4380)				CO-ORD	S: 346271E, 406415N	Sheet Hole	1 of 1 Type
PROJ	ECT NAM	ME: LATHC	DM PAS	TURES (PHASE 2)		LEVEL:	62.28m OD		/S ale
		DELLIN			ODTUNA		DATEC	16/01/20		Checked
CLIEF	NI:	BELLW	AY HOP	VIES LIMITED (N	ORTHWE	:51)	DATES:	16/01/20	TM	JMC
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
	-	0.20	ES					MADE GROUND: Grass over black slightly gra topsoil with rootlets and low cobble content coarse. Gravel is angular to subrounded fine concrete and glass. Cobbles are subangular u diameter of brick and concrete.	avelly clayey sand . Sand is fine to to coarse of brick, up to 80mm in	
	_				0.55	61.73	*****	Light brown fine to coarse SAND.		
		0.90	ES					Becoming brown from 1.00mbgl.		1.0 -
		1.20	SPT	N=6 (0,1/1,1,2,2)				Loose from 1.20mbgl.		
	2.:							Becoming light grey from 1.50mbgl.		-
	2.11		SPT D ES	N=6 (1,1/1,1,2,2)	2.10	60.18		Soft brown slightly gravelly slightly sandy CLA coarse. Gravel is subangular to subrounded f mudstone and sandstone.	AY. Sand is fine to ine to coarse of	2.0-
		3.00	SPT	N=16	3.00	59.28		Becoming firm from 2.80mbgl.		3.0
				(2,3/3,4,4,5)	3.15	59.13		Brown fine to coarse SAND. Firm brown slightly gravelly slightly sandy CL coarse. Gravel is subangular to subrounded f mudstone and sandstone.	AY. Sand is fine to ine to coarse of	
					3.45	58.83		Brown fine to coarse SAND.		
		4.00	SPT	N=17 (2,2/3,4,5,5)	3.90	58.38		Firm brown slightly gravelly slightly sandy CL coarse. Gravel is subangular to subrounded f mudstone and sandstone.	AY. Sand is fine to ine to coarse of	4.0 -
					4.45	57.83		End of Borehole at 4.45m		
										5.0
										6.0
Rema	rks	1. Hand dug 2. Groundwa 0.50mbgl in t 3. Running sa 4. Casing inst 5. Backfilled	pit excav ter ingre en minu ands enc alled fro with aris	ated to 1.20mbgl ss with small flow tes. ountered betwee m GL to 2.00mbg ings.	to check f v at 0.55m n 0.55mbg l.	or buried s bgl. Ground gl and 2.10	ervices. dwater level mbgl.	in inspection pit rose from 1.00mbgl to B U U U SF P P P H	 Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Sample Undisturbed Thin Wall Sa T = Standard Penetration Te: D = Photoionization Detector PM = Part Per Million SV = Hand Shear Vane 	mple st · (ppm)

									Window S	ampler No.
			BI	ROWNFIELD				Borehole Log	WS	513
									Sheet	1 of 1
PRO	ECT NO:	C4380)				CO-ORD	S: 346223E, 406421N	W Note	/S
PRO		ME: LATHO	om past	FURES (PHASE 2)		LEVEL:	62.55m OD	Sci	ale
CLIE	NT:	BELLW	/AY HON	MES LIMITED (N	ORTH WE	EST)	DATES:	15/01/20	Logged	Checked
	Water	Sample	and In	Situ Testing	Denth	Level			IM	JMC
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description		
		0.20 0.50 1.20	ES ES D SPT	N=2 (0,0/0,0,1,1)	0.40	62.15		MADE GROUND: Grass over very soft black sign slightly sandy clay topsoil with roots and rootlet coarse. Gravel is subangular fine of brick. Light grey fine to medium SAND. Becoming light brown from 0.70mbgl.	itiy graveliy is. Sand is fine t	to
		1.90 2.00	D SPT	N=5 (0,1/1,1,1,2)	1.80 1.85	60.75 60.70		Brown clayey peaty SAND with natural organic of Soft to firm light grey-brown slightly gravelly slig Sand is fine to coarse. Gravel is subangular to su coarse of mudstone and sandstone.	odour. ghtly sandy CLA ibrounded fine	Y. 2.0-
		2.90 3.00	D SPT	N=10 (2,2/2,2,3,3)				Becoming firm from 3.00mbgl.		3.0 -
		4.00	SPT	N=14 (2,2/3,3,4,4)	4.45	58.10				4.0
								End of Borehole at 4.45m		5.0 -
Rema	ırks	1. Hand dug 2. Groundwa 3. Running sa 4. Casing inst 5. Backfilled	pit excav ter ingre ands enc called fro with aris	rated to 1.20mbgl ess with medium f ountered betwee im GL to 2.00mbg ings.	l to check f flow at 0.2 n 0.40mbį gl.	for buried s Ombgl. gl and 1.80	mervices.	ES = En D = Dis B = Bul LB = La U = Un UT = U SPT = S PID = P PPM = HSV = H	vironmental Sample turbed Sample k Sample disturbed Sample ndisturbed Thin Wall Sa tandard Penetration Te hotoionization Detecto Part Per Million Hand Shear Vane	f.0

1								Window Sa	mpler No.
		BF	OWNFIELD				Borehole Log	WS	14
	C/1380					CO-ORD	S· 346248E 406410N	Sheet Hole	1 of 1 Type
PROJECT NAI	ME: LATHO)M PAST	URES (PHASE 2)		LEVEL:	62.58m OD	W Sca	s le
			,	1				1:3	Checked
CLIENT:	BELLW	AY HON	MES LIMITED (N	ORTH WE	EST)	DATES:	15/01/20	TM	JMC
Well Water Strikes	Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
◄	0.40 0.80 1.20	ES ES SPT	N=3 (0,0/0,1,1,1)	0.70	61.88		MADE GROUND: Grass over soft dark brown-bla gravelly very sandy clay topsoil. Sand is fine to co subangular to subrounded fine to coarse of brick <i>isolated angular cobble of concrete at 0.10mbgl, 100mm in diama</i> Dark brown slightly gravelly clayey fine to mediu occasional rootlets. <i>Very loose from 1.20mbgl.</i>	ck slightly barse. Gravel is and concrete. eter. m SAND with	1.0 -
	1.80	D					Becoming light brown from 1.70mbgl.		
	2.00	SPT	N=4 (0,0/1,1,1,1)	2.05	60.53		Soft to firm brown slightly gravelly slightly sandy fine to coarse. Gravel is subangular to subrounde of mudstone and sandstone.	CLAY. Sand is ed fine to coars	e 2.0 -
	2.50	D	N=17 (2,3/3,4,5,5)	3.00	59.58		Medium dense brown fine to medium SAND.		3.0 -
	3.80	D SPT	N=14	3.70	58.88 58.58		Soft to firm brown slightly gravelly slightly sandy fine to coarse. Gravel is subangular to subrounder of mudstone and sandstone.	CLAY. Sand is ed fine to coars	e 4.0
			(2,3/3,3,4,4)	4.20 4.45	58.38 58.13		Firm brown slightly gravelly slightly sandy CLAY. S coarse. Gravel is subangular to subrounded fine f mudstone and sandstone. End of Borehole at 4.45m	Gand is fine to to coarse of	
									5.0
Remarks	1. Hand dug 2. Groundwa 0.30mbgl in t 3. Running sa 4. Casing inst 5. Backfillad	bit excav ter ingre en minu Inds enco alled fro	ated to 1.20mbgl ss with small flow tes. ountered betwee m GL to 2.00mbg ings	to check f v at 0.30m n 0.70mbg l.	or buried s bgl. Ground gl and 2.051	ervices. dwater level mbgl.	in inspection pit rose from 1.20mbgl to B = Bulk UF = Lar U = Und UT = Un SPT = St PID = Ph	ironmental Sample urbed Sample Sample ge Bulk Sample disturbed Thin Wall Sar andard Penetration Tes totoionization Detector	nple (ppm)

		1			_				Window Sa	ampler No.
			BI	ROWNFIELD				Borehole Log	WS	515
									Sheet	1 of 1 Type
PRO.	IECT NO:	C4380)				CO-ORD	S: 346242E, 406386N	W	'S
PRO.		ME: LATHO)M PAST	TURES (PHASE 2	2)		LEVEL:	62.64m OD	Sca	ale
			(1)(1)01				DATEC	15/01/20	Logged	Checked
CLIEI	NI:	BELLW		VIES LIIVITED (N	IORTH WE	:51)	DATES:	15/01/20	TM	JMC
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Descriptio	n	
		0.00			0.10	62.54		MADE GROUND: Red cobbles of angular w diameter.	hole bricks 150mm i	n
		0.20	ES		0.45	62.19		MADE GROUND: Black slightly gravelly clay Gravel is angular to subrounded fine to coa concrete.	vey fine to coarse sar arse of brick, glass ar	nd. nd
		0.60	ES					Light grey brown fine to medium SAND wit odour.	h mild hydrocarbon	
										1.0 -
		1.20	SPT	N=4 (0,0/1,1,1,1)				Loose from 1.20mbgl. Becoming reddish brown from 1.30mbal		
								becoming readsh brown from 1.50mbgr.		
					1.00	60.74				
		1.95 2.00	D SPT	N=6	2.00	60.74 60.64	-5316	Brown clayey peaty SAND with natural organized Soft to firm brown slightly gravelly slightly	anic odour. sandy CLAY Sand is	2.0 -
		2.20	D	(1,1/1,1,2,2)				fine to coarse. Gravel is subangular to subr	ounded fine to coars	se
								of mudstone and sandstone.		
		3.00	SPT	N=17 (2,2/3,4,5,5)				Becoming stiff from 3.00mbgl.		3.0 -
		3.60	D							
		4.00	SPT	N=17						4.0 -
				(2,3/4,4,4,5)						
U///X///					4.45	58.19		End of Borehole at 4.45	m	
										5.0 -
										6.0 -
Rema	ırks	1. Hand dug	pit excav	ated to 1.20mbg	l to check f	or buried s	services.		ES = Environmental Sample	
		2. Groundwa 0.50mbgl in t	ter ingre five minu	ess with small flow ites.	v at 0.50m	bgl. Groun	dwater level	in inspection pit rose from 1.20mbgl to	D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample	
		3. Running sa	ands enc	ountered betwee	en 0.45mb	gl and 1.90	mbgl.		U = Undisturbed Sample UT = Undisturbed Thin Wall Sa SPT = Standard Penetration Test	mple .t
		5. Borehole i	nstalled:	GL to 0.50m plai	n, 0.50m t	o 2.00m slo	otted, 2.00m	to 4.45m backfilled with arisings.	PID = Photoionization Detector PPM = Part Per Million	(ppm)
									inanu sinear vane	

		1			_				Window San	npler No.
			BI	COWNFIELD				Borehole Log	WS	16
PROJ	ECT NO:	C4380					CO-ORD	5: 346240E, 406363N	Sheet 1 Hole T	of 1 ype
PROJ		ME: LATHC	om pas	TURES (PHASE 2)		LEVEL:	62.77m OD	Scal	e
CUE	<u>лт.</u>	DELLM				-ст)	DATES	15/01/20	Logged	Checked
CLIEI	NI.	DELLW					DATES:	15/01/20	TM	JMC
Well	Water Strikes	Depth (m)	and in Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description	ı	
		0.30 0.80 1.20-1.65 1.20 2.00 3.00-3.45 3.00	ES D SPT D SPT SPT	N=8 (1,1/1,2,2,3) N=6 (0,1/1,1,2,2) N=13 (2,3/3,3,3,4) N=19 (2,3/4,4,5,6)	0.10 0.20 0.70 1.80	62.67 62.57 62.07 60.97 58.37 58.32		MADE GROUND: Grass over black gravely if topsoil. Gravel is subangular to subrounded mudstone. MADE GROUND: Red cobbles of angular wh diameter. MADE GROUND: Black brown slightly grave coarse sand. Gravel is subangular to subrou mudstone and brick. Light brown fine to medium SAND with mild Becoming reddish brown from 0.8mbgl. Loose from 1.20mbgl. Loose from 1.20mbgl. Becoming firm from 3.00mbgl. Becoming stiff from 4.00mbgl. Brown fine to medium clayey SAND. End of Borehole at 4.45r	n life to coarse saint fine to coarse of nole bricks 150mm in lly clayey fine to nded fine of d hydrocarbon odour.	
Rema	rks	1. Hand dug 2. Groundwa 3. Running sa 4. Casing inst 5. Backfilled	pit excav ter ingre ands enc alled fro with aris	rated to 1.20mbgl sss with small flow ountered betwee m GL to 2.00mbg ings.	to check f v at 1.10m n 0.70mb; l.	for buried s bgl. gl and 1.80	mbgl.		ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sam SPT = Standard Penetration Test PD = Photoionization Detector (p PPM = Part Per Million HSV = Hand Shear Vane	ple opm)

					_				Window Samp	ler No.
			BI	ROWNFIELD				Borehole Log	WS1	7
PRO	JECT NO:	C4380)				CO-ORD	S: 346246E, 406432N	Sheet 1 c Hole Ty	pe
PRO	JECT NAM	IE: LATHO	DM PAS	FURES (PHASE 2	2)		LEVEL:	62.30m OD	Scale 1:30	
CLIE	NT:	BELLW	/AY HOI	MES LIMITED (N	IORTH WI	EST)	DATES:	15/01/20	Logged C	hecked
Well	Water Strikes	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description	on	
		0.20 0.60 1.20 1.60 2.00 2.60 3.00 3.50	ES ES SPT D SPT SPT SPT	N=4 (0,0/1,1,1,1) N=7 (1,1/1,2,2,2) N=10 (1,2/2,2,3,3) N=13 (2,3/4,3,3,3)	0.30 0.30 2.50 3.20 3.85 3.95	62.00 59.80 59.10 58.45 58.35		Very soft dark brown-black slightly gravell roots and rootlets. Sand is fine to coarse. 4 subrounded fine to medium of mudstone (TOPSOIL) Light grey fine to medium SAND. Becoming orangish brown from 0.90mbgl. Loose from 1.20mbgl. Loose from 1.20mbgl. Soft brown slightly gravelly slightly sandy 4 coarse. Gravel is subangular to subrounder mudstone and rare coal. Brown fine to medium SAND. Medium dense from 3.50mbgl. Soft brown slightly sandy CLAY. Sand is fine End of Borehole at 3.95	y very sandy CLAY with Gravel is subangular to and sandstone.	
Rema	ırks	 Hand dug p Groundwate after five minu Running sar Casing insta Borehole ur Backfilled w 	it excavat er ingress utes. nds encou lled from nable to b rith arisin	ed to 1.20mbgl to o with medium flow intered between 0. GL to 2.00mbgl. e progressed beyo gs.	check for bu r at 0.20mbg 30mbgl and nd 3.95mbg	uried service gl. Groundwa d 2.50mbgl. gl due to blov	s. ater level in ir wing sands.	spection pit rose from 1.00mbgl to 0.50mbgl	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sample SPT = Standard Penetration Test PID = Photoinization Detector (ppr PPM = Part Per Million HSV = Hand Shear Vane	n)

									Window Sa	mpler No.
			BI	ROWNFIELD				Borehole Log	WS	18
PRO	IECT NO:	C4380)				CO-ORD	S: 346263E, 406466N	Sheet Hole	1 of 1 Type s
PRO		ME: LATHO	om pas	TURES (PHASE 2	.)		LEVEL:	62.31m OD	Sca	le 10
CLIEI	NT:	BELLW	/AY HOI	MES LIMITED (N	orth We	EST)	DATES:	15/01/20	Logged TM	Checked
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Descriptio	n	
		0.30	ES		0.45	61.86		Black slightly gravelly very sandy CLAY with to 20mm in diameter. Sand is fine to coarse to subrounded fine to medium of mudston Brown fine to medium SAND.	n rootlets and roots u e. Gravel is subangula le and rare coal.	р аг
		1.20	SPT	N=3 (0,0/0,1,1,1)				Very loose from 1.20mbgl.		1.0-
		2.00 2.10	SPT D	N=7 (1,1/1,2,2,2)	1.70 1.80	60.61 60.51		Brown clayey peaty SAND with natural orga Soft brown slightly gravelly slightly sandy C coarse. Gravel is subangular to subrounded mudstone and rare coal. Becoming stiff from 2.00mbgl.	anic odour. CLAY. Sand is fine to d fine to medium of	2.0
		3.00	SPT	N=17 (2,2/3,4,5,5)				Becoming firm from 2.70mbgl.		3.0-
		3.60	D SPT	N=22						4.0-
				(3,4/4,5,6,7)	4.45	57.86		End of Borehole at 4.45	im	
										5.0
Rema	ırks	1. Hand dug 2. Groundwa 0.60mbgl in 1 3. Running sa 4. Casing inst 5. Borehole i	pit excav ter ingre fifteen m ands enc alled fro nstalled:	rated to 1.20mbgl ess with small flow inutes. ountered betwee m GL to 2.00mbg GL to 0.50m plain	i to check t v at 0.45m n 0.45mb gl. n, 0.50m t	for buried s Ibgl. Ground gl and 1.901 o 2.00m slo	ervices. dwater level mbgl. otted, 2.00m	in inspection pit rose from 1.00mbgl to to 4.45m backfilled with arisings.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample UB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sar SPT = Standard Penetration Tes PID = Photoinization Detector PPM = Part Per Million HSV = Hand Shear Vane	nple : (ppm)

									Window S	ampler No.
			BR	OWNFIELD				Borehole Log	WS	519
									Sheet Hole	1 of 1 Type
PROJE	CT NO:	C4380)				CO-ORD	S: 346321E, 406462N	V	VS
PROJE	CT NAN	ME: LATHO	om past	URES (PHASE 2	2)		LEVEL:	61.66m OD	1:	ale 30
CLIENT	:	BELLW	/AY HON	MES LIMITED (N	IORTH WE	EST)	DATES:	16/01/20	Logged	Checked
Well S	Nater	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
	Depth (m) 0.20 0.60 1.20 1.60 2.00 3.00 3.10 4.00	ES ES SPT D SPT D SPT	N=3 (0,0/0,1,1,1) N=3 (0,0/0,1,1,1) N=16 (2,2/3,3,5,5) N=21 (3,3/4,5,6,6)	4.45	61.16 60.20 57.20		Black-brown clayey fine to medium SAND with (TOPSOIL) Brown fine to medium SAND. Very loose from 1.20mbgl. Soft brown slightly gravelly slightly sandy CLA coarse. Gravel is subangular to subrounded fimudstone and sandstone. Becoming very soft from 2.00mbgl. Locally soft between 2.60mbgl and 3.00mbgl. Becoming stiff from 3.00mbgl. End of Borehole at 4.45m	th rootlets.	1.0	
Remark	ß	1. Hand dug 2. Groundwa 3. Running sa 4. Casing inst 5. Backfilled	pit excava ter ingre ands enco anled fro with arisi	ated to 1.20mbg ss with small flov puntered betwee m GL to 2.00mbg ngs.	l to check f v at 0.30m n 0.50mbg l.	for buried s bgl. gl and 1.45r	ervices. mbgl.	ES D B U U U U U P P P P P P P P P P P P	= Environmental Sample = Disturbed Sample = Bulk Sample = Bulk Sample = Undisturbed Sample = Undisturbed Thin Wall Sa T = Standard Penehration T = Part Per Million W = Part Per Million V = Hand Shear Vane	6.0 – ample st r (ppm)

								_	Window Sa	mpler No.
			SO	LUTIONS LTD				Borehole Log	WS	20
PROJ	ECT NO:	C4380)				CO-ORD	S: 346344E, 406416N	Sheet Hole	1 of 1 Type s
PROJ	ECT NAM	ME: LATHC)m past	URES (PHASE 2	2)		LEVEL:	61.61m OD	Sca	l e 30
CLIEN	NT:	BELLW	/AY HON	MES LIMITED (N	IORTH WE	EST)	DATES:	17/01/20	Logged SM	Checked
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Descriptio	n	
		0.30	DES					Dark brown slightly sandy clay topsoil with to medium.	rootlets. Sand is fine	2
		0.55	D ES		0.50 0.60	61.11 61.01		Dark grey sandy CLAY. Sand is fine to media Grey brown fine to medium SAND.	um. (TOPSOIL)	
		0.80	D ES							1.0 -
		1.20	SPT	N=5 (0,0/1,1,1,2)				Loose from 1.20mbgl.		
		1.50	D		1.50 1.52	60.11 60.09		Plastic brown slightly sandy PEAT. Sand is f Organic odour. Grey brown fine to medium SAND.	ine to medium.	
		2.00	SPT	N=5 (1,2/2,1,1,1)	2.00	59.61		Loose brown fine to medium SAND.		2.0
		2.50	D		2.60	59.01		Brown sandy CLAY. Sand is fine to medium.		
		2.80 3.00	D ES SPT	N=14	3.00	58.61		Medium dense brown fine to medium SAN		3.0
		4.00	SPT	(1,2/3,3,4,4) N=14 (2,2/3,3,4,4)						4.0
U///H///					4.45	57.16	<u>na kana kana ka</u>	End of Borehole at 4.45	im	
										5.0 -
										6.0
Rema	rks	 Hand dug Groundwa Running sa Casing inst Backfilled v 	pit excav ter ingre ands enco alled fro with arisi	ated to 1.20mbg ss with small flov ountered betwee m GL to 2.00mbg ings.	l to check f v at 0.40m n 0.60mb	for buried s bgl, 2.00ml gl and 1.50	ervices. bgl and betw mbgl.	veen 3.00m to 3.50mbgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample UB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sar SPT = Standard Penetration Tes PID = Photoionization Detector PPM = Part Per Million HSV = Hand Shear Vane	nple t (ppm)

		1			_				Window San	npler No.	
			BR	OWNFIELD				Borehole Log	WS	21	
PROJ	ECT NO:	C4380					CO-ORE	S: 346333E, 406396N	Sheet 1 Hole T	of 1 ype	
PROJ		1E: LATHC	om past	URES (PHASE 2)		LEVEL:	61.80m OD	Scal 1:30	e	
CLIEP	NT:	BELLW	AY HON	MES LIMITED (N	orth We	EST)	DATES:	17/01/20	Logged SM	Checked JMC	
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description	n		
		0.20 0.80 1.20 2.00 3.00	D ES D ES SPT SPT D ES SPT	N=3 (0,0/0,1,1,1) N=5 (1,1/1,1,1,2) N=11 (1,2/2,3,3,3)	2.10 3.00 3.45	61.44 61.20 60.90 59.70 58.80 58.34		MADE GROUND: Grass over dark brown slig topsoil with rootlets. Sand is fine to coarse. subrounded fine to coarse of mudstone, fla plastic. <i>Hogging encoutered at 0.20mbgl.</i> MADE GROUND: Dark red brown clayey gra to coarse sub-angular to subrounded of brie Light brown fine to medium SAND. Brown fine to medium SAND. <i>Very losse from 1.20mbgl.</i> Soft brown slightly sandy silty CLAY. Sand is Medium dense brown fine to medium SANI End of Borehole at 3.45r	ghtly sandy clay Gravel is angular to g stone, brick and vel. Gravel is medium ck. fine to medium.		
Rema	ırks	 Hand dug J Groundwar Flagstones Running sa Casing inst Backfilled v 	bit excave ter ingre encount inds enco alled fro with arisi	ated to 1.20mbgl ss with small flow ered at 0.20mbg puntered betwee m GL to 2.00mbg ngs.	to check 1 / at 0.30m l and form n 0.60mb _i l.	for buried s bgl. er brick roa gl and 2.10r	ervices. ad encounte mbgl.	ered between 0.35m to 0.60mbgl.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample UB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sam SPT = Standard Penetration Test PID = Photoionization Detector (p PPM = Part Per Willion HSV = Hand Shear Vane	ple	
		1		55. 2 M (C)					Rotary Open Ho	ole Borehole No	lo.
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			BI	ROWNFIELD				Borehole Log	RO	001	
			-					5	Sheet	1 of 2	_
PRO.	JECT NO:	C4380)				CO-ORD	S: 346228E, 406748N	Hole	Туре	
									Sc:	ale	
PRO.	JECT NAM	ME: LATHC)m pas	FURES (PHASE 2))		LEVEL:	61.80m OD	1:1	100	
CLIE	NT:	BELLW	/AY HOI	MES LIMITED (NO	ORTH WE	ST)	DATES:	13/01/20 - 14/01/20	Logged	Checked	d
	Water	Sample	and In	Situ Testing	Denth	Level			DRILLER	JIVIC	
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description			
		0.20	ES		0.35	61.45		Dark reddish brown clayey SAND with frequen	t roots and		
								Soft to firm light grey slightly sandy CLAY. Sand	l is fine to mediu	m. 1.0)
					1.20	60.60		Drift.		1.0	
										2.0	,
										3.0	1-
					4.00	57.80		Light grey MUDSTONE.		4.0	
										_	
										5.0	
										6.0	,
										0.0	
										7.0	, _
											-
										8.0	
										9.0	'
										10.0	
										10.0	
										11.0	,
										12.0	1
											-
										13.0	
										14.0	
										15.0	,
										16.0) —
										17.0	1
										18.0	-
										10.0)
										15.0	
										20.0	,
Rema	ırks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre called thr water flu with cen	rated to 1.20mbgl ess at 0.10mbgl. rough superficial d ush during drilling. nent on completio	to check f leposits tc n.	ged by engineer). ES = D = 1 B = 1 U = U = U = UT SPT. PD PPM HSV	Environmental Sample Disturbed Sample Julk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sa = Standard Penetration Te = Photoionization Detecto = Part Per Million = Hand Shear Vane	imple st r (ppm)			

			BI	ROWNFIELD				Borehole Log	Rotary Open Hole	Borehole No.
PRO.	JECT NO:	C4380)				CO-ORD	IS: 346228E, 406748N	Hole Ty	012 /pe
PRO.	JECT NAM	ME: LATHO)m pas	TURES (PHASE 2)		LEVEL:	61.80m OD	Scale	9
CLIE	NT·	BELLM				TT)	DATES	13/01/20 - 14/01/20	Logged	0 Checked
	Water	Sample	and In	Situ Testing	Denth		DAILS.	15/01/20 14/01/20	DRILLER	JMC
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description	1	
					23.50 23.90 25.00	38.30 37.90 36.80		Black COAL (INTACT). Grey MUDSTONE. End of Borehole at 25.00	n	21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0 33.0 34.0 35.0 36.0 37.0
										38.0 39.0
										40.0
Rema	arks	1. Hand dug 2. Groundwa 3. Casing inst 4. No loss of 5. Backfilled v	pit excav ter ingre called thi water flu with cen	vated to 1.20mbgl ess at 0.10mbgl. rough superficial c ush during drilling nent on completio	to check f leposits to n.	or buried s	ervices (log	ged by engineer).	25 = Environmental Sample D = Disturbed Sample B = Bulk Sample B = Large Bulk Sample J = Undisturbed Sample JT = Undisturbed Thin Wall Samp PT = Standard Penetration Test 10 = Photoionization Detector (p) PPM = Part Per Million 4SV = Hand Shear Vane	le pm)

		1			_				Rotary Open Hole	Borehole No.
			B	ROWNFIELD				Borehole Log	ROO)2
									Sheet 1	of 1
PRO	IECT NO:	C4380)				CO-ORD	S: 346168E, 406778N	Hole Ty RO	уре
								c1.coop	Scale	е
PRO	IECT NAM	/IE: LATHC	JIM PAS	IURES (PHASE 2	<u>'</u>)		LEVEL:	61.50m OD	1:10	0
CLIE	NT:	BELLW	VAY HOI	MES LIMITED (N	IORTH WE	ST)	DATES:	13/01/20 - 15/01/20	Logged	Checked
	Water	Sample	and In	Situ Testing	Depth	Lovel			DITILLER	JNIC
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description		
		0.10	ES		0.40	61 10		Black brown clayey fine to medium SAND with ro	ootlets.	
					0.40	01.10		(TOPSOIL). Soft light grev slightly gravelly slightly sandy CLA	Y. Sand is fine to	-1
					1.20	60.30		coarse. Gravel is subangular to subrounded fine	to medium of	1.0
								Drift with clay bands.		
										2.0
										3.0
					3.50	58.00				
								Grey sandy MUDSTONE.		4.0
					4.50	57.00				
					5.00	56.50				5.0
								Grey sandy MODSTONE.		
										6.0
					6.30	55.20		Hard SANDSTONE.		
										7.0
					7.50	54.00		Grey sandy MUDSTONE.		
										8.0
					9.00	52.50		Light grey SANDSTONE.		9.0
							· · · · · · · ·			10.0
							· · · · · · · ·			10.0
										11.0
							· · · · · · · · ·			
										12.0
					12.80	48.70		Orange brown SANDSTONE.		13.0
							· · · · · · · · ·			
							· · · · · · · ·			14.0
					14.50	47.00		Black COAL (INTACT).		
					15.20	46.30		Grey MUDSTONE.		15.0
								-		16.0
										10.0
										17.0
										18.0
										19.0
¥//>\¥//					20.00	41.50		End of Borehole at 20.00m		20.0
Roma	rks	1. Hand dug	pit excav	ated to 1 20mbg	l to check f	or buried s	ervices (logo	zed by engineer).	ironmental Sample	
nemd		2. Groundwa	iter ingre	ess at 0.10mbgl.		4.00 1		D = Dist B = Bulk	urbed Sample Sample	
		3. Casing inst 4. No loss of	tailed thi water fli	rougn superficial (ush during drilling	aeposits to g.	4.00mbgl.		LB = Lar U = Und UT = Und	ge Bulk Sample isturbed Sample disturbed Thin Wall Samp	le
		5. Borehole i	nstalled	GL to 10.00m pla	ain, 10.00n	n to 14.00n	n slotted, 14	.00m to 20.00m backfilled with bentonite.	andard Penetration Test otoionization Detector (p	pm)
								PPM = P HSV = H	art Per Million and Shear Vane	

		1							Rotary Open Hole Bo	rehole No.
			BI	NOWNFIELD				Borehole Log	ROO3	}
PROJ	ECT NO:	C4380)				CO-ORDS	346137E, 406718N	Hole Typ)e
PROJ	ECT NAM	1E: LATHC	om pas	TURES (PHASE 2)		LEVEL:	62.50m OD	Scale 1:100	
CLIEN	NT:	BELLW	/AY HOI	MES LIMITED (N	ORTH WE	ST)	DATES:	13/01/20 - 15/01/20	Logged Cl DRILLER	JMC
Well	Water Strikes	Sample Depth (m)	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description		
		0.20 0.40	ES ES		0.30	62.20		Dark brown fine SAND. (TOPSOIL)		_
		0.80	ES		0.60	61.90		Orange fine to medium SAND.		1.0-
					1.20	61.30		Drift with clay bands.		
										2.0
										_
										3.0 -
										_
					4.00	58.50		Grev MUDSTONE		4.0
										-
										5.0
										-
					6.20	56.30				6.0
					6.80	55.70		Black MODSTONE.		
								Grey sandy MUDSTONE.		7.0
										-
										8.0 -
										9.0
										5.0
										10.0 -
										10.0
					11.00	51.50				11.0
								Light grey SANDSTONE.		
										12.0
							· · · · · · · · · · · · · · · · · · ·			-
							· · · · · · · · ·			13.0
							· · · · · · · · · · · · · · · · · · ·			_
					14.00	48.50		Black COAL (INTACT).		14.0
					14.70	47.80				_
										15.0
										16.0
										17.0
										11.0
										18.0
										19.0 -
										-
					20.00	42.50		End of Borehole at 20.00m		20.0
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre called thr water flu with cen	vated to 1.20mbgl ess at 0.55mbgl. rough superficial c ush during drilling nent on completic	to check f deposits to	or buried s 4.00mbgl.	ervices (logg	ed by engineer). ES = Env D = Dista B = Bulk U = Und UT = Um SPT = Sta PID = Ph HSV = Ha	ronmental Sample irbed Sample Sample te Bulk Sample sturbed Sample disturbed Thin Wall Sample andard Penetration Test otoionization Detector (ppm art Per Million and Shear Vane	1)

									Rotary Open Ho	le Borehole No.
			BI	ROWNFIELD				Borehole Log	RO	04
		04200						• • • • • • • • • • • • • • • • • • •	Sheet Hole	1 of 2 Type
PROJ	IECT NO:	C4380)				CO-ORD	S: 346292E, 406694N	R	0
PRO	ECT NAM	ME: LATHO	om pas	TURES (PHASE 2	2)		LEVEL:	62.20m OD	1:1	00
CLIE	NT:	BELLW	/AY HOI	MES LIMITED (N	IORTH WE	ST)	DATES:	13/01/20 - 16/01/20	Logged DRILLER	Checked
Well	Water Strikes	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
		0.30 0.80	Iype ES ES		 (III) 0.60 1.20 7.50 12.30 13.10 	61.60 61.00 54.70 49.90 49.10		MADE GROUND: Dark brown slightly gravelly with low cobble content. Sand is fine to coarse subangular to subrounded fine to coarse of br mudstone and coal. Cobbles are subangular to 70mm in diameter of concrete. Black brown clayey fine to medium SAND. Drift. SAND and CLAY. Grey MUDSTONE. Black COAL (INTACT). Grey MUDSTONE.	clayey sand topso e. Gravel is rick, concrete, o subrounded up to the subrounded in the subround sub- subrounded in the subround sub- subround subround sub- subround subround	iil 1.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0
					18.60	43.60		Dark grey sandy MUDSTONE.		19.0
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre called thr water flu with cen	ated to 1.20mbg iss at 0.70mbgl. ough superficial ish during drilling ient on completio	l to check f deposits to g. on.	or buried s	ervices (log	ged by engineer). D = B = LB = U = U = UT SPT PID PPPN HSV	Environmental Sample Disturbed Sample Bulk Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sar = Standard Penetration Tes = Photoionization Detector A = Part Per Million = Hand Shear Vane	mple t (ppm)

		1							Rotary Open Ho	e Borehole No
			BI	ROWNFIELD				Borehole Log	RO	04
		C 4200		A Annual Annual Ann					Sheet Hole	2 of 2 Type
PROJ	IECT NO:	C4380)				CO-ORD:	5: 346292E, 406694N	R	
PRO	ECT NAM	1E: LATHO	om past	TURES (PHASE 2))		LEVEL:	62.20m OD	1:1	00
CLIE	NT:	BELLV	VAY HON	MES LIMITED (NO	ORTH WE	ST)	DATES:	13/01/20 - 16/01/20	Logged DRILLER	Checked
Well	Water Strikes	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
		Deptil (III)	Type	Results	(,	(
					21.00	41.20				21.0 -
								Grey MUDSTONE.		
										22.0 -
										23.0 -
										24.0 -
										25.0 -
										26.0 -
										27.0 -
					28.00	34.20	× × × × × × × × × × × × × × × × × × ×	Hard SILTSTONE.		28.0 -
							$\begin{smallmatrix} \times & \times & \times & \times & \times & \times \\ \times & \times & \times & \times &$			29.0 -
							× × × × × × × × × × × × × × × × × × ×			
										30.0 -
										31.0 -
					31.60	30.60	*******			
								Light grey sandstone.		32.0 -
										33.0 -
					34.00	28.20		Black COAL (INTACT).		
					34.60	27.60		Grey SANDSTONE.		35.0 -
										36.0 -
										37.0 -
										38.0 -
										39.0 -
					40.00	22.20		End of Borehole at 40.00m		40.0
Rema	ırks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ater ingre talled thr water flu with cem	ated to 1.20mbgl ss at 0.70mbgl. ough superficial c ush during drilling nent on completio	to check f leposits to n.	or buried s 8.00mbgl.	ervices (logg	ES = E D = D B = B LB = L U = U UT = 1 SPT = PPM HSV =	nvironmental Sample sturbed Sample Mik Sample arge Bulk Sample Indisturbed Sample Indisturbed Thin Wall Sar Standard Penetration Tes Photoionization Detector P Part Per Million Hand Shear Vane	mple t (ppm)

		1							Rotary Open Hole B	orehole No.
			BF	OWNFIELD				Borehole Log	RO0	5
			-					_	Sheet 1	of 2
PROJ	ECT NO:	C4380)				CO-ORD	5: 346218E, 406663N	Hole Ty	ре
					, ,				Scale	2
PROJ	ECT NAM	ME: LATHC	om past	URES (PHASE 2)		LEVEL:	60.03m OD	1:100)
CLIEN	NT:	BELLW	VAY HON	/IES LIMITED (N	orth we	ST)	DATES:	13/01/20 - 17/01/20	Logged (:hecked
	Water	Sample	and In	Situ Testing	Depth	Level			DRIELER	
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description		
		0.60	ES		0.30	59.73		black slightly gravely fine to coarse SAND. Grav to subrounded fine to medium of mudstone an Reddish brown fine to medium SAND. Drift. SAND and CLAY.	d coal. (TOPSOIL)	2.0
					3.90	56.13		Grey MUDSTONE.		4.0
					5.50	54.53				
					6.20	53.83				6.0
								Grey MUDSTONE.		7.0
										8.0
										9.0
					9.50	50.53		Grey SANDSTONE.		10.0
										12.0
					13.50	46.53		Grey MUDSTONE.		14.0
										15.0
										16.0
										17.0
					18.00	42.03		Hard SANDSTONE.		
										19.0
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre talled thr water flu with cem	ated to 1.20mbgl ss at 0.35mbgl. ough superficial c ish during drilling eent on completic	to check f leposits to	or buried s	ervices (logg	ed by engineer). ES = E D = Di B = Bu LB = L U = UL U = UL SPT =: PID =: PPM = HSV =	nvironmental Sample isturbed Sample ange Bulk Sample ndisturbed Sample Indisturbed Sample Standard Penetration Test Photoionization Detector (pp = Part Per Million Hand Shear Vane	e m)

		1							Rotary Open Ho	ole Boreh	nole No.
			BR					Borehole Log	RO	05	
				LOTIONS LTD	2			8	Sheet	2 of 2	2
PROJ	ECT NO:	C4380)				CO-ORD	S: 346218E, 406663N	Hole	Туре	
DROI		AE. LATUC)			60.02m OD	Sc	ale	
PROJ		IE. LAINC		UNLS (FIIASE 2	.)		LEVEL.	00.0311100	1:1	100	ckod
CLIEN	NT:	BELLW	/AY HON	NES LIMITED (N	IORTH WE	EST)	DATES:	13/01/20 - 17/01/20	DRILLER	JN	MC
Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description			
	Strikes	Depth (m)	Туре	Results	(m)	(m OD)		•			
											-
											21.0 -
					21.60	38.43		Grey MUDSTONE.			22.0
											-
											23.0 -
											24.0
											25.0 -
											-
											26.0 -
											-
					27.00	33.03		Orange brown MUDSTONE.			27.0
											28.0 -
					28.30	31.73		Black COAL (INTACT).			-
	29.00 31.0							Grey MUDSTONE.			29.0 -
											-
											30.0 -
											31.0 -
											-
											32.0
											22.0
											33.0
											34.0 -
											35.0
											36.0
					36.60	25 12					30.0
					50.00	23.43		Grey sandy MUDSTONE.			37.0 -
											-
											38.0
											39.0
Ĭ					40.00	20.03		End of Borehole at 40.00m			40.0
								··· ···			
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre alled thr water flu with cem	ated to 1.20mbg ss at 0.35mbgl. ough superficial o ish during drilling ent on completio	I to check f deposits to g. on.	for buried s	ervices (logį	ged by engineer). ES = Env D = Dist B = Bulk LB = Lan U = Und UT = Un SPT = St PID = PP PPM = P HSV = H	vironmental Sample urbed Sample Sample ge Bulk Sample listurbed Sample disturbed Thin Wall Sa andard Penetration Te votoionization Detecto art Per Million and Shear Vane	ample st r (ppm)	

			BI	ROWNFIELD				Borehole Log	Rotary Open Ho	ble Borehole No.
			-						Sheet Hole	1 of 2 Type
PROJ	ECT NO:	C4380)				CO-ORDS:	346254E, 406637N	R	0
PROJ	ECT NAM	ME: LATHO)m past	TURES (PHASE 2)		LEVEL:	62.40m OD	1:1	ale 100
CLIEN	NT:	BELLW	/AY HON	MES LIMITED (N	orth We	ST)	DATES:	13/01/20 - 16/01/20	Logged DRILLER	Checked
Well	Water Strikes	Sample	and In	Situ Testing	Depth (m)	Level (m OD)	Legend	Stratum Description		
		0.30	ES	Results	(,	(Dark brown very sandy CLAY. Sand is fine to r	nedium. (TOPSOIL	.)
		0.70	ES		0.60	61.80		Orange brown fine to medium SAND.		1.0
					1.20	61.20		Drift. SAND and CLAY.		
										2.0
										3.0
										-
										4.0
					F 00	E7.40				
					5.00	57.40		Grey MUDSTONE.		5.0
										6.0
										7.0
										8.0
										9.0
										10.0
					11.10	51.30		Black COAL (INTACT).		11.0
										12.0
					12.10	50.30		Grey MUDSTONE.		12.0
										13.0
										14.0
										14.0
										15.0
										16.0
										17.0
										18.0
										19.0
					10.80	42.60				
					19.60	42.00				20.0
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre alled thr water flu with cem	ated to 1.20mbgl ss at 0.70mbgl, ri ough superficial c ush during drilling nent on completic	to check f sing to 0.3 deposits to	or buried s 5mbgl afte 6.00mbgl.	ervices (logge er 5 minutes.	d by engineer). B B LB U U U U SP P P P F F	= Environmental Sample = Disturbed Sample = Bulk Sample = Large Bulk Sample = Undisturbed Sample T = Undisturbed Thin Wall Sa T = Standard Penetration Teo D = Photoionization Detecto IM = Part Per Million W = Hand Shear Vane	imple st r (ppm)

		1			_				Rotary Open Hol	e Borehole No.
			BR					Borehole Log	RO	06
				LUTIONS LTD					Sheet :	2 of 2
PROI	FCT NO:	C4380	ר ר				CO-ORD	S: 346254F 406637N	Hole	Гуре
	201 1101	0.1500							RC)
PROJ	ECT NAN	IE: LATHO	om past	URES (PHASE 2	2)		LEVEL:	62.40m OD	1:10	00
CLIEN	NT:	BELLV	VAY HON	AES LIMITED (N	IORTH WE	EST)	DATES:	13/01/20 - 16/01/20	Logged	Checked
	Matar	Sample	and In	Situ Testing	Dauth				DRILLER	JMC
Well	water Strikes	Depth (m)		Results	(m)	(m OD)	Legend	Stratum Description		
			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					Dark grey black MUDSTONE.		
					21.00	41.40		Grey SANDSTONE.		21.0
										22.0
										23.0
										_
										24.0
							· · · · · · · · ·			
										25.0
							: : : : : : :			_
										26.0
										27.0
										27.0
										28.0
							· · · · · · · · ·			
					20.20	33.20				29.0
					25.20	33.20	* * * * * * * * * * * * * * * * * * * *	Hard SILTSTONE.		-
										30.0
							$\begin{smallmatrix} \times & \times & \times & \times & \times & \times \\ \times & \times & \times & \times &$			
							* * * * * * * * * * * * * * * * * * * *			31.0
							* * * * * * * * *			22.0
							* * * * * * * * * * * * * * * * * * * *			32.0
							× × × × × × × × × × × × × × × × × × ×			33.0 -
					34.00	28.40	******	Black COAL (INTACT)		34.0
					34.70	27.70				
								Grey SANDS FONE.		35.0
										36.0
										37.0
										57.0
										38.0
										-
										39.0
					40.00	22.40		End of Borehole at 40.00m		40.0
D -	ي ايد	1 Hard 1	nit a	at ad to 1 20	lto ak - 1 (or hurie !	onvice- //	red by opginger)		
кета	rKS	2. Groundwa	pic excav ater ingre	ss at 0.70mbgl, r	i to check f ising to 0.3	5mbgl afte	ervices (logg r 5 minutes.	еч by engineer). ES = Em D = Dist B = Bulk	/ironmental Sample turbed Sample k Sample	
		3. Casing ins 4. No loss of	talled thr water flu	ough superficial Ish during drilling	deposits to g.	6.00mbgl.		LB = Lar U = Unc	ge Bulk Sample disturbed Sample	mala
		5. Backfilled	with cem	ent on completi	on.			01 = 01 SPT = S1 PID = PI	andard Penetration Test hotoionization Detector	(ppm)
								PM4 HSV = F	Part Per Million Hand Shear Vane	

		1							Rotary Open Ho	ole Borehole No.
			BI	ROWNFIELD				Borehole Log	RC	007
<u> </u>									Sheet	1 of 1
PRO.	JECT NO:	C4380)				CO-ORD	S: 346336E, 406658N	R	0
PRO.	JECT NAM	ME: LATHC	om pas	TURES (PHASE 2))		LEVEL:	61.30m OD	Sc	ale 100
CLIE	NT:	BELLW	/AY HOI	MES LIMITED (NO	ORTH WE	EST)	DATES:	13/01/20 - 16/01/20	Logged	Checked
Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description	on	
	Strikes	Depth (m)	ES	Results	(m) 0.45 1.20	(m OD) 60.85 60.10		Grass over dark brown clayey SAND with r coarse (TOPSOIL). Greyish brown slightly gravelly clayey fine is subangular to subrounded fine to coarse sandstone. End of Borehole at 1.20	ootlets. Sand is fine to coarse SAND. Gra e of mudstone and Dm	to vel 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 11.0 12.0 13.0 14.0 15.0 14.0 15.0 14.0 15.0 14.0 15.0 16.0 17.0 18.0 19.0 19.0
Rema	arks	1. Hand dug 2. Groundwa 3. Borehole r 4. Backfilled y	pit excav ter ingre elocatec with aris	ated to 1.20mbgl ss at 0.30mbgl ris I to RO07A due to ings.	to check f ing to 0.1 boggy gro	for buried s Ombgl after ound condit	ervices. ⁻ 20 minutes tions surrou	s. nding RO07.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Si SPT = Standard Penetration TE PID = Photoionization Detecto PPM = Part Per Million HSV = Hand Shear Vane	20.0 ample st r (ppm)

										Rotary Open Hole B	orehole No.
Image: Product of the state of the stat				BI	COWNFIELD				Borehole Log	RO07	Ά
										Sheet 1 c	of 2
NUME NUME Substrate VALUE SUPURE Supur	PROJ	ECT NO:	C4380)				CO-ORDS	346350E, 406664N	Hole Ty	ре
PROJECT NAME: LATIECU MERSTURES (PHAGE 2) LEVEL C ALSON 00 Career Colspan="4">Colspan="4" VICUUE State Colspan="4">Colspan="4">Colspan="4">Colspan="4" Colspan="4">Colspan="4" Colspan="4">Colspan="4" Colspan="4" Colspa="4" Colspan="4" <										RU	
Outer Depth Org	PROJ	ECT NAN	1E: LATHC	om past	URES (PHASE 2))		LEVEL:	61.50m OD	1:100	
Calculation Comparison Comparison<	CLIEN	JT.	RELLM				ST)	DATES	16/01/20	Logged C	hecked
Vertex Sample	CLILI	···	DELEW				.51)	DAILS.	10/01/20	DRILLER	JMC
Series Depth (m) Type Results (m) (m, O, D) Set (m,	Well	Water	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description		
Remarks 1.43 5 2.43 2.53 9.54 2.53 9.54 9.55	~~~~~	Strikes	Depth (m)	Туре	Results	(m)	(m OD)			and the construction of th	
Remark 1.03 B 1.23 0.38 9000000000000000000000000000000000000			0.30	ES		0.45	61.05		Black brown very sandy CLAY with roots and to medium. (TOPSOIL)	rootlets. Sand is fine	
Remarks 1.400 6.30 6.30 0			0.70	ES					Brown fine to medium SAND.		1.0
Remarks 1. Hand dag p1 examined to 1.20mpt 10 there k for build services. 6.0 6.0 6.0 1. Solution of the p1 examined to 1.20mpt 10 there k for build services. 6.0 6.0 6.0 1. Solution of the p1 examined to 1.20mpt 10 there k for build services. 6.0 6.0 6.0 1. Solution of the p1 examined to 1.20mpt 10 there k for build services. 6.0 6.0 6.0 1. Solution of the p1 examined to 1.20mpt 10 there k for build services. 6.0 6.0 6.0 1. Solution of the p1 examined to 1.20mpt 10 there k for build services. 6.0 6.0 6.0 1. Solution of the p1 exampt 10 there k for build services. 6.0 6.0 6.0 6.0 1. Solution of the p1 exampt 10 there k for build services. 6.0 6.0 6.0 6.0 1. Solution of the p1 exampt 10 the p1 exampt 10 there k for build services. 6.0 6.0 6.0 6.0 1. Solution of the p1 exampt 10 there k for build services. 1.0 1.0 1.0 1.0 1. Solution of the p1 exampt 10 there k for build services. 1.0 1.0 1.0 1.0 1. Solution of the p1 exampt 10 there k for build services. 1.0 1.0 1.0 1.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.20</td> <td>60.30</td> <td></td> <td>Drift. SAND and CLAY.</td> <td></td> <td></td>						1.20	60.30		Drift. SAND and CLAY.		
Remarket 1. Hand dag all excursited to 1.20m/all to therk for builded service: 6.0 6.0 6.0 6.0 8.00 5.20 6.30 6.0 6.0 6.0 6.0 8.00 5.20 6.30 6.0 6.0 6.0 6.0 9.00 5.20 6.30 6.0 6.0 6.0 6.0 9.00 5.20 6.30 6.0 6.0 6.0 6.0 9.00 5.20 6.30 6.0 6.0 6.0 6.0 9.00 5.20 6.30 6.0 6.0 6.0 6.0 9.00 6.00 6.00 6.00 1.00 1.00 1.00 10.0 1.00 1.00 1.00 1.00 1.00 1.00 10.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 10.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 10.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00<											2.0
Remark 1. Hand dug pit econvected to 1.20mbgl to check for buried services. 0.200 4.500 0.200 1.500 0.200 1.500 0.200 1.500 0.200 1.500 0.200 1.500 0.200 1.500 0.200 1.500 0.200 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											
Remark 1. Mand dig pit excented to 1.20mpg to check for buried services. 6.0 3.2.0 45.00 45.00 <tr< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3.0</td></tr<>											3.0
Remarks 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 6.0 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand dig pt executed to 1.200mbg to check tor bunded services. 1. Hand to check tor bunded services. 1. Hand tor pt executed to 1.200mbg to check tor bunded services. 1. H											
Remark 1.4 and dug if excavated to 1.2 Ombg to to completion. 6.5 and 0.5 and 0.											4.0
Remarks 1 Hand dug if excreted to 1.20mbg1 to check for buried services. 6.0 0 <td></td>											
$ \begin{tabular}{ c c c } \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $											5.0
Remet 1. Hind dig pit excentrate to 1.200 pdf to check tor buried services:											
$\mathbb{R} \ \mathbb{R} \ $											6.0
Remarks 1 hand dig pt excented to 1 20mbg1 to check for buried services. 6 0											
$ \begin{tabular}{ c c c } \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $											7.0
Remarks 1.Hand dug at exervated to 1.200 mbg1 or completion. 45.00 45.00 45.00 10.0 10.0 1 1.Hand dug at exervated to 1.200 mbg1 or completion. 45.00 46.50 10.0 10.0 10.0 1 1.Hand dug at exervated to 1.200 mbg1 or completion. 11.500 46.50 11.50 </td <td></td>											
Remarks 1. Hand dug pit excavated to 1.2 Orolpti to theck for buried services. 42.00 42.00 42.00 10.0 19.00 11.00 10.00 10.00 10.00 10.00 10.00 19.00 11.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 19.00 19.00 11.00 10.00 10.00 10.00 10.00 10.00 19.00 11.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 <											8.0
Remarks 1. Hand dup pit excavated to 1.20mbpl to check for buried services. 6											0.0
Remarks 1. Hand dug pit excavated to 1.20mbg to check for buried services. 6. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraints for buried services. 8. So to cost of which exception in the constraint for buried services. 8. So to cost of which exception in the constraint for buried services. 8. So to cost of which exception in the constraint for buried services. 8. So to cost of which exception in the constraint for buried services. 8. So to cost of which exception in the constraint for buried services. 8. So to cost of which exception in the cost of which exception in											9.0
Remarks 1. Hand dug pit excessed to 1.20mbgl to check for buried services. 6.00 10.0 Remarks 1. Hand dug pit excessed to 1.20mbgl to check for buried services. 8. Services for the first for the firs						9.30	52.20		Grev sandy MUDSTONE.		
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 6.00 2. Croundwater ingress at 0.45mbgl. 4.50 Black COAL (INTACT). 100 15.00 4.50 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 10.00 15.00 15.00 15.00 15.00 10.00 15.00 15.00 15.00 15.00 15.00 10.00 15.00 15.00 15.00 15.00 15.00 15.00 10.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 10.00 10.00 15.00 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>- , ,</td><td></td><td>10.0</td></td<>									- , ,		10.0
Remarks 1.4 and dug pit excavated to 1.20mbg1 to check for buried services. 6 and 0											
Remarks 1. Hand dug pt excavated to 1.20mbg to check for buried services. 6 rey MUDSTONE. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated to 1.20mbg to check for buried services. 1. Hand dug pt excavated for the dug pt exc											11.0
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Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 46.50 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 800 2.000 41.50											12.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2.000 44.50 Grey MUDSTONE. 15.00 16.0- 19.20 42.30 Black COAL (INTACT). 10.0- 19.20 41.50 15.00 41.50 19.20 42.30 Black COAL (INTACT). 10.0- 19.20 41.50 15.00 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 41.50 10.0- 10.0- 19.20 10.0- 10.0- 10.0- 19.20 10.0- 10.0- 10.0-											
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 46.50 6rey MUDSTONE. 15.00 15.00 16.0 19.20 42.30 19.20 42.30 19.0 19.0 19.0 19.20 42.30 19.0 19.0 19.0 19.0 19.0 19.0 19.20 42.30 19.0 19.0 19.0 19.0 19.0 19.0 19.20 41.50 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.20 41.50 19.0											13.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. 46.50 Image: Control of the control of t											
Remarks 1. Hand dug pit excavated to 1.20mbg1 to check for buried services. 2. Groundwater ingress at 0.45mbg1. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion.											14.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. 46.50 Image: Control of the contro											-
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2.000 41.50 19.20 42.30 19.20 10.20 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>15.00</td><td>46.50</td><td></td><td></td><td></td><td>15.0</td></t<>						15.00	46.50				15.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. Image: Back COAL (INTACT). Image: Back COAL (INTACT). <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Sicy WODSTONE.</td><td></td><td></td></td<>									Sicy WODSTONE.		
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. I. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. I. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. I. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. I. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. I. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. I. Hand dug pit excavated to 1.20mbgl to check for buried services. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. II. Hand dug pit excavated to 1.20mbgl to check for buried services. 4. Sector flush during drilling. 4. Backfilled with cement on completion. II. Hand dug pit excavated to 1.20mbgl to check for buried services. 3. Sector flush during drilling. 4. Backfilled with cement on completion. II. Hand dug pit excavated to 1.20mbgl to check for buried services. 4. Sector flush during drilling. 4. Sector flush during d											16.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. 4. Backfilled with cement on completion.											-
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. Black COAL (INTACT). 19.0 3. No loss of water flush during drilling. 4. Backfilled with cement on completion. Image: Serie Standard Penetration Test Pipe Pent Per Million PPM = Part Per Million PPM = Part Per Million PPM = Part Per Million											17.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 20.00 41.50 Black COAL (INTACT). 20.00 20.0											
I. Hand dug pit excavated to 1.20mbgl to check for buried services. S. Groundwater ingress at 0.45mbgl. I. No loss of water flush during drilling. Backfilled with cement on completion. Stream the services in the service in the service intervices in the service intervice in the service intervice intervice intervices											18.0
Image: Second secon											-
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 20.00 41.50 ES = Environmental Sample 20.00 Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. 2. Groundwater ingress at 0.45mbgl. 2. Groundwater flush during drilling. 20.00 2						19.20	42 20				19.0
20.00 41.50 41.50 20.00 <td< td=""><td></td><td></td><td></td><td></td><td></td><td>13.20</td><td>42.30</td><td></td><td>Black COAL (INTACT).</td><td></td><td></td></td<>						13.20	42.30		Black COAL (INTACT).		
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. ES = Environmental Sample 2. Groundwater ingress at 0.45mbgl. 3. No loss of water flush during drilling. Ist arge Bulk Sample 4. Backfilled with cement on completion. Ist arge August and Penteration Detector (ppm) Ist arge August and Penteration Detector (ppm) PM = Part Per Million HSV = Hand Shear Vane HSV = Hand Shear Vane						20.00	41.50				20.0
Remarks 1. Hand dug pit excavated to 1.20mbgl to check for buried services. ES = Environmental Sample 2. Groundwater ingress at 0.45mbgl. D = Disturbed Sample 3. No loss of water flush during drilling. U = Undisturbed Tim Vall Sample 4. Backfilled with cement on completion. U = Undisturbed Tim Vall Sample SYP = Standard Penetration Test PID = Photoinization Detector (ppm) PM = Part Per Million HSV = Hand Shear Vane											
 a. Stouridwater ingress at 0.4-bit git. b. Be Bulk Sample c. Be Large Bulk Sample c. C. Be Large Bulk Sample<td>Rema</td><td>rks</td><td>1. Hand dug</td><td>pit excav</td><td>ated to 1.20mbgl</td><td>to check f</td><td>or buried s</td><td>ervices.</td><td>E</td><td>S = Environmental Sample = Disturbed Sample</td><td></td>	Rema	rks	1. Hand dug	pit excav	ated to 1.20mbgl	to check f	or buried s	ervices.	E	S = Environmental Sample = Disturbed Sample	
4. Backfilled with cement on completion. U = Undisturbed Sample UT = Undisturbed Thin Wall sample SPT = Standard Penetration Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			 Groundwa No loss of 	water flu	ish during drilling.				В	= Bulk Sample B = Large Bulk Sample	
SPT = Standard Perdon Test PID = Photoionization Detector (ppm) PPM = Part Per Million HSV = Hand Shear Vane			4. Backfilled	with cerr	nent on completio	n.			UUU	I = Undisturbed Sample IT = Undisturbed Thin Wall Sample PT = Standard Penetration Text	!
HSV = Hand Shear Vane									S P P	ID = Photoionization Detector (ppr PM = Part Per Million	n)
									н	ISV = Hand Shear Vane	

									Rotary Open Ho	le Borehole No	о.
			BI	COUNTIONS LTD				Borehole Log	ROC)7A	
PRO		C4380)				CO-ORD	S· 346350F 406664N	Hole	2 of 2 Type	
									R(0 ale	
PRO.	IECT NAP	VIE: LATHO)m pasi	URES (PHASE 2)			LEVEL:	61.50m OD	1:1	00 Checked	4
CLIE	NT:	BELLW	/AY HON	AES LIMITED (NO	ORTH WE	ST)	DATES:	16/01/20	DRILLER	JMC	
Well	Water Strikes	Sample	and In Type	Situ Testing Results	Depth (m)	Level (m OD)	Legend	Stratum Description			
Well	Strikes	Depth (m)	Type	Results	22.30 25.00 27.50 30.00	(m OD) 39.20 36.50 34.00 31.50	Legend	Grey MUDSTONE. Hard grey SILTSTONE. Grey SANDSTONE. Dark grey SILTSTONE. End of Borehole at 30.00m		21.0 - 22.0 - 23.0 - 24.0 - 25.0 - 26.0 - 27.0 - 27.0 - 28.0 - 29.0 - 30.0 - 30.0 - 30.0 - 31.0 - 32.0 - 33.0 -	
										40.0 -	
Rema	rks	1. Hand dug 2. Groundwa 3. No loss of 4. Backfilled	pit excav ter ingre water flu with cem	ated to 1.20mbgl ss at 0.45mbgl. Ish during drilling. Ient on completio	to check f	or buried s	ervices.	ES = E D = D B = B LB = L U = U U T = 1 SPT PID = PPM HSV =	invironmental Sample isturbed Sample ange Bulk Sample ange Bulk Sample Indisturbed Sample Undisturbed Thin Wall Sa Standard Penetration Tes Photoionization Detector Part Per Million Hand Shear Vane	mple it (ppm)	

	1							Rotary Open Hole	e Borehole No.	
		BI	ROWNFIELD				Borehole Log	RO	08	
								Sheet 2	1 of 2	
PROJECT NO:	C4380)				CO-ORD	S: 346278E 406605N	Hole	Гуре	
	0.000							RC	RO	
PROJECT NAM	/E: LATHO	OM PAST	TURES (PHASE 2)		LEVEL:	61.24m OD	Sca	le	
									Chackad	
CLIENT:	BELLW	VAY HON	MES LIMITED (N	orth We	ST)	DATES:	13/01/20 - 16/01/20	DRILLER	JMC	
Wator	Sample	and In	Situ Testing	Donth	Loval					
Well Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description			
	0.20 0.50	ES		0.35 1.20 6.50 16.00 17.30	60.88 60.04 54.74 45.24 43.94		Grass over black brown slightly gravelly fine to occasional rootlets. Gravel is subangular to rou medium of mudstone and coal. (TOPSOIL) Light brown fine to medium SAND. <i>Sand becoming brown from 0.30mbgl</i> . Drift. SAND and CLAY. Grey MUDSTONE. Grey MUDSTONE. Broken ground. 100% flush loss. Firm drilling. No flush return to log cuttings.	coarse SAND wit inded fine to	h 1.0 - 2.0 - 3.0 - 3.0 - 4.0 - 5.0 - 6.0 - 7.0 - 1.0 -	
Remarks	1. Hand dug 2. Groundwa 3. Casing inst 4. Complete 5. Borehole i	pit excav ter ingre talled thr loss of w nstalled:	ated to 1.20mbgl ss at 0.80mbgl. rough superficial c rater flush from 10 GL to 16.00m pla	to check f leposits to 5.00mbgl t in, 16.00n	or buried s 8.00mbgl. 0 30.00mb 1 to 18.00r	ogl. n slotted, 18	ged by engineer). B = B B = B LB = I U = U U T = SPT S.00m to 30.00m backfilled with bentonite. PID = PPM HSV =	Environmental Sample Disturbed Sample Large Bulk Sample Undisturbed Sample Undisturbed Thin Wall Sam E Standard Penetration Test Photoionization Detector i = Part Per Million = Hand Shear Vane	nple (ppm)	

		1							Rotary Open Hole Borehole No.		
			BR	OWNFIELD				Borehole Log	RO	08	
			-					C	Sheet 2	2 of 2	
PRO	ECT NO:	C4380)				CO-ORD	S: 346278E, 406605N	Hole T RO	ype	
PRO		1E: LATHC)m past	URES (PHASE 2)			LEVEL:	61.24m OD	Scal	le	
	<u>лт.</u>	DELLIA				ст)	DATES	12/01/20 16/01/20	1:10 Logged	Checked	
CLIEF	NI:	BELLW					DAIES:	12/01/20 - 10/01/20	DRILLER	JMC	
Well	Water Strikes	Depth (m)	and in Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description	on		
	Strikes	Depth (m)	Type	Results	30.00	(m OD)		End of Borehole at 30.0	10m	 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 27.0 30.0 30.0 31.0 32.0 33.0 34.0 34.0 35.0 36.0 37.0 38.0 	
										40.0	
Rema	rks	 Hand dug Groundwa Casing inst Complete Borehole in 	pit excav ter ingre called thr loss of w nstalled:	ated to 1.20mbgl f ss at 0.80mbgl. ough superficial d ater flush from 16 GL to 16.00m plai	to check f eposits to .00mbgl t n, 16.00m	or buried s 8.00mbgl. o 30.00mb o to 18.00m	ervices (log gl. n slotted, 18	ged by engineer). .00m to 30.00m backfilled with bentonite.	ES = Environmental Sample D = Disturbed Sample B = Bulk Sample LB = Large Bulk Sample U = Undisturbed Sample UT = Undisturbed Thin Wall Sam SPT = Standard Penetration Test PID = Photoionization Detector (PPM = Part Per Million HSV = Hand Shear Vane	iple ppm)	

		1							Rotary Open Ho	ole Boreh	ole No.
			BR					Borehole Log	RO	009	
			-						Sheet	1 of 2	
PROI	FCT NO:	C4380)				CO-ORD	S: 346331E 406453N	Hole	Туре	
		01500							R	0	
PROJ	ECT NAI	ME: LATHC	om past	URES (PHASE 2)		LEVEL:	61.65m OD	1:1	100	
CLIEN	NT:	BELLW	/AY HON	1ES LIMITED (N	ORTH WE	ST)	DATES:	13/01/20 - 20/01/20	Logged	Cheo	cked
		Samplo	and In (D	, 	-		DRILLER	JN	1C
Well	Water Strikes	Denth (m)		Results	Depth (m)	Level (m OD)	Legend	Stratum Description			
		0.10	ES	nesures	0.15	61.50	<u></u>	Black clayey fine to medium SAND. (TOPSOIL)			
		0.40	ES					Reddish brown and grey fine to medium SAND.			
					1.20	60.45		Drift. SAND and CLAY.			1.0 -
											2.0
											2.0
											3.0 -
											4.0
											5.0
											_
											6.0
											7.0 -
											8.0
											9.0 -
											10.0 -
					10.60	51.05					-
					11.00	50.65		SAND and MUDSTONE with traces of coal. Grev MUDSTONE.			11.0
								,			
											12.0
											13.0
											14.0-
											14.0
											15.0 -
					15.50	46.15					
											16.0
											_
											17.0 -
											18.0
											10.5
											19.0 -
											20.0-
											20.0
Rema	rks	1. Hand dug	pit excava	ated to 1.20mbg	to check f	or buried s	ervices (logg	ged by engineer). ES = Enviro	onmental Sample		
		 Groundwa Casing inst No loss of Backfilled 	ter ingres alled thro water flu with cem	ss at 0.20mbgl. ough superficial o sh during drilling ent on completio	deposits to ;. on.	12.00mbg	l.	D = Distur B = Bulk S; LB = Large U = Undis UT = Undi SPT = Stan PID = Pho PPM = Par	bed Sample ample Bulk Sample turbed Sample sturbed Thin Wall Sa idard Penetration Te toionization Detecto rt Per Million	ample st r (ppm)	
								HSV = Har	id Shear Vane		

									Rotary Open Hole Bo	orehole No.
			BR					Borehole Log	ROO	9
									Sheet 2 c	of 2
PROJECT NO): C4	380					CO-ORD	S: 346331E, 406453N	Hole Ty	be
PROJECT NA	ME: LA	THON	/I PAST	URES (PHASE 2)			LEVEL:	61.65m OD	Scale 1:100	
CLIENT:	BE	LLWA	Y HON	IES LIMITED (NO	ORTH WE	ST)	DATES:	13/01/20 - 20/01/20	Logged C	hecked
Wate	Sam	ple a	nd In	Situ Testing	Depth	Level	Legend	Ctuature Description		
Well Strike	Depth (m) 1	Type	Results	Depth 21.40 23.50 24.10 30.00	Level (m OD) 40.25 38.15 37.55 34.65 31.65		Stratum Description Grey MUDSTONE. Black COAL (INTACT). Grey MUDSTONE. Grey sandy MUDSTONE. End of Borehole at 30.000	n	 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 28.0 30.0 30.0 31.0 32.0 33.0 34.0 35.0 34.0 35.0 36.0 37.0 38.0 38.0 39.0 40.0
Remarks	1. Hand o 2. Groun 3. Casing 4. No los 5. Backfil	dug pit dwater install s of wa led wit	t excava r ingre led thro ater flu th cem	ated to 1.20mbgl ss at 0.20mbgl. ough superficial d sh during drilling. ent on completio	to check f eposits to n.	or buried so	ervices (logg	ged by engineer).	SS = Environmental Sample) = Disturbed Sample 3 = Bulk Sample J = Undisturbed Sample JT = Undisturbed Thin Wall Sample iPT = Standard Penetration Test 10 = Photoionization Detector (ppr PPM = Part Per Million +SV = Hand Shear Vane	1)

		1							Rotary Open Ho	le Borehole I	No.
			BR	OWNFIELD				Borehole Log	RO	10	
				A					Sheet	1 of 2	
PROJ	ECT NO:	C4380)				CO-ORDS	: 346383E, 406624N	R	0	
PROJ	ECT NAM	/IE: LATHO	om past	URES (PHASE 2	2)		LEVEL:	61.50m OD	Scale 1:100		
CLIEN	IT:	BELLW	VAY HON	1ES LIMITED (N	IORTH WE	ST)	DATES:	13/01/20 - 16/01/20	Logged DRILLER	Checke JMC	ed
Well	Water	Sample	and In S	Situ Testing	Depth	Level	Legend	Stratum Description			
	Strikes	Depth (m) 0.20	Type ES	Results	(m)	(m OD)		Grass over dark brown clavey SAND with rootle	ts Sand is fine t	·0	
					1.20	60.30		Coal recovered in superficial deposits between 9.00mbgl and 10 Grey sandy MUDSTONE.	.00mbgl.	vel 1.1 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0	
										15.0	.0
										17.0	.0
										18.0	.0
										10	0
					19.50	42.00				19.0	.0
								Light grey SANDSTONE.		20.	.0
								··· ·			
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excava ter ingres talled thro water flu with cem	ated to 1.20mbg ss at 0.35mbgl ri ough superficial sh during drilling ent on completio	l to check f sing to 0.1(deposits to g. on.	or buried s Ombgl after 10.00mbg	services (logge r 20 minutes. gl.	ed by engineer). ES = Er D = Dic B = Bu U = Ur UT = U SPT = PPM = HSV =	wironmental Sample turbed Sample k Sample rge Bulk Sample disturbed Sample ndisturbed Thin Wall Sat tandard Penetration Tes hotoionization Detector Part Per Million Hand Shear Vane	mple st (ppm)	

			BI					Borehole Log	Rotary Open Hole Borehole No.	
									Sheet 2 o	f 2
PROJ	ECT NO:	C4380					CO-ORD	S: 346383E, 406624N	RO	
PROJ	ECT NAM	ME: LATHC	om past	TURES (PHASE 2)			LEVEL:	61.50m OD	Scale 1:100	
CLIEN	NT:	BELLW	AY HON	MES LIMITED (NO	ORTH WE	EST)	DATES:	13/01/20 - 16/01/20	Logged Cl	necked
Mall	Water	Sample	and In	Situ Testing	Depth	Level	Lagand	Strature Description	DRILLER	Juic
weii	Strikes	Depth (m)	Туре	Results	(m)	(m OD)		Stratum Description		
							· · · · · · · · · · ·			21.0
							· · · · · · · · · · · · · · · · · · ·			22.0
										23.0
					24.00	37.50		PLACK COAL (INITACT)		24.0
					24.80	36 70		DIACK COAL (INTACT).		
					24.00	30.70		Grey SANDSTONE		25.0
										26.0
										27.0
					28.00	33.50	· · · · · · · · · · ·			28.0
								Hard light grey SANDSTONE.		
										29.0
					30.00	31.50	· · · · · · · · · · ·	End of Borehole at 30 00n	n	30.0
										31.0
										32.0
										33.0
										34.0
										35.0
										36.0
										27.6
										37.0
										38.0
										39.0
										40.0
Dome	rkc	1 Hand dug		rated to 1 20mbod	to check f	or huried o	ervices (log	zed hv engineer)	S = Environmental Comple	
Rema	1173	 Groundwa Casing inst No loss of Backfilled 	ter ingre alled thr water flu with cem	iss at 0.35mbgl risi rough superficial d ush during drilling. nent on completion	ng to 0.1(eposits to n.	Dmbgl after 10.00mbg	20 minutes	Source by congressery. B B U U U U U U U U U U U U U	 - Environmental Sample = Disturbed Sample = Bulk Sample = Large Bulk Sample = Undisturbed Sample T = Undisturbed Thin Wall Sample T = Standard Penetration Test D = Photoionization Detector (ppm PM = Part Per Million SV = Hand Shear Vane)

		1		S. 1963					Rotary Open Hole	Borehole No.
			BR	OWNFIELD				Borehole Log	RO	11
			-						Sheet 1	of 2
PROJ	ECT NO:	C4380)				CO-ORDS	346295E, 406486N	Hole T	уре
									Scal	, le
PROJ	ECT NAM	ME: LATHO	om past	URES (PHASE 2	2)		LEVEL:	61.95m OD	1:10	00
CLIEN	IT:	BELLW	VAY HON	1ES LIMITED (N	ORTH WE	ST)	DATES:	14/01/20 - 20/01/20	Logged	Checked
	Water	Sample	and In S	Situ Testing	Denth	امريما			DRILLER	JIVIC
Well	Strikes	Depth (m)	Туре	Results	(m)	(m OD)	Legend	Stratum Description		
					0.40	61.55		Very soft dark brown-black slightly gravelly sand roots and rootlets. Sand is fine to coarse. Gravel subrounded fine to medium of mudstone and sa (TOPSOIL) Reddish brown-grey fine to medium SAND. Drift. SAND and CLAY.	y CLAY with is subangular to ndstone.) 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0
					9.80	52.15		Grey sandy MUDSTONE.		10.0 11.0 12.0 13.0 14.0
					15.00	46.95		Grev MUDSTONE		15.0
								.,		
										16.0
					16.50	45.45		Black COAL (INTACT).		17.0
					17.00	44.JJ		Orange brown MUDSTONE.		18.0
					19.90	42.05				20.0
Rema	rks	1. Hand dug 2. Groundwa 3. Casing inst 4. No loss of 5. Backfilled	pit excava ter ingres talled thro water flu with cem	ated to 1.20mbg ss with small flov pugh superficial sh during drilling ent on completio	l to check f v at 0.40m deposits to g. on.	or buried s bgl. 10.00mbg	ervices (logge	ed by engineer). ES = En B = Bulk LB = Lar U = Und UT = Un SPT = St PID = P PPM = F HSV = H	vironmental Sample urbed Sample Sample ge Bulk Sample listurbed Sample disturbed Thin Wall Sam andard Penetration Test totoionization Detector (ard Per Million and Shear Vane	ple ppm)

									Rotary Open Hole	Borehole No.
			BI	ROWNFIELD				Borehole Log	RO	11
			-						Sheet 2	2 of 2
PRO	ECT NO:	C4380)				CO-ORD	S: 346295E, 406486N	Hole T	ype
PRO		MF: LATHC)M PAST	TURES (PHASE 2))		I FVFI :	61 95m OD	Sca	le
	20110.0								1:10	00 Checked
CLIE	NT:	BELLW	/AY HON	MES LIMITED (NO	ORTH WE	ST)	DATES:	14/01/20 - 20/01/20	DRILLER	JMC
Well	Water Strikos	Sample	and In	Situ Testing	Depth	Level	Legend	Stratum Description		
Well	Strikes	Depth (m)	Type	Results	22.00 25.80 30.00	39.95 36.15 31.95	Legend	Grey MUDSTONE. Grey MUDSTONE. Grey MUDSTONE. End of Borehole at 30.00n	n	21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 31.0 32.0 33.0
										35.0
										36.0
										37.0
										38.0
										39.0
										40.0
Rema	rks	 Hand dug Groundwa Casing inst No loss of Backfilled 	pit excav ter ingre alled thr water flu with cem	ated to 1.20mbgl iss with small flow ough superficial d ush during drilling. nent on completio	to check f at 0.40m eposits to n.	or buried so bgl. 10.00mbg	ervices (log	ged by engineer). B U U U U U U U U U U U U U U U U U U	S = Environmental Sample = Disturbed Sample = Bulk Sample = Large Bulk Sample = Undisturbed Sample T = Undisturbed Thin Wall Sam 7T = Standard Penetration Test D = Photoionization Detector (PM = Part Per Million SV = Hand Shear Vane	.ple ppm)



APPENDIX C

Chemical Testing Results



Tim Mayall Brownfield Solutions Ltd William Smith House 173 - 183 Witton Street Northwich Cheshire CW9 5LP



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Analytical Report Number : 20-82370

Replaces Analytical Report Number : 20-82370, issue no. 1

Project / Site name:	Neverstich Road, Skelmersdale	Samples received on:	21/01/2020
Your job number:	C4380	Samples instructed on:	21/01/2020
Your order number:	C4380-622-JM	Analysis completed by:	05/02/2020
Report Issue Number:	2	Report issued on:	06/02/2020
Samples Analysed:	14 soil samples		

Signed:

Rachel Bradley

Deputy Quality 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
eachates	- 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.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-82370-2 Neverstich Road, Skelmersdale C4380

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report are representative of the samples submitted for analysis.





Lab Sample Number				1418583	1418584	1418585	1418586	1418587
Sample Reference				TP13	TT04	TP04	TP01	TP12A
Sample Number				ES	ES	ES	ES	ES
Depth (m)				0.80	0.50	1.00	1.00	0.80
Date Sampled				16/01/2020	13/01/2020	12/01/2020	12/01/2020	12/01/2020
Time Taken				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	24	21	13	13	14
Total mass of sample received	kg	0.001	NONE	1.2	1.0	1.5	0.87	1.5
	-		-					
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
General Inorganics	1 ,		,		_		_	_
pH - Automated	pH Units	N/A	MCERTS	7.4	7.7	5.9	8.4	7.0
Water Caluble Calabete as CO. 17th - 1 - 11th (C. 1)		25	MORETO	24	20	12	10	110
water soluble Sulphate as SO_4 16hr extraction (2:1) Water Soluble SO4 16hr extraction (2:1 Leachate	mg/kg	2.5	MCERTS	26	28	13	49	110
Equivalent)	a/l	0.00125	MCERTS	0.013	0.014	0.0067	0.024	0.053
Water Soluble SO4 16hr extraction (2:1 Leachate	9/1	0.00123	CIGENIS	0.015	0.011	0.0007	0.021	0.000
Equivalent)	mg/l	1.25	MCERTS	13.0	13.8	6.7	24.4	52.7
Organic Matter	%	0.1	MCERTS	4.0	2.0	0.5	0.7	0.4
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	1.7	0.27	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.25	< 0.05	< 0.05	< 0.05	< 0.05
Fluorantnene	mg/kg	0.05	MCERTS	2.2	0.49	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1.6	0.50	< 0.05	< 0.05	< 0.05
benzo(a)anthracene	mg/kg	0.05	MCERTS	0.79	0.25	< 0.05	< 0.05	< 0.05
Unrysene Ronzo(h)fluoronthono	mg/kg	0.05	MCERTS	0.99	0.19	< 0.05	< 0.05	< 0.05
	mg/kg	0.05	MCEDITC	0.95	< 0.05	< 0.05	< 0.05	< 0.05
	mg/kg	0.05	MCEDITC	0.29	< 0.05	< 0.05	< 0.05	< 0.05
Delizu(d)pyrelie Indono(1, 2, 2-cd)pyrono	mg/kg	0.05	MCEDIC	00.0	< 0.05	< 0.05	< 0.05	< 0.05
	mg/kg	0.05	MCEDIC	0.00	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(abi)nervlene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	< 0.05	< 0.05
penco(grif)per yielie	mg/kg	0.05	PICERTS	0.00	< 0.05	< 0.05	< 0.05	< 0.0J
Total PAH								
Speciated Total EPA-16 PAHs	mg/ka	0.8	MCERTS	10.1	1.70	< 0.80	< 0.80	< 0.80
•••				•				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.9	11	< 1.0	3.0	< 1.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	12	13	4.8	36	4.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	14	5.0	36	4.3
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	31	1.2	21	3.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	58	54	1.1	8.7	5.4
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	15	16	1.9	36	3.6
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	190	54	7.4	46	12
Monoaromatics & Oxygenates								

Benzene	µg/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	-	-	-	-





Project / Site name: Neverstich Road, Skelmersdale Your Order No: C4380-622-JM

-								
Lab Sample Number	1418583	1418584	1418585	1418586	1418587			
Sample Reference				TP13	TT04	TP04	TP01	TP12A
Sample Number				ES	ES	ES	ES	ES
Depth (m)	0.80	0.50	1.00	1.00	0.80			
Date Sampled	16/01/2020	13/01/2020	12/01/2020	12/01/2020	12/01/2020			
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
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 < 0.001 mg/kg 0.001 MCERTS TPH-CWG - Aliphatic >EC10 - EC12 MCERTS < 1.0 mg/kg 1 TPH-CWG - Aliphatic >EC12 - EC16 MCERTS < 2.0 mg/kg 2 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) 10 MCERTS < 10 mg/kg 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 MCERTS TPH-CWG - Aromatic >EC10 - EC12 mg/kg 1 < 1.0 TPH-CWG - Aromatic >EC12 - EC16 MCERTS < 2.0 2 mg/kg TPH-CWG - Aromatic >EC16 - EC21 mg/kg 10 MCERTS 25 TPH-CWG - Aromatic >EC21 - EC35 TPH-CWG - Aromatic (EC5 - EC35) mg/kg 10 MCERTS 44 10 69 MCERTS mg/kg





Project / Site name: Neverstich Road, Skelmersdale Your Order No: C4380-622-JM

Sample Reference Sample Reference Sample Number Depth (m) Date Sampled Time Taken Analytical Parameter (Soil Analysis) Stone Content Moisture Content Moisture Content Total mass of sample received Asbestos in Soil Type General Inorganics pH - Automated Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) Leachate Equivalent) g/l Organic Matter % Speciated PAHs Naphthalepe ma/kg				1410009	1418590	1418591	1418592
Sample Number Depth (m) Date Sampled Time Taken Analytical Parameter (Soil Analysis) Stone Content Moisture Content Matter Soluble Sole Sole Infor extraction (2:1 Leachate Equivalent) mg/l Organic Matter % Speciated PAHs Manthtalene mal/ka			TP07	WS09	WS05	WS15	WS16
Depth (m) Date Sampled Time Taken Analytical Parameter (Soil Analysis) Stone Content Moisture Content Moisture Content Total mass of sample received Asbestos in Soil General Inorganics pH - Automated pH - Automated Water Soluble SUP 16hr extraction (2:1 Leachate Equivalent) Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent) Organic Matter Speciated PAHs Nanhthalene			ES	ES	ES	ES	ES
Date Sampled Time Taken Analytical Parameter (Soil Analysis) Stone Content Moisture Content Total mass of sample received kg Asbestos in Soil FP - Automated PH - Automated PH - Automated PH - Automated PH - Soluble Sulphate as SO ₄ 16hr extraction (2:1) Mater Soluble SO4 16hr extraction (2:1 Leachate Equivalent) g/l Organic Matter % Speciated PAHs Nanhthalene mat/r			0.30	0.20	0.30	0.60	0.30
Time Taken Analytical Parameter (Soil Analysis) Stone Content % Moisture Content % Total mass of sample received kg Asbestos in Soil Type General Inorganics pH - Automated pH Units Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l Equivalent) g/l 0.0 Organic Matter % Speciated PAHs Nanhthalene mg/kg Mater Soluble SO4			14/01/2020	17/01/2020	14/01/2020	15/01/2020	15/01/2020
Analytical Parameter (Soil Analysis) Stope Content % Stone Content % 1 Moisture Content % 1 Total mass of sample received kg 0 Asbestos in Soil Type 1 General Inorganics pH - Automated pH Units 1 Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent) g/l 0.0 0.0 Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.1 Equivalent) mg/l 1 0.2 Organic Matter % 5 5 Speciated PAHs Maphthalene ma/kg 5			None Supplied				
Stone Content % Moisture Content % Total mass of sample received kg Asbestos in Soil Type General Inorganics pH - Automated pH Units Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent) g/l Organic Matter %	Limit of	Accreditation Status					
Moisture Content % I Total mass of sample received kg 0 Asbestos in Soil Type I General Inorganics pH - Automated pH Units I Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.0 Equivalent) g/l 1 Organic Matter % 1	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total mass of sample received kg 0 Asbestos in Soil Type 1 General Inorganics pH units 1 pH - Automated pH Units 1 Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate q/l Equivalent) g/l 0.0 Water Soluble SO4 16hr extraction (2:1 Leachate mg/l Equivalent) mg/l 1 Organic Matter % 5 Speciated PAHs mg/kg Mathtalene	N/A	NONE	24	36	32	17	24
Asbestos in Soil Type General Inorganics pH - Automated pH Units Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l Equivalent) g/l 0.0 Organic Matter % Speciated PAHs mg/kg	.001	NONE	1.1	1.2	1.1	1.5	1.1
Asbestos in Soil Type I General Inorganics pH - Automated pH Units I Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.0 Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.1 0.1 Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.1 0.1 Organic Matter % % 5 5 Abathtalene mg/kg mg/kg 10							
General Inorganics pH - Automated pH Units Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l Equivalent) g/l 0.0 Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.1 Equivalent) mg/l 1 Organic Matter % 5 Speciated PAHs Naphthalene mg/kg	N/A IS	O 17025	-	-	Not-detected	-	-
General Inorganics pH - Automated pH Units Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.0 Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.1 Vater Soluble SO4 16hr extraction (2:1 Leachate g/l 0.4 Equivalent) mg/l 1 Organic Matter % 5 Speciated PAHs Naphthalene mg/kg							
pm - Automated pH Units Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l Equivalent) g/l 0.0 Organic Matter % Speciated PAHs mg/kg	NI/A .	405070	7.2	7.0	7.4	~ ~	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1) mg/kg Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.0 Equivalent) g/l 0.1 Water Soluble SO4 16hr extraction (2:1 Leachate g/l 0.1 Equivalent) mg/l 1 Organic Matter % 1 Speciated PAHs mg/kg 1	N/A M	NCERTS	/.3	/.0	/.1	/.7	-
Equivalent) g/l 0.0 Equivalent) g/l 0.1 Water Soluble SO4 16hr extraction (2:1 Leachate mg/l 1 Equivalent) mg/l 1 Organic Matter % 9	2.5 м	ICERTS	24	43	35	19	-
Griganic Matter Me Speciated PAHs Nanhthalene ma//a Company C	00125 M	ICERTS	0.012	0.021	0.017	0.0094	-
Organic Matter % Speciated PAHs Nanhthalene malka	1.25 №	ICERTS	11.8	21.4	17.4	9.4	-
Speciated PAHs Nanhthalene	0.1 M	4CERTS	3.7	3.4	5.9	0.5	-
Naphthalene ma/ka (
Haphendiene Hig/kg	D.05 №	ICERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthylene mg/kg (D.05 №	ICERTS	< 0.05	0.29	< 0.05	< 0.05	-
Acenaphthene mg/kg (D.05 №	ICERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Fluorene mg/kg ().05 M	ICERTS	< 0.05	0.25	< 0.05	< 0.05	-
Phenanthrene mg/kg (J.05 N	ICERTS	0.42	2.9	0.35	< 0.05	-
Anthracene mg/kg (J.05 M	MCERTS	< 0.05	0.65	< 0.05	< 0.05	-
riuorantherie mg/kg (0.05 M	ACENTS	0.96	4./	0.65	< 0.05	-
ryreile mg/kg (Ronzo(a)anthracono	0.05 N		0.85	4.0	0.57	< 0.05	-
Chrysene mg/kg	0.05	VICERIS	0.48	2.5	0.33	< 0.05	-
Benzo(b)fluoranthene molko (0.05	ACERTS	0.36	2.5	0.27	< 0.05	-
Benzo(k)fluoranthene mo/ko (0.05	ACERTS	0.25	0.96	0.12	< 0.05	-
Benzo(a)pyrene ma/ka (0.05	ICERTS	0.37	2,1	0.26	< 0.05	-
Indeno(1,2,3-cd)pyrene ma/ka (D.05 №	4CERTS	0.20	0.81	< 0.05	< 0.05	-
Dibenz(a,h)anthracene mg/kg (D.05 M	ICERTS	< 0.05	0.24	< 0.05	< 0.05	-
Benzo(ghi)perylene mg/kg (D.05 M	MCERTS	0.23	0.84	< 0.05	< 0.05	-
Total PAH							
Speciated Total EPA-16 PAHs mg/kg	0.8 M	ICERTS	4.52	24.1	2.93	< 0.80	-
Heavy Metals / Metalloids		-					
Arsenic (aqua regia extractable) mg/kg	1 M	ICERTS	16	21	10	< 1.0	-
Cadmium (aqua regia extractable) mg/kg	0.2 M	ICERTS	0.5	0.8	1.8	< 0.2	-
Chromium (hexavalent) mg/kg	1.2 M	ICERTS	< 1.2	< 1.2	< 1.2	< 1.2	-
Chromium (III) mg/kg	1	NONE	15	18	9.2	2.3	-
Chromium (aqua regia extractable) mg/kg	1 M	4CERTS	15	19	9.4	2.4	-
Loopper (aqua regia extractable) mg/kg	1 M	MCERTS	66	99	41	4.5	-
Leau (aqua regia extractable) mg/kg	1 1		011	290	63	16	-
Mickel (aqua regia extractable) mg/kg	1		< 0.3	0./	0.0	< 0.3	-
Selenium (aqua regia extractable)		ILEKIS	23	30	15	1.0	-
Zinc (aqua regia extractable)	1	ACERTS	< 10	< 10	< 10	< 10	-
	1 M		< 1.0	< 1.0	< 1.0	< 1.0	-

Monoaromatics & Oxygenates								
Benzene	µg/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

Iss No 20-82370-2 Neverstich Road, Skelmersdale C4380





Lab Sample Number				1418588	1418589	1418590	1418591	1418592
Sample Reference				TP07	WS09	WS05	WS15	WS16
Sample Number				ES	ES	ES	ES	ES
Depth (m)				0.30	0.20	0.30	0.60	0.30
Date Sampled				14/01/2020	17/01/2020	14/01/2020	15/01/2020	15/01/2020
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons	1	Î			-			
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	14
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	< 10	33
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	< 10	47





Project / Site name: Neverstich Road, Skelmersdale Your Order No: C4380-622-JM

Lab Sample Number				1418593	1418594	1418595	1418596	
Sample Reference				WS14	WS07	WS19	WS04	
Sample Number				ES	ES	ES	ES	
Depth (m)				0.40	0.30	0.20	0.20	
Date Sampled				15/01/2020	16/01/2020	16/01/2020	14/01/2020	
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	27	32	30	19	
Total mass of sample received	kg	0.001	NONE	1.2	1.2	0.90	1.1	
			•				•	-
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	Not-detected	-	-	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.5	7.5	5.2	6.9	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	43	140	81	54	
Water Soluble SO4 16hr extraction (2:1 Leachate		0.00105		0.024	0.070	0.044	0.027	
Equivalent) Water Soluble SO4 16br extraction (2:1 Leachate	g/l	0.00125	MCERTS	0.021	0.072	0.041	0.027	
Fauivalent)	ma/l	1.25	MCERTS	21.4	71.7	40.7	26.9	
Organic Matter	%	0.1	MCERTS	2.7	5.3	2.9	2.3	
organie Hatten	,,,	011	HOLINO	2.7	515	2.0	215	
Speciated PAHs								
Naphthalene	ma/ka	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	ma/ka	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthene	ma/ka	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	0.53	1.4	0.98	0.30	
Anthracene	mg/kg	0.05	MCERTS	0.10	0.57	0.26	< 0.05	
Fluoranthene	mg/kg	0.05	MCERTS	0.98	3.4	2.2	0.62	
Pyrene	mg/kg	0.05	MCERTS	0.87	3.1	1.8	0.60	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.48	1.7	1.2	0.33	
Chrysene	mg/kg	0.05	MCERTS	0.39	1.5	0.84	0.27	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.38	1.7	0.93	0.33	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.21	0.68	0.41	0.14	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.32	1.4	0.77	0.27	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21	0.67	0.30	< 0.05	
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	0.22	0.75	0.34	< 0.05	
T-t-I DAU								
Total PAR		0.0	MOEDTO	4.60	16.0	0.05	2.00	
Speciated Total EPA-16 PARS	mg/кg	0.8	MCERTS	4.69	10.8	9.95	2.80	
Home Motals / Motalloids								
Arsenic (agua regia extractable)	ma/ka	1	MCEDIC	17	19	17	13	
Cadmium (aqua regia extractable)	ma/ka	0.2	MCERTS	0.4	0.6	1.4	< 0.2	
Chromium (devavalent)	ma/ka	1.2	MCERTS	< 1.2	< 1.2	< 1.7	< 1.2	
Chromium (III)	mg/kg	1	NONE	13	17	12	14	
Chromium (agua regia extractable)	ma/ka	1	MCERTS	13	18	12	14	
Copper (agua regia extractable)	ma/ka	1	MCERTS	51	68	55	57	
Lead (agua regia extractable)	ma/ka	1	MCERTS	130	190	130	88	
Mercury (agua regia extractable)	ma/ka	0.3	MCERTS	< 0.3	< 0.3	0.7	< 0.3	
Nickel (agua regia extractable)	ma/ka	1	MCERTS	16	28	21	18	
Selenium (agua regia extractable)	ma/ka	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Zinc (aqua regia extractable)	mg/ka	1	MCERTS	130	280	230	99	
••••••••••••••••				-			•	-

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	
Toluene	µg/kg	1	MCERTS	-	-	-	-	
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	
o-xylene	µg/kg	1	MCERTS	-	-	-	-	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	

Iss No 20-82370-2 Neverstich Road, Skelmersdale C4380





Lab Sample Number				1418593	1418594	1418595	1418596	
Sample Reference				WS14	WS07	WS19	WS04	
Sample Number				ES	ES	ES	ES	
Depth (m)				0.40	0.30	0.20	0.20	
Date Sampled		15/01/2020	16/01/2020	16/01/2020	14/01/2020			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Petroleum Hydrocarbons					-		-	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	





Analytical Report Number : 20-82370 Project / Site name: Neverstich Road, Skelmersdale

* 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 *
1418583	TP13	ES	0.80	Brown loam and clay with gravel and vegetation.
1418584	TT04	ES	0.50	Brown loam and clay with gravel and vegetation.
1418585	TP04	ES	1.00	Brown loam and clay with gravel.
1418586	TP01	ES	1.00	Brown loam and clay with gravel.
1418587	TP12A	ES	0.80	Brown loam and clay with gravel and vegetation.
1418588	TP07	ES	0.30	Brown loam and clay with gravel.
1418589	WS09	ES	0.20	Brown loam and clay with gravel and vegetation.
1418590	WS05	ES	0.30	Brown loam and clay with gravel.
1418591	WS15	ES	0.60	Brown loam and clay with gravel.
1418592	WS16	ES	0.30	Brown loam and clay with gravel and vegetation.
1418593	WS14	ES	0.40	Brown loam and clay with gravel and vegetation.
1418594	WS07	ES	0.30	Brown loam and clay with gravel and vegetation.
1418595	WS19	ES	0.20	Brown loam and clay with gravel and vegetation.
1418596	WS04	ES	0.20	Brown loam and clay with gravel.





Project / Site name: Neverstich Road, Skelmersdale

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
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
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	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. (30 oC)	In house method.	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	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.	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	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.



Tim Mayall Brownfield Solutions Ltd William Smith House 173 - 183 Witton Street Northwich Cheshire CW9 5LP



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

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

e: T.Mayall@brownfield-solutions.co.uk

Analytical Report Number : 20-82796

Project / Site name:	Neverstich Road, Skelmersdale	Samples received on:	23/01/2020
Your job number:	C4380	Samples instructed on:	23/01/2020
Your order number:	С4380-622-ЈМ	Analysis completed by:	30/01/2020
Report Issue Number:	1	Report issued on:	30/01/2020
Samples Analysed:	1 soil sample		

RECESSION Signed:

Rachel Bradley

Deputy Quality 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.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-82796-1 Neverstich Road, Skelmersdale C4380

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report are representative of the samples submitted for analysis.





Lah Camala Number				1/209/6		T	· · · · ·	· · · · ·	
Lab Sample Number				1420040 DO02	l				
Sample Reference				KUU3	l	 	l	l	
Sample Number		l	 	l	l				
Deptn (m)		0.20	l	 	d	l			
Date Sampled				14/U1/2020	l	 	l!	li	
Time Taken				None Supplieu	l				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status						
Stone Content	%	0.1	NONE	< 0.1		, , , , , , , , , , , , , , , , , , ,			
Moisture Content	%	N/A	NONE	11			1		
Total mass of sample received	kg	0.001	NONE	1.0			1		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	í		1	1	
General Inorganics									
pH - Automated	pH Units	N/A	MCERTS	6.9	1		l	1	
							1	1	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	33	1		1	1	
Water Soluble SO4 16hr extraction (2:1 Leachate	1								
Equivalent)	g/l	0.00125	MCERTS	0.016	L		Į/	Į	
Water Soluble SO4 16hr extraction (2:1 Leachate					1		1 !	1	
Equivalent)	mg/l	1.25	MCERTS	16.4	l	¹	l!	l	
Organic Matter	%	0.1	MCERTS	9.1	l				
Speciated PAHs	1								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	l	 	l!	l	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	l		l!	l	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	l	ļ'	ا ــــــــــــــــــــــــــــــــــــ	l	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	l	ļ!	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	l	
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	l		!	l	
Anthracene	mg/kg	0.05	MCERTS	< 0.05	l		ļ!	l	
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	l		<u>ا</u> ــــــــــــــــــــــــــــــــــــ	l	
Pyrene	mg/kg	0.05	MCERTS	< 0.05	l		l!	l	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	l				
Chrysene	mg/kg	0.05	MCERTS	< 0.05	<u> </u>				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05			l!	l	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	L		<u> </u>	l	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	L			l	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	<u> </u>		l		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	L		<u> </u>	l	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	<u> </u>			1	
Total PAH	•		•	•		•	a	8	
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80					
Heavy Metals / Metalloids	1		•				n ,		
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.2	l	 '	l!	l	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	l	ļ'	ا ــــــــــــــــــــــــــــــــــــ	l	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	l	ļ'	ا ــــــــــــــــــــــــــــــــــــ	l	
Chromium (III)	mg/kg	1	NONE	9.2	l	¹	l!	l	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.5	l		ļ!	l	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	l		!	l	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	59	l		ļ!	l	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.8			l	l	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.6	L		Į/	L	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0					
Zipc (agua rogia oxtractablo)	malka	1 1	MCEDTC	22	1		4	4	





Project / Site name: Neverstich Road, Skelmersdale

* 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 *
1420846	RO03	None Supplied	0.20	Brown loam and sand with gravel and vegetation





Project / Site name: Neverstich Road, Skelmersdale

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
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	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. (30 oC)	In house method.	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	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.	L038-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 roland. 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.



APPENDIX D

Geotechnical Testing Results

Geo-Environmental Assessment Report


Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference:	C4380
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number:	20-82443
	Northwich, Cheshire,	Date Sampled:	Not Given
	CW9 5LP	Date Received:	21/01/2020
Contact:	Tim Mayall	Date Tested:	28/01/2020
Site Address:	Everstich Road, Skelmersdale	Sampled By:	JM/TM
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland		
Test Results:			
Laboratory Reference:	1418946	Depth Top [m]:	1.50
Hole No.:	TP08	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		

Tested after >425um removed by hand Sample Preparation:

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm
Content [%]	[%]	[%]	[%]	BS Test Sieve
17	32	15	17	92



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for and on behalf of i2 Analytical Ltd

Date Reported: 05/02/2020

PL Geotechnical Laboratory Manager



Soil Description:

TEST CERTIFICATE

Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference:	C4380
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number:	20-82443
	Northwich, Cheshire,	Date Sampled:	Not Given
	CW9 5LP	Date Received:	21/01/2020
Contact:	Tim Mayall	Date Tested:	28/01/2020
Site Address:	Everstich Road, Skelmersdale	Sampled By:	JM/TM
Testing carried out at i	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland		
Test Results:			
Laboratory Reference:	1418947	Depth Top [m]:	1.80
Hole No.:	WS10	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D

Sample Preparation: Tested after >425um removed by hand

Brown slightly gravelly very sandy CLAY

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm
Content [%]	[%]	[%]	[%]	BS Test Sieve
18	28	14	14	83



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or and on behalf of i2 Analytical Ltd Date Reported: 05/02/2020

PL Geotechnical Laboratory Manager



Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: Brownfield Solutions Ltd Client Address: William Smith House, 173 - 183 Witton Street, Northwich, Cheshire, CW9 5LP								Client Reference: C4380 Job Number: 20-82443 Date Sampled: Not Given Date Received: 21/01/2020											
Conta	act:		Т	im Ma	yall											Date	Tested:	28/01/20	20
Site A	Addres	SS: riod au	tati2 ∧	verstic	h Road	, Skel	Imersda Dionia	ale arow 2	0 11	711 Du	da Sla	icka Po	land			Samp	oled By:	JM/ I M	
Test	Bool	neu ou	11 al 12 P	Malylic	ai Liinii	ea, ai	. FIOIIIE	100 3	9, 41-	/ I I nu	ua 31a	<i>s</i> ка, <i>г</i> о	lanu						
Labo	ratory	Refere	ence: 1	41894	8											Depth 1	op [m]:	2.20	
Hole	No.:		V	VS12	-											Depth Ba	ase [m]:	Not Give	n
Samp	ole Re	ference	e: N	lot Giv	en											Sampl	e Type:	D	
Soil D	Descri	ption:	В	frown c	clayey S	AND													
Samp	ole Pre	eparati	on: T	ested	in natura	al con	dition												
As	Rece Co	eived Montent	Aoisture [%]	е	L	iquid %آ	l Limit			Pla	astic L [%]	.imit	Т	Plas	sticity In [%]	dex	°,	6 Passir BS Tes	ng 425µm It Sieve
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		10				_	0				10								
	100 90	-																A line	
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×	60	-				+		+				_	_						
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	0	0	10	20	30		40	50	60) 7 LIC	70 2010	80 LIMIT	90	100	110	120	130	140	150
				Le	egend, k	based	l on BS	5930:	:2015 (Code o	f pract	ice for s	site inve	stigation	S				
					C Cla	IV			Plas					Liqu	a Limit w 35				
					M Sil	t			I	Medi	ium			35 to	50				
									Н	High				50 to	70				
									V	Very	high	hiah		70 to	90 90 edina				
Noto	Moiot		ntont b		Org	anic	Clause	2.2	0	appe	end to	classific	ation fo	r organic	material	(eg CH	O)		
Rom	arke	ure GC		y do 1	J <i>II-</i> Z: I	390:	Giause	: J.Z											
	ains and	interpret	ations ever	essed by	erein are o	utsida	of the soo	ine of the	e likac	Accredito	tion	Signo	d.	Dari	ISZ Piotr	owski			
This replaced analysi	port may ory. The s. Any a	y not be r results i	eproduced ncluded wi	d other th ithin the pliance w	an in full v report are ith specific	vithout f represe	the prior ventative o	written a f the san	pproval on pples subtraction of the second	of the issi bmitted fo	uing or in to	Rota	li	PL C for a	eotechn	ical Labo ehalf of	oratory N i2 Analy	anager tical Ltd	

analysis. Any assessment of compliance with specifications based incar results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be Page 1 of 1

provided on request."

Date Reported: 05/02/2020

GF 232.6



TEST CERTIFICATE

Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference: C4380
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number: 20-82443
	Northwich, Cheshire,	Date Sampled: Not Given
	CW9 5LP	Date Received: 21/01/2020
Contact:	Tim Mayall	Date Tested: 28/01/2020
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland	
Test Results:		
Laboratory Reference:	1418949	Depth Top [m]: 2.50
Hole No.:	WS07	Depth Base [m]: Not Given
Sample Reference:	Not Given	Sample Type: D
Soil Description:	Brown slightly gravelly very sandy CLAY	

Tested after >425um removed by hand Sample Preparation:

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm
Content [%]	[%]	[%]	[%]	BS Test Sieve
14	27	14	13	97



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Signed:

Dariusz Piotrowski PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference: C4380	
Client Address:	William Smith House 173 - 183 Witton Street	Job Number: 20-82443	
	Northwich, Cheshire,	Date Sampled: Not Given	
	CW9 5LP	Date Received: 21/01/2020	
Contact:	Tim Mayall	Date Tested: 28/01/2020	
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM	
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland		
Test Results:			
Laboratory Reference:	1418950	Depth Top [m]: 2.50	
Hole No.:	TT03	Depth Base [m]: Not Given	
Sample Reference:	Not Given	Sample Type: D	

Soil Description: Brown gravelly very sandy CLAY

Tested after washing to remove >425um Sample Preparation:

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm
Content [%]	[%]	[%]	[%]	BS Test Sieve
13	30	14	16	62



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Dariusz Piotrowski PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference: C4380
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number: 20-82443
	Northwich, Cheshire,	Date Sampled: Not Given
	CW9 5LP	Date Received: 21/01/2020
Contact:	Tim Mayall	Date Tested: 28/01/2020
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland	
Test Results:		
Laboratory Reference:	1418951	Depth Top [m]: 1.50
Hole No.:	TP03	Depth Base [m]: Not Given
Sample Reference:	Not Given	Sample Type: D
Soil Description:	Brown slightly gravelly very sandy CLAY	

Sample Preparation: Tested after >425um removed by hand

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm
Content [%]	[%]	[%]	[%]	BS Test Sieve
15	27	14	13	97



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PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference: C4380	
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number: 20-82443	
	Northwich, Cheshire,	Date Sampled: Not Given	
	CW9 5LP	Date Received: 21/01/2020	
Contact:	Tim Mayall	Date Tested: 28/01/2020	
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM	
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland		
Test Results:			
Laboratory Reference:	1418952	Depth Top [m]: 1.50	
Hole No.:	TP01	Depth Base [m]: Not Given	
Sample Reference:	Not Given	Sample Type: D	
Soil Description:	Brown slightly gravelly very sandy CLAY		

Tested after >425um removed by hand Sample Preparation:

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm		
Content [%]	[%]	[%]	[%]	BS Test Sieve		
19	30	15	15	93		



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Dariusz Piotrowski PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference: C4380				
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number: 20-82443				
	Northwich, Cheshire,	Date Sampled: Not Given				
	CW9 5LP	Date Received: 21/01/2020				
Contact:	Tim Mayall	Date Tested: 28/01/2020				
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM				
Testing carried out at it	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland					
Test Results:						
Laboratory Reference:	1418953	Depth Top [m]: 1.50				
Hole No.:	TP04	Depth Base [m]: Not Given				
Sample Reference:	Not Given	Sample Type: D				
Soil Description:	Brown slightly gravelly very sandy CLAY					

Tested after >425um removed by hand Sample Preparation:

As Received Moisture	e Liquid Limit Plastic L		Plasticity Index	% Passing 425μm		
Content [%]	[%] [%]		[%]	BS Test Sieve		
15	28	15	13	94		



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Signed:

Dariusz Piotrowski PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



Soil Description:

TEST CERTIFICATE

Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference:	C4380			
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number:	20-82443			
	Northwich, Cheshire,	Date Sampled:	Not Given			
	CW9 5LP	Date Received:	21/01/2020			
Contact:	Tim Mayall	Date Tested:	28/01/2020			
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM				
Testing carried out at ia	2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland					
Test Results:						
Laboratory Reference:	1418954	Depth Top [m]:	2.10			
Hole No.:	WS18	Depth Base [m]:	Not Given			
Sample Reference:	Not Given	Sample Type:	D			

Tested after >425um removed by hand Sample Preparation:

Brown slightly gravelly very sandy CLAY

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm	
Content [%]	[%]	[%]	[%]	BS Test Sieve	
18	28	14	14	96	



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Signed:

PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



Liquid and Plastic Limits

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



Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Brownfield Solutions Ltd	Client Reference:	C4380		
Client Address:	William Smith House, 173 - 183 Witton Street,	Job Number:	20-82443		
	Northwich, Cheshire,	Date Sampled:	Not Given		
	CW9 5LP	Date Received:	21/01/2020		
Contact:	Tim Mayall	Date Tested:	28/01/2020		
Site Address:	Everstich Road, Skelmersdale	Sampled By: JM/TM			
Testing carried out at i2	Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland				
Test Results:					
Laboratory Reference:	1418955	Depth Top [m]:	2.00		
Hole No.:	TP07	Depth Base [m]:	Not Given		
Sample Reference:	Not Given	Sample Type:	D		
Soil Description:	Brown slightly gravelly very sandy CLAY				

Sample Preparation: Tested after >425um removed by hand

As Received Moisture	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425μm		
Content [%]	[%]	[%]	[%]	BS Test Sieve		
14	28	14	14	96		



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Signed:

PL Geotechnical Laboratory Manager for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

Science

Client Reference: C4380

Brackmills Industrial Estate

Unit 8 Harrowden Road Northampton NN4 7EB

i2 Analytical Ltd

Date Tested: 28/01/2020 Date Received: 21/01/2020 Date Sampled: Not Given Job Number: 20-82443

Sampled By: JM/TM

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

William Smith House, 173 - 183 Witton

Northwich, Cheshire, CW9 5LP

Street,

Client Address:

Brownfield Solutions Ltd

Everstich Road, Skelmersdale Tim Mayall

Contact:

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

Test results

#'	Total Porosity	%										
	DA	Mg/m3										
Density	dry	Mg/m3										
	bulk	Mg/m3										
	Ы	%	15	13	13	14	17	16	13	14	12	14
berg	Ы	%	15	14	15	14	15	14	14	14	13	14
Atter	ц	%	30	27	28	28	32	30	27	28	25	28
	% Passing 425um	%	93	97	94	96	92	62	97	83	100	96
	мс	%										
	MC	%	19	15	15	14	17	13	14	18	19	18
	Remarks		Atterberg 1 Point	Atterberg 1 Point	Atterberg 1 Point	Atterberg 1 Point	Atterberg 1 Point	Atterberg 1 Point				
	Description		Brown slightly gravelly very sandy CLAY	Brown gravelly very sandy CLAY	Brown slightly gravelly very sandy CLAY	Brown slightly gravelly very sandy CLAY	Brown clayey SAND	Brown slightly gravelly very sandy CLAY				
	Type		D	D	D	D	D	D	D	D	D	D
	Depth Base	ε	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given
Sample	Depth Top	ε	1.50	1.50	1.50	2.00	1.50	2.50	2.50	1.80	2.20	2.10
	Reference		Not Given	Not Given	Not Given	Not Given	Not Given	Not Given				
	Hole No.		TP01	TP03	TP04	TP07	TP08	ТТ03	70SW	WS10	WS12	WS18
	Laboratory Reference		1418952	1418951	1418953	1418955	1418946	1418950	1418949	1418947	1418948	1418954

Note: # Non accredited; NP - Non plastic

Comments:

based ttical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis. Any assessment of compliance with specifications Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written true result lies. An estimate of measurement uncertainty can be provided on request."

for and on behalf of i2 Analytical Ltd PL Geotechnical Laboratory Manager

Red Uli Signed:

Dariusz Piotrowski



GF 234.8 Date Reported: 05/02/2020

Page 1 of 1



Tim Mayall Brownfield Solutions Ltd William Smith House 173 - 183 Witton Street Northwich Cheshire CW9 5LP



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

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

e: T.Mayall@brownfield-solutions.co.uk

Analytical Report Number : 20-82450

Replaces Analytical Report Number : 20-82450, issue no. 1

Client sampling date amended.

Project / Site name:	Everstich Road, Skelmersdale	Samples received on:	21/01/2020
Your job number:	C4380	Samples instructed on:	22/01/2020
Your order number:	C4380-623-JM	Analysis completed by:	26/02/2020
Report Issue Number:	2	Report issued on:	26/02/2020
Samples Analysed:	12 soil samples		

Signed:

Zina Abdul Razzak Senior Quality Specialist

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

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-82450-2 Everstich Road, Skelmersdale C4380

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report are representative of the samples submitted for analysis.





Analytical Report Number: 20-82450

Project / Site name: Everstich Road, Skelmersdale

Your Order No: C4380-623-JM

Lab Sample Number				1418984	1418985	1418986	1418987	1418988
Sample Reference				WS10	TT03	TP03	TP04	TP10
Sample Number				None Supplied				
Depth (m)	0.50	1.50	0.30	0.30	2.00			
Date Sampled				13/01/2020	13/01/2020	13/01/2020	13/01/2020	16/01/2020
Time Taken				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	15	16	19	12
Total mass of sample received	kg	0.001	NONE	0.99	0.85	0.80	0.86	0.76

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	7.3	6.4	5.7	8.0
Total Sulphate as SO ₄	%	0.005 MCERTS -		-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate								
Equivalent)	g/l	0.00125	MCERTS	0.0076	0.030	0.014	0.0088	0.033
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	-	-	-
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	-	-	-
Calorific Value	MJ/Kg	0.12	ISO 17025	-	-	-	-	-

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-	-	-	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	-	-	-





Analytical Report Number: 20-82450

Project / Site name: Everstich Road, Skelmersdale

Your Order No: C4380-623-JM

Lab Sample Number				1418989	1418990	1418991	1418992	1418993
Sample Reference				WS09	WS13	TT04	WS17	TP12
Sample Number				None Supplied				
Depth (m)				1.60	1.20	2.00	1.60	1.20
Date Sampled				13/01/2020	15/01/2020	13/01/2020	15/01/2020	16/01/2020
Time Taken				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	43	22	12	16	11
Total mass of sample received	kg	0.001	NONE	0.61	0.96	0.75	0.69	0.57

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	7.7	7.9	7.4	7.7
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	0.025	0.006	0.023
Water Soluble SO4 16hr extraction (2:1 Leachate								
Equivalent)	g/l	0.00125	MCERTS	0.86	0.018	0.023	0.0098	0.039
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	1.8	5.0	2.4
Total Sulphur	%	0.005	MCERTS	-	-	0.040	0.008	0.064
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-	< 2.0	< 2.0	< 2.0
Calorific Value	MJ/Kg	0.12	ISO 17025	-	-	-	-	-

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-	10	9.2	25
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	5.2	4.6	13





Analytical Report Number: 20-82450

Project / Site name: Everstich Road, Skelmersdale

Your Order No: C4380-623-JM

Lab Sample Number				1418994	1418995		
Sample Reference				TT04	TT05		
Sample Number				None Supplied	None Supplied		
Depth (m)				4.70	3.40		
Date Sampled				13/01/2020	13/01/2020		
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	17		
Total mass of sample received	kg	0.001	NONE	0.50	0.57		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-		
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-		
Water Soluble SO4 16hr extraction (2:1 Leachate							
Equivalent)	g/l	0.00125	MCERTS	-	-		
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-		
Total Sulphur	%	0.005	MCERTS	-	-		
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	-		
Calorific Value	MJ/Kg	0.12	ISO 17025	29.0	15.6		

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	-	-		
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-		





Analytical Report Number : 20-82450

Project / Site name: Everstich Road, Skelmersdale

* 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 *					
1418984	WS10	None Supplied	0.50	Brown sand.					
1418985	TT03	None Supplied	1.50	own clay. own loam and sand with gravel and vegetation.					
1418986	TP03	None Supplied	0.30	own loam and sand with gravel and vegetation.					
1418987	TP04	None Supplied	0.30	Brown loam and sand with gravel and vegetation.					
1418988	TP10	None Supplied	2.00	Brown clay with gravel.					
1418989	WS09	None Supplied	1.60	Brown sandy clay with gravel.					
1418990	WS13	None Supplied	1.20	Brown sand.					
1418991	TT04	None Supplied	2.00	Brown clay with gravel.					
1418992	WS17	None Supplied	1.60	Brown sand.					
1418993	TP12	None Supplied	1.20	rown clay with gravel.					
1418994	TT04	None Supplied	4.70	Black gravel with coal.**					
1418995	TT05	None Supplied	3.40	Black clay and sand with gravel and coal.					

** NON MCERTS MATRIX





Analytical Report Number : 20-82450

Project / Site name: Everstich Road, Skelmersdale

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
Calorific Value of soil	Determination of the calorific value of soil by combustion in a controlled environment.	Calorific Value of Soil by Bomb Calorimeter	L013-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	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. (30 oC)	In house method.	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.	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.	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.	L038-PL	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.	L038-PL	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.



APPENDIX E Monitoring Results

							in green). Gas																				red early due to											
Notes							ection limit is reported (Highlighted										lo peak value, gas tap blocked.										teady-state gas monitoring termina oundwater entering tube											
							ent, the det	Gas Sci (C	reening Value O ₂) (I/hr)		0.076	0.000	0.436	- 000	0.012	0.010	NA N	0.000	0.010	0.000	- 000	0.005	0.000	0.002	0.000	0.000	0.056 81	0.000			0.000	0.000	0.004	0.000	0.006	0.010	0.000	
							the instrume	Gas Sci (C	reening Value H ₄) (I/hr)		0.001	0.000	0.048	- 000	0.000	0.000	NA 0000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	
							etection of t	We	li Base (m)		16.45	1.00	rations:	- 2 5 1	2.73	4.00	4.00 1.80	1.25	7.15	16.45 -		CT.2	3.75	4.25	1.35	1.00	6.80	16.18			2.50	2.78	3.98	4.20	1./5 1 20	7.10	16.32	
rend							e limit of de	Depth			4.21	0.00	ak concent	- 0	0.80	0.64	0.80	0.80	0.77	3.35	, 8	50.0 12.0	0.12	0.00	0.18	0.39	0.27	3.26			0.00	0.00	0.00	0.00	0.00	00.0	3.15	
Pressure T	Stead	Rising	Falling	Rising	Rising	Steady	less than th		TVOC (PID)		NA	NA	ividual pea	NA NA	A N	NA	NA NA	AN	NA	NA NA	NA 1		AN	NA	NA	NA	NA	NA	AN	Ą	NA	NA	NA	¥ :	NA NA	u N	NA N	
Ĵ							the flow is	er Gases PPM)			0.0	0.0	ximum ind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0:0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Temp (°	00	9	11	13	14	19	llion. Where	Oth Oth	8		36.0	0.0	ow and ma	0.0	0.0	0.0	0.0 36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	
							parts per mi		Steady		20.9	4.0	d steady flo	20.8 20.5	18.8	20.6	20.6 19.4	20.6	18.5	20.3 20.7	20.4	0.02 20.2	20.4	20.3	17.8	20.6	15.6	20.4	20.6	20.4	20.4	19.2	20.3	20.4	19.8 70.4	20.2	20.4	
	Cool	Cold	Cool	Cool	Cool	Warm	nds; PPM =	02 (%v/v)	Peak		20.7	2.8	m recorde	20.8	12.3	19.3	14 5	20.6	7.2	20.2 20.7	20.4 20.1	6.U2 P P F	20.1	19.9	14.5	20.3	11.6	20.3	20.6	20.4	20.4	12.1	19.9	19.4	17.6	20.0	20.2	
							nic compou		Steady	ry Statistc	9.9	0.0	on maximu	0.0	0.8	0.3	0.1	0.1	1.9	0.2 0.0	0.0	0.0	0.1	0.0	0.8	0.0	5.0	0.0	0.0	0.0	0.0	0.8	0.1	0.1	5.0 0 C	0.4	0.0	
rvations	o wind	ivy gusts	it breeze	o wind	o wind	o wind	olatile orga	c0 ₂ (%v/v]	Peak	Summa	10.9	0.0	SVs based o	0.0	4.1	3.3	NA 1.6	0.1	9.7	0.3 0.0	0.0	2.0	0.7	0.6	1.6	0.0	9.4	0.0	0.0	0.0	0.0	5.0	6.0	1.0	1.6	0.8	0.1	-
ather Obse	z	Hea	Ligh	z	z	z	/OC= Total \		Steady		8.0	0.0	irst-case G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
We		q					sulphide; T	CH₄ (%LEL	Peak		24.0	0.0	Ň	0.0	0.0	0.0	AN 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
	vercast	ittent clou	vercast	vercast	vercast	vercast	= hydrogen		Steady		0.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	0	Interm	0	0	0	0	noxide; H ₂ S	CH₄ (%v/v	Peak		1.2	0.0		0.0	0.0	0.0	AN 0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
nalsyer	FM436	FM436	FM436	FM436	FM436	FM436	=carbon mc est.	sv	Steady		4.0	0.0		·	0.3	0.3	0.1	0.1	0.1	0.1	' .	1.0	0.0	0.3	0.0	0.3	0.6	0.5			0.6	0.0	0.4	0.0	0.4 v v	1.2	0.0	
erator A	9 M	TM	PG G	GP G	9 ML	M	oxygen; CO Ible on requ	Gas flov (I/hr)	Initial		35.8	-1.6		- 5	0.3	0.3	NA 0.1	0.1	0.1	0.1	, T	2.7 03	0.0	2.9	35.8	0.0	9.3	0.6			0.6	4.2	0.4	0.0	0.4	1.2	0.0	
ŏ	20	20	120	20	20	20	ioxide; O ₂ = rs used avai	(qm)	Relative Well		25.0	-7.0		· 6	0.0	0.0	0.0	0.1	0.0	0.0	, 0	0.0	0.0	0.3	3.6	0.0	0.0	0.0			0.0	25.0	0.0	0.0	5.0	5.0	1.0	
Date	03/02/20	10/02/20	21/02/20	17/03/20	31/03/20	09/04/20	₂ = carbon d s for analyse	Pressures (Pressure Atmospheric Pressure		1030	982		1006				,	,	- 1007	983							ı	982	1005			,					
							ve limit = 5%v/v; CC . Calibration Record		esponse zone (m)		Max. values:	Min. values:		- 0 50-3 50	1.00-3.00	1.00-4.00	1.00-4.00 0.50-2.00	0.50-2.00	10.00-14.00	16.00-18.00		0.30-2.30	1.00-4.00	1.00-4.00	0.50-2.00	0.50-2.00	10.00-14.00	16.00-18.00			0.50-2.50	1.00-3.00	1.00-4.00	1.00-4.00	0.50-2.00	10.00-14.00	16.00-18.00	
	[D (NW)				PHASE 2		ower explos cimal places					l		ent	2 2	90	60 <u>-</u> 2	9 99	12	08 ent	ent		2 8	60	15	8	72	8	ent	ent	10	55	9	6	5 0	9 6	4 80	2
LIENT:	IOMES L	PB NO.	24380	SITE:	STURES (iane; LEL = l ded to 3 de							Ambi	WSi	WS	WS.	WS	ROI	Ambi	Ambi	SW ISW	MSI	WSN	WS	WS	RO	ROI	Ambi	Ambi	WSI	WS	WS	WS	-SM	ROC	ROL	
0	LLWAY H	9	5		HOM PA		; CH ₄ = meth Vs) are roun							ΡM							AM									AM								
	BEI				LATI		tes: mb = milibars; eening Values (GSV							03/02/2020							10/02/2020									21/02/2020								

Brownfield Solutions Ltd



Ground Gas Monitoring Results

0.002 0.000 0.000 0.000 0.000 0.000 0.000 0.002 0.011 0.001 0.001 0.001 0.001 0.005 0.001 0.007 0.011 0.016 0.056 0.076 0.076 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 -2.35 2.70 3.87 4.49 1.66 1.10 7.00 7.00 2.39 2.71 3.89 4.51 1.66 1.11 7.00 7.00 -2.35 2.70 3.80 4.45 1.65 1.65 1.10 7.00 7.00 0.22 0.63 0.63 0.46 2.72 -1.32 2.65 1.40 1.39 1.50 0.98 1.23 3.97 -NGW 1.26 1.75 0.75 1.52 1.52 1.52 2.05 2.05 2.05 0.47 0.33 0.61 Other Gases 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 21.0 14.6 5.2 5.2 19.3 19.3 20.9 9.2 20.2 22.2 22.2 22.2 20.6 20.7 2.9 20.6 20.5 20.5 20.7 20.7 20.8 20.8 20.8 20.8 20.6 20.2 4.0 19.9 20.0 220.0 19.3 19.6 19.8 20.6 20.6 20.6 20.1 17.1 17.1 20.4 16.0 19.5 20.7 20.7 20.2 20.2 20.8 20.6 20.2 3.2 3.2 19.6 19.1 18.6 19.3 18.8 18.8 20.6 20.6 21.0 13.2 2.8 2.8 20.0 17.6 7.4 7.4 7.4 20.0 21.0 0.0 0.7 0.3 0.3 0.3 0.0 0.0 0.1 0.0 0.0 0.4 8.7 0.1 0.4 1.8 1.8 1.8 1.8 0.2 0.1 0.0 5.5 9.9 0.2 1.4 1.4 1.9 0.1 8.0 0.0 co₂ (%v/v) 0.0 2.4 2.9 2.9 0.4 0.0 0.0 0.0 0.0 0.5 0.3 0.3 0.8 0.6 5.2 0.7 0.0 0.0 6.8 10.6 1.7 1.7 1.9 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 CH4 (%v/v) 0.0 0.4 0.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.2 0.0 0.0 0.0 0.0 0.0 Gas flows (I/hr) **0.1** 0.0 0.0 0.0 0.0 0.0 - 0.3 0.1 0.1 0.1 0.1 0.1 - 0.1 0.1 0.1 0.1 4.0 0.1 0.1 - 0.4 0.1 0.3 0.3 0.3 0.1 0.1 - 0.3 0.1 4.1 4.1 0.1 0.1 Relative Well Pressure 3.0 1.0 0.0 -7.0 -3.0 3.0 0.0 1.0 . 0.0 0.5 0.5 1.0 0.0 0.0 tmosphe Pressure 1010 1030 1013 1030 1017 0.50-2.50 1.00-3.00 1.00-4.00 1.00-4.00 0.50-2.00 0.50-2.00 10.00-14.00 16.00-18.00 1.00-3.00 1.00-4.00 1.00-4.00 0.50-2.00 0.50-2.00 10.00-14.00 16.00-18.00 1.00-3.00 1.00-4.00 1.00-4.00 0.50-2.00 0.50-2.00 10.00-14.00 16.00-18.00 0.50-2.50 0.50-2.50 WS05 WS06 WS09 WS15 WS18 RO02 RO08 WS06 WS09 WS15 WS18 RO02 RO08 Ambient Ambient WS01 WS05 WS06 WS06 WS09 WS15 WS18 RO02 RO02 RO02 Ambient Ambient WS01 WS05 WS01 δ ΜA AM 31/03/2020 17/03/2020 09/04/2020

1016

Brownfield Solutions Ltd

C4380 - Ground Gas Monitoring Results, Data Entry

2 of 2

TEST DATE AND C	CONDITI	ONS
Date	12-7.	-19
Atmospheric Pressure	1001	mB
Ambient Temp	24	°C
Environics Serial No.	2633]	2518

GAS DATA LTD Pegasus House Seven Stars Estate Wheler Rd. Coventry CV3 4LB Tel: 024 76 303311



GFM436-1 OUTWARD INSPECTION & QUALITY CHECK SHEET

CONT 1	1	INSTRUMENT DETA	AILS	1 7 5		
SO Numbe	er Instrument	Instrument Serial	Job Number(s)			
1 7 0	Banner	Number + SW Version	1179/	- 1		
32308	1 GEM436 1	5255721.10	W010 186 2		+	
Calibratio Inspection	n Technician	2 FB-0	DAT	е <u>11-</u> е <u>1:2</u>	-7-19 -7-19	
	INSTRUMENT CHECKS	Pass (P), Fail (F) or not applicable(NA)	INSTRUMENT F	ACKING	Tick if included	
Function	Dust Caps Fitted	P	Instrument		~	
Tests	Keyboard Test (All keys)	P	Leather Case		~	
	Backlight Test	p	Instrument Strap		/	
	Clock Set / Running	,D	AC Battery Charger	UK)	/	
	Comms Test	P	AC Battery Charger	EURO)	×	
	Pump Flow Test (In & Out		AC Battery Charger	US)	x	
1	Overall Leak Test (30mb)	NA	AC Battery Charger	AUS)	×	
	Battery Charge Test	P	Gas Sample Pipe		/	
	Service Date set to?	11-7-20	Hard Carry Case		/	
Channel	Data Logging Enabled?	P	Spares Pot		/	
Channel Data Logging Enabled? P Spares Pot Tests Verify CH4/LEL/Hexane/PID P Allen Key Verify CO2 P Flow Sample Pip	Allen Key					
	Verify CO2	P	Flow Sample Pipe		/	
	Verify O2	P	Temperature Probe		X	
	Verify H2S	cane/PID Allen Key Flow Sample Pipe P Temperature Probe Vane Anemometer USB Cable	ir i			
	Battery Charge TestPGas SampleService Date set to?11 - 7 - 2.0Hard CarryData Logging Enabled?PSpares PotVerify CH4/LEL/Hexane/PIDPAllen KeyVerify CO2PFlow SamplVerify O2PTemperatureVerify H2SPVane AnemVerify COPUSB CableVerify LELPUSB MemoVerify 1st Option gasNASM V5 SoftVerify atmospheric pressurePInternal Filt	USB Cable	3 Cable			
0.18		USB Memory Stick		/		
	Verify 1st Option gas	NA	SM V5 Software	Ver6.05	/	
	Verify atmospheric pressure	e P	Internal Filter Pack	Qty	×	
	Verify differential pressure	P	External Filter Pack	Qty	×	
	Verify flow	P	Field Guide		-	
	Verify temperature probe in	nput P	Extra Items:			
1.	Verify vane anemometer in	put P				
DataBase Checks	Jobcard(s) completed and signed	P				
	Jobcard(s) booked off datal	pase P				
	Calibration certificate completed	P				
	Complete & print QI record	I NA				
Label	No. of Calibration label fitt	ed 60009751	Comments			
Checks	MCERTS label not display	ed P				
	Warranty label fitted	P	1			
H2S Range	H2S Range from SO	5000]			
	H2S Range from cal cert	5000				
	Over-range value correct?	P				

TEST DATE AND CONDITIONS

Date	11/7/19
Atmospheric Pressure	999mB
Ambient Temp	24.0°C
Environics Serial No.	2633

GAS DATA LTD Pegasus House Seven Stars Estate Wheler Rd Coventry CV3 4LB

Tel 02476303311 Fax 02476307711

GFM436-1 FINAL INSPECTION & CALIBRATION CHECK CERTIFICATE INSTRUMENT DETAILS

Serial No	Customer	
13233	Brownfield Solutions Ltd	

INSTRUMENT CHECKS					
Keyboard	1	Pump Flow	500cc/min		
Display Contrast	~	Pump Flow @ -200mB	300cc/min		
Clock Set / Running	✓	S/W Version	G436-00.0027/0010		
Labels Fitted	\checkmark	Recalibration Date	11/7/20		

			GAS CHECK	S			
Calibrati	ion Gas		Inst	trument Ga	s Channels Rea	ad	
Gas Type	Applied Conc.	CH4 (%)	tol. (% vol.)	CO2 (%)	tol. (% vol.)	O2 (%)	tol. (% vol.)
N2	100%	0.0	0.0	0.0	0.0	0.0	+/-0.1
CILLA	5%	5.0	+/-0.3	0.0	0.0	0.0	+/-0.1
CH4	60%	60.6	+/-3.0	0.0	0.0	0.0	+/-0.1
000	5%	0.0	0.0	4.9	+/-0.3	0.0	+/-0.1
02	40%	0.0	0.0	40.5	+/-3.0	0.0	+/-0.1
02	20.9%	0.0	0.0	0.0	+0.1	20.9	+/-0.5

			OPTI	ONAL GAS	CHECKS			
Calibration Gas Instrument Gas Channels Read					s Read			
Gas Type	Applied	Label	H2S	CO		Hexane	tol.	
	Conc.	Conc.	Range	5000ppm	2000ppm		2.00%	(% vol.)
N2	100%		0	0		0.0	+/- 5.0	
H2S	1500ppm		1510	0			+/- 5.0	
CO	1000ppm		40	1003	-		+/- 5.0	
Hexane	2.00%					1.992	+/- 10.0	

		PRESS	SURE CH	ECKS
Calibration Pressure Instr				ument Pressure Channels Read
Pressure @	Applied Pressure	Atmospheric [Ap] (mB)	tol. (mB)	
All Ports	Current Atmospheric	999	+/-2.0	
Ap Port	+800mB(a)	801	+/-5.0	
(Internal)	+1200mB(a)	1199	+/-5.0	

TEST DATE AND CONDITIONS

Date	11/7/19
Atmospheric Pressure	999mB
Ambient Temp	24.0°C
Environics Serial No.	2633

GAS DATA LTD Pegasus House Seven Stars Estate Wheler Rd Coventry CV3 4LB Tel 02476303311 Fax 02476307711

GFM436-1 FINAL INSPECTION & CALIBRATION CHECK CERTIFICATE FLOW CHECKS

Calibra	tion Flow	Ir	strument Flow	v Channels Read	
Applied Flow (1/hour)	Applied Pressure (Pa)	Flow [Flow] (1/hour)	tol. (1/hour)	Differential Pressure [Dp] (Pa)	tol. (Pa)
-30.0	-399	-28.9	+/-3.0	-391	+/-50
-3.0	-18	-3.0	+/-1.0	-19	+/-6
0.0	0	0.0	0.0	0	0.0
+3.0	15	3.0	+/-0.5	15	+/-3
+30.0	325	29.7	+/-3.0	326	+/-50
+60.0	992	60.3	+/-6.0	1009	+/-130
+90.0	1951	90.8	+/-9.0	1996	+/-250

	TEMPERATURE CHECK					
Calibration Temperature Instrument Temperature Channel Read						
Applied Equivalent Temperature (°C)	Temperature [Temp] (°C)	tol. (°C)				
-10.0	-10.0	+/- 2.0				
0.0	0.0	+/- 1.0				
30.0	30.0	+/- 1.0				
60.0	60.0	+/- 1.0				
100.0	100.0	+/- 1.0				

Notes:

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

Gas Data Ltd is certified to BS EN ISO9001:2015) Certificate NQA 8374. Valid until 22/03/2019



APPENDIX F

Waste Assessment Report