



LAND AT CRABTREE FARM, BARWELL (PARCEL 1)

PHASE II GEO-ENVIRONMENTAL ASSESSMENT
FOR
JAMES MADISON HOMES LIMITED

Project Ref:
EAL.02.20

Date:
September 2020

Prepared for:
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Date:	September 2020	
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Executive Summary

This presents the salient points of the report and should not be referred to in isolation. The conclusions and recommendations presented below are considered reasonable based on the findings of the site investigation. However, these cannot be guaranteed to gain regulatory approval and therefore copies of this report should be sent to the appropriate Regulatory Authorities and / or other organisations (as appropriate) by the Client for their comments and approval prior to undertaking any irrecoverable works associated with the subject site.

SUMMARY TABLE: PHASE II GEO-ENVIRONMENTAL ASSESSMENT	
SITE:	Land at Crabtree Farm, Barwell (Parcel 1)
CLIENT:	James Madison Homes Limited
DATE:	September 2020
REFERENCE	EAL.02.20
DEVELOPMENT PROPOSAL:	Residential dwellings with associated private gardens and driveways.
HUMAN HEALTH:	Elevated lead concentrations identified within made ground stockpile to the north of the site. Removal of the stockpile prior to redevelopment works is considered sufficient to reduce the risk to human health to acceptable levels.
CONTROLLED WATERS:	Removal of made ground stockpile should be undertaken as detailed above.
GAS RISK:	The risk of ground gas has been reassessed following the ground investigation works. In summary, ground gas protection measures will not be required.
RADON GAS:	Radon protection measures will not be required.
COMMENTS:	None.
FOUNDATIONS:	Traditional foundation design recommended. Piling may be required for plots situated within tree influence areas.
FLOOR SLABS:	Suspended floor slab design recommended. Ground bearing floor slabs may be suitable for plots situated outside of tree influence or areas of made ground.
CONCRETE:	DS1, AC2z recommended.
SOAKAWAYS:	Soakaway drainage may be suitable in the granular strata to the northern area of the site. However, soakaway testing should be undertaken to confirm this.
COMMENTS:	CBR values within shallow cohesive deposits anticipated to be between 2% to 3%. CBR values in natural granular soils are likely to be higher. Ground investigation to confirm foundation design for plots situated within the area of the made ground stockpile is recommended once the stockpile has been removed.

The executive summary given above is an overview of the key findings and conclusions of the report. There may be other information contained in the body of the report which puts into context the findings of the executive summary. No reliance should be placed on the executive summary until the whole report has been read in full.

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1.0 INTRODUCTION

1.1 PREAMBLE

Erda Associates Ltd. (Erda) has been appointed by James Madison Homes Limited (hereafter referred to as 'the client') to undertake a Phase II Site Appraisal.

A previous desk study by BWB Consulting Ltd (Burton Knowles, Crabtree Farm, Barwell, Leicestershire – Phase I Geo-Environmental Assessment, Ref: CTF-BWB-ZZ-XX-RP-YE-0001_DS_P1, dated; February 2018) formed Phase I of the assessment. This previous report encompassed the site within a larger assessment area and allowed the geotechnical and geo-environmental setting of the site to be determined. The Phase II works reported within this document comprise the intrusive ground investigation, geotechnical testing and chemical analysis. The information gained from the Phase II works will be used to refine the conceptual model for the site and determine the most cost-effective development solutions.

This document is intended to provide information that will assist decision making by identifying and recommending solutions to ground engineering and contamination issues.

At the time of writing, a proposed development plan is not available for the site. However, it is understood that the Client proposes to develop the site with residential dwellings with associated private gardens and driveways.

1.2 PROJECT BRIEF

The brief for the Phase II Geo-Environmental Assessment incorporates:

- Provide a strategy for, and to implement, a Phase II Environmental and Geotechnical Assessment.
- To determine any ground related geotechnical and contamination hazards that may affect the proposed development.
- Development of the Phase 2 Conceptual Model.
- To provide advice on further works required for the reduction of risks to the development and procedures likely to satisfy regulators.

Whilst every effort has been made to pre-empt the likely requirements of the Local Authority and the Environment Agency, they may have specific requirements that will need to be discussed and addressed at a later date.

1.3 DATA REFERENCES

- BWB Consulting Ltd., Burton Knowles, Crabtree Farm, Barwell, Leicestershire – Phase I Geo-Environmental Assessment, (Ref: CTF-BWB-ZZ-XX-RP-YE-0001_DS_P1, dated; February 2018).
- British Geological Survey Online Geological Mapping.
- BSI (2015), BS 5930:2015 Code of practice for ground investigations.
- CIRIA (2007), C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings.
- PHE-BGS (2011), Joint Indicative Atlas of Radon in Great Britain.
- EA/DEFRA (2004), CLR11: Model Procedures for the Assessment of Land Contamination.

1.4 LIMITATIONS

This report has been produced in accordance with industry best practice at the time of writing.

In the production of this report, Erda Associates Ltd., have relied upon information provided by third parties. Erda Associates Ltd cannot accept responsibility for the reliability and authenticity of this information. Erda Associates Ltd. will not be responsible for any opinions which it has expressed, or conclusions which it has drawn, in reliance upon information which is subsequently proven to be inaccurate.

All statements and opinions provided in this report have been reported in good faith and are based on the information gained during, and restrictions imposed by, site investigation techniques used at the time. Erda Associates Ltd cannot be held responsible for conditions not revealed by the investigation.

This report has been prepared for the sole use of the client and shall not be relied upon or transferred to third parties without the express written consent of Erda Associates Ltd. Unauthorised third parties rely upon the information contained within this report at their own risk.

2.0 PHASE I DESK STUDY SUMMARY

A previous Phase I Desk Study encompassing the subject site has been undertaken by BWB Consulting Ltd. A copy of the previous report is not reproduced herein, however the salient points are summarised below;

Project Name.	Crabtree Farm, Barwell
Project Reference.	CTF-BWB-ZZ-XX-RP-YE-0001_DS_P1
Client.	Burton Knowles Limited
National Grid Reference.	443555, 296012
Summary of Proposed Development.	Residential dwellings with associated private gardens and driveways, open space and land for a new burial ground.
Site Setting.	The site comprises open agricultural fields, separated by mature hedgerows, within a semi-rural setting.
Site History.	Properties associated with Crabtree farm were present in the northernmost area of the site. A pond is also recorded adjacent to the farm properties. In 1903 the majority of these buildings were demolished, and the pond is no longer recorded (presumed infilled). In 1987 the final building associated with Crabtree farm was demolished. The surrounding area is largely agricultural, although residential dwellings were constructed adjacent to the north and eastern boundaries 1962.
Geology.	Minor thicknesses of made ground anticipated in area of former farm and pond. Superficial Oadby Member deposits (glacial till) are recorded to underlie the majority of the site. However, superficial glaciofluvial deposits are recorded to be present in the northern area of the site. A solid geology of the Gunthorpe Member is recorded to underlie the superficial deposits.
Groundwater and Surface Water.	The superficial deposits are classified as Secondary Undifferentiated Aquifers. The Gunthorpe Member is classified as a Secondary B Aquifer. A pond is present adjacent the south-western corner of the site.
Mining.	No significant risk of mining was identified.
Potential Soil Contamination Sources.	Based on the sites previous use, made ground anticipated in the northern portion of the site was considered to pose a potential risk of contamination. Similarly, due to the agricultural usage, a risk of pesticides/herbicides was also identified.
Potential Ground Gas Sources (including Radon).	No recorded historic or active landfill sites within 250m of the site. The report indicates that made ground and the backfilled pond associated with Crabtree Farm could be a source of potential ground gas. A potentially backfilled moat located to the north of the site is also raised as a potential source of ground gas. The report also makes reference to a potentially infilled unspecified pit (sand and gravel pit). However, the pit is not recorded on historic mapping or the groundsure report appended to the report. No significant risk of radon gas identified.

A copy of the Phase I Conceptual Model is included in Table 2.1 below;

Figure 2.1: Previous Phase I Conceptual Site Model

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Table 6.1 *Potential Sources of Contamination*

Location	Potential Source(s)	Contaminants of Potential Concern (CoPC)
On Site	- Potential Made Ground associated with the demolition of the farm buildings in the north of the site - Ground gases from infilled pond in the north of the site. - Former use as general agricultural land	- Heavy metals - Sulphates - Nitrates - Polycyclic aromatic hydrocarbons (PAHs) - Petroleum Hydrocarbons (PHCs) - Pesticides and Herbicides - pH - Asbestos - Methane, carbon dioxide
Off Site	Ground gases from infilled moat, unspecified pit and ponds.	Methane, carbon dioxide

Table 6.2 *Potential Pathways and Receptors*

Receptors	Pathways
Human Health: - Site occupants (residents) - Site users (public) - Construction/maintenance workers - Neighbouring site users / public	- Ingestion of soil, dust and/or vegetables - Inhalation of dust, gases or vapours - Dermal contact - Accumulation and explosion
Ecology: Landscaping	Uptake and accumulation
Controlled Waters: - Groundwater (secondary aquifers) - Surface water (pond / ditches)	- Leaching of soil contaminants - Direct contamination - Vertical and lateral migration - Surface run-off
Property: - Underground utilities - Foundation materials - Structures	- Direct Contact - Accumulation and explosion of gases

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Table 6.3 Preliminary Conceptual Site Model

Sources	Pathway	Receptor	Con	Prob	Risk	Mitigation/Investigation
As identified in Table 6.1 - On site	Dermal contact, incidental ingestion and inhalation of particulates	Construction workers	Mi	Lw	L	Guidance on safe working and good practice should be considered during construction works at the site. Appropriate PPE must be worn and correct procedures should be adopted.
		Future site users (residents/ burial ground workers)	Md	Lw	M/L	No proposed Masterplan was available at the time of the assessment. It is anticipated that hard standing will be present across some parts of the site, within the residential development area. This will limit the potential for direct contact with, and minimise dust generation from potentially contaminated soils at the site. In gardens/landscaped areas the provision of a clean capping layer would restrict direct access to potentially contaminated soils and limit the potential for dust generation.
	Vertical migration of contaminants in the soil leachate	Underlying Secondary B and Undifferentiated Aquifer	Md	UI	L	The longstanding agricultural use of the site presents the potential for contamination to exist from fertilisers and pesticides used to treat the ground and minor fuel or oil usage associated with agricultural plant and equipment used on site.
	Lateral migration of contaminated groundwater.	On site surface water feature	Md	Lw	M/L	The historical and current lack of hardstanding on site may allow for contaminants to leach and migrate laterally and horizontally and impact the underlying aquifers and the surface water features, however the underlying head deposits may form a permeable barrier depending on the cohesiveness of the soils.
	Surface Run off					
	Direct contact	Water utility pipes	Md	Lw	M/L	Organic compounds in the shallow soils could taint the water supply. A ground investigation and subsequent laboratory analysis should be undertaken to inform the design of new services.
		Buried structures/ foundations.	Md	Lw	M/L	Sulphates and low pH in the ground could accelerate the degradation of buried concrete structures (e.g. foundations). Ground investigation should include an assessment of the concrete design class.
	Uptake and accumulation	Ecology/Landscaping	Mi	UI	VL	The site or the surrounding area is not a designated environmentally sensitive site, there are no SSSI, special areas of conservation or special protection areas within influencing distance. The likelihood of any contamination affecting the ecology currently present on site is low.

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As identified in Table 6.1- On and Off site	Migration and accumulation of ground gasses leading to asphyxiation (carbon dioxide) or explosion (methane)	Construction/services personnel	Sv	Lw	M	The sources of ground gas identified are relatively localised and when considering the published geology, which is principally cohesive, the likelihood of a significant source and viable pathway is relatively low. However, the possibility of localised, elevated gases cannot be ruled out. Therefore, the risk should be assessed by conducting a gas assessment in accordance with CIRIA guidance, including a suitable period of ground gas monitoring. In the event that elevated concentrations of hazardous ground gases are identified during ground investigation works, the installation of protection measures may be required during construction.
		Future site users	Sv	Lw	M	
		Buildings	Sv	Lw	M	
		VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low				
KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor Hi = High, U = Likely, Lw = Low Likelihood, UI = Unlikely						

3.0 PHASE II GROUND INVESTIGATION

3.1 FIELDWORK

The Phase II intrusive investigation was undertaken between 7th September 2020 and 9th September 2020 under the supervision of a suitably qualified engineer and in general accordance with the Code of Practice for Site Investigations BS5930: 2015.

The intrusive investigation incorporated both the area of the proposed residential (Parcel 1) and the area of the proposed burial ground (Parcel 2). This report will focus solely on the proposed residential development area (Parcel 1). A separate report will be issued for the burial ground (Parcel 2). A site plan showing the extents of Parcel 1 and 2 is included in **Appendix A** for clarity.

The Phase II investigation works incorporated the following:

- The advancing of 22 mechanically excavated trial pits to a maximum depth of 3.00mbgl,
- The analysis of 15 soil samples for a standard 'CLEA' screening suite and selected site specific determinands,
- The analysis of 5 samples for geotechnical design criteria including Plasticity Index (PI), Water Soluble Sulphate and pH,

The exploratory hole location plan along with all exploratory hole records are contained in **Appendix B**.

3.2 RATIONALE

The Phase II investigation has been designed to facilitate an assessment of the general ground conditions across the site, including contaminant sources, pathways and receptors. The investigation has also been designed in consideration of the current site layout and access restrictions, the development proposal and health and safety issues. The rationale behind the location of each exploratory hole is detailed in table 3.2 below:

Table 3.2: Phase II Rationale

Hole ID	Location	Notes
TP01 – TP16 & TP37	General Grid	Shallow Sampling/Aid Foundation Design
TP32 & TP33	Historic Farm Property	Shallow Sampling/Aid Foundation Design/Assess Ground Gas Risk
TP34 – TP36	Historic Pond	Shallow Sampling/Aid Foundation Design/Assess Ground Gas Risk

3.3 LABORATORY ANALYSIS & TESTING

Selected soil samples were analysed at specialist environmental and geotechnical laboratories as detailed in the following sections.

3.3.1 Chemical Analysis

A total of five samples of made ground, eight samples of topsoil and two samples of the shallow natural clay strata were sent for analysis at a UKAS/MCERTS accredited laboratory. The samples were screened for heavy metals, PAHs, TPH, asbestos and herbicides/pesticides. The soil analysis results are contained within **Appendix C**.

3.3.2 Geotechnical Testing

Five samples of the natural deposits were sent to a UKAS accredited laboratory and subjected to Plasticity Index (PI), Particle Size Density (PSD), water soluble sulphate and pH testing. The geotechnical test results are contained in **Appendix C**.

3.3.3 Gas Monitoring and Sampling

Ground gas monitoring has not been undertaken as part of the site investigation works. Our detailed reasoning behind this can be found in Section 6.1.4.

4.0 GROUND CONDITIONS

The intrusive investigation has revealed that topsoil was present across the majority of the site. A large mounded stockpile of made ground was encountered to the north of the site (in the area of the former farm buildings). The stockpile was circa 2.00m to 3.00m high. The topsoil and made ground were predominantly underlain by superficial glacial till deposits (cohesive clay). However, superficial glaciofluvial deposits (granular sands) were encountered in the northern area of the site (beneath the made ground stockpile). The site-specific observations are detailed in the following sections.

4.1 MADE GROUND/TOPSOIL

Topsoil comprising dark brown slightly gravelly sandy clay was encountered across the majority of the site and generally extended to a maximum depth of 0.50mbgl.

Made ground materials were present in the area of the former farm property (in the northern area of the site). The made ground was noted to have been formed into a stockpile of circa 2.00m to 3.00m height above the surrounding area. The approximate extents of the stockpile feature are illustrated on a site features plan included in **Appendix A**. The made ground was generally recorded to comprise light orangish brown gravelly sand with brick and concrete fragments. TP33 was advanced from the top of the stockpile through the made ground into the underlying natural strata. This trial pit has indicated that the made ground is circa 2.90m thickness (this depth includes the stockpile height above ground).

4.2 SUPERFICIAL STRATA

Glacial till deposits were encountered across the majority of the site. These generally comprised stiff reddish brown/dark grey slightly gravelly sandy clay with rare cobbles and boulders.

Glaciofluvial deposits were encountered to the north of the site in TP33 and TP35. These were recorded to comprise medium dense yellowish brown sand.

The base of the superficial deposits was not encountered in any exploratory hole, however, they were recorded to extend to a minimum depth of 3.00mbgl.

4.3 SOLID STRATA

Deposits thought to be representative of the recorded underlying solid strata (Gunthorpe Member) were not encountered during the ground investigation works.

4.4 FIELD OBSERVATIONS

No significant visual or olfactory evidence of contamination was noted during the ground investigation works. Although made ground was recorded in TP32, TP33, TP34 and TP37, this was observed to be reworked natural strata/topsoil containing brick and concrete fragments.

4.5 GROUNDWATER

Groundwater was not encountered during the ground investigation works.

4.6 SOAKAWAY TESTING

Soakaway testing was not undertaken during the ground investigation works. However, it is considered that the presence of shallow cohesive deposits across the majority of the site will not be suitable for soakaway infiltration and alternative drainage solutions should be sought in these areas. Soakaway drainage may be suitable in the natural granular glaciofluvial deposits encountered in the northern area of the site. However, soakaway testing is recommended to confirm this.

5.0 GEOTECHNICAL ASSESSMENT

The geotechnical assessment considers the development proposal for residential dwellings with associated private gardens and driveways.

5.1 GEOTECHNICAL TESTING

5.1.1 Laboratory Testing

The results contained in **Appendix C** illustrate PI values of between 19% and 25% and moisture contents between 17% and 19%, indicating the cohesive deposits to be of medium volume change potential as a maximum classification which should be used across the site.

Particle size distribution (PSD) testing of the glaciofluvial soils encountered in the northern area of the site has generally confirmed that these soils are predominantly granular.

Water Soluble Sulphate and pH analysis revealed results of <10-51mg/ISO₄ and 6.0-8.1, respectively.

5.1.2 In-situ Testing

In-situ testing of the natural soils was undertaken during the ground investigation works. Results of the testing are included on the exploratory hole logs in **Appendix B**. In summary, hand shear vane values within the cohesive glacial till deposits ranged from 108kPa to 120kPa indicating a stiff consistency.

5.2 FOUNDATION DESIGN

Traditional foundations are considered to be suitable for the site. A presumed bearing capacity of **100kN/m²** is anticipated in the shallow cohesive glacial till deposits. Based on the geotechnical testing above, a minimum foundation depth of 0.90mbgl outside the influencing distance of trees shall apply. Semi-mature/mature trees and hedgerows were noted to field boundaries both within and bordering the site. Therefore, foundations will require deepening in accordance with NHBC Guidance Chapter 4.2 – Building Near Trees where they are situated with influencing distance. It is an NHBC requirement that foundations in excess of 2.50mbgl will need to be designed by an engineer. An arboricultural survey may be required to assist with foundation design.

A stockpile of made ground was noted to be present in the northern area of the site. It is considered that this material will require removal prior to development. The stockpile is anticipated to be underlain by granular glaciofluvial deposits; however, this should be confirmed following removal of the made ground. Deepening for tree influence will not be required for foundations that are situated within granular strata. A presumed bearing capacity of **75kN/m²** is anticipated within granular glaciofluvial deposits (please note that this is a reduced presumed bearing capacity to account for potential groundwater influence). It is advised that a plot specific ground investigation is undertaken following removal of the made ground stockpile in order to confirm the above.

5.3 FLOOR SLABS

A suspended floor slab design is recommended at this stage. However, a ground bearing floor slab design may be appropriate for plots situated outside tree influencing distance and where made ground in excess of 600mm is not present.

5.4 EXCAVATION & GROUNDWATER CONDITIONS

Excavation of the materials encountered during the ground investigation should be easily achieved using conventional hydraulic excavation techniques.

From the ground investigation undertaken, it is likely that excavations will be generally stable in the short term. However, some materials such as granular soils and made ground are liable to collapse without warning. This situation is likely to be exacerbated by water ingress.

It is considered unlikely that dewatering will be required for shallow short-term excavations.

5.5 ENABLING WORKS

A stockpile of made ground (circa 2.00m – 3.00m in height) is present in the northern area of the site. This will require removal prior to any development works in this area.

No other significant enabling works will be required.

5.6 BURIED CONCRETE

Based on the recorded water soluble sulphate concentrations and pH values it is considered appropriate to adopt a Basic Design Sulphate Class of DS-1, together with an Aggressive Chemical Environment Concrete (ACEC) of AC-2z.

5.7 ROADWAYS AND CAR PARKING

Site observations suggest that the shallow cohesive material will have a CBR value of between 2% and 3%. CBR values within granular material to the north of the site are anticipated to be higher. Proof rolling and the improvement of soft spots may result in increased CBR values.

6.0 CONTAMINATION ASSESSMENT

The guidance detailed in section 1.4 has been followed to ensure that the risk posed to identified receptors, as detailed in the conceptual site model, is reported according to accepted compliance criteria.

The Contaminated Land Exposure Assessment (CLEA) guidance and published Soil Guideline Values (SGV) have been incorporated with Generic Assessment Criteria (GAC), for determinands which do not have a published SGV, to provide a competent Tier 1 Assessment. The analysis results were assessed against Tier 1 Assessment Criteria for a residential with produce end use. The GAC and methodology references are contained in **Appendix D**.

6.1 HUMAN HEALTH

An assessment of the analysis results for metals and inorganics contained in **Appendix C**, revealed that the majority of samples do not exceed the respective GAC for residential end use with produce.

However, two slightly elevated concentrations of lead were identified within the made ground stockpile in the northern area of the site. The analysis results are summarised in Table 6.1, below;

Table 6.1 Heavy Metals Analysis Summary

Sample Ref./Depth	Strata	Contaminant	Concentration (mg/kg)	GAC Screening Value (mg/kg)
TP32 / 0.20m	Made Ground	Lead	365.00	210.00
TP33 / 2.50m	Made Ground		230.00	

The above concentrations do potentially pose a risk to end users of the site. However, the made ground stockpile will require removal prior to the redevelopment of the site. It is considered that the removal of this material will break the source-pathway-receptor linkage to end users. Therefore, the risk from these elevated concentrations is assessed as being negligible and remediation with regard to contaminated soil will not be required once these have been removed.

6.1.1 Hydrocarbon and Volatiles Contamination

No visual or olfactory evidence of hydrocarbon or volatiles contamination was encountered during the ground investigation works. Two samples of the made ground were screened for the presence of TPH as a precautionary measure. The laboratory analysis did not reveal any elevated concentrations of TPH to be present.

6.1.2 Asbestos

No visual evidence of asbestos contamination was noted during the ground investigation works. As a precautionary measure, five samples of the made ground encountered in the northern area of the site were screened for asbestos. The laboratory analysis did not identify asbestos to be present within the made ground.

6.1.3 Pesticides/Herbicides

Five selected shallow topsoil samples were screened for the presence of herbicides and pesticides as a precautionary measure. In summary, the laboratory analysis did not reveal pesticides or herbicides to be present within the shallow soils.

6.1.4 Ground Gas

The previous Phase I Assessment undertaken by BWB identified a moderate risk of ground gas relating to the former pond in the northern area of the site, a potentially infilled moat 50m to the north of the site and a potentially backfilled sand and gravel pit to the east of the site.

The risk of ground gas has subsequently been reassessed following the findings from the ground investigation works.

The historic moat feature identified in the previous BWB report is situated approximately 50m to the north of the site. This feature largely disappears from historic mapping circa 1967 due to it potentially being infilled. However, the site of the moat was developed with residential dwellings at the same time it disappears from historic mapping. It is considered that this sensitive end use would indicate that the site has not been used as a landfill site. Furthermore, the site of the moat is at a slightly higher elevation than the subject site and the likelihood of ground gas migration to the site from this source is considered to be negligible.

It is not clear from the historic mapping included in the Phase I Report where the unspecified pit mentioned as a potential ground gas source is located. The BWB report indicates that this was located adjacent the eastern boundary of the site (however, the site of the BWB report is much larger in extents than the subject site). It is considered that the presence of cohesive clays beneath the site will inhibit the migration of ground gasses onto the site from the unspecified pit which has been potentially infilled. Therefore, the likelihood of ground gas migration to the site from this source is considered to be negligible.

We undertook targeted investigation to identify the position and nature of the backfill of the former pond in the northern area of the site. TP34-TP36 were targeted within the area of the former pond. However, shallow made ground comprising reworked topsoil with rare brick fragments was only identified in TP34. The made ground extended to a maximum depth of 0.50mbgl. Based on these findings, significant backfill to the former pond has not been identified. Therefore, the risk of ground gas from this feature is assessed as negligible.

The previous BWB report has also confirmed that there are no active or historic landfill sites recorded within 250m of the site. Radon gas protection measures were also found to not be required.

Based on all of the above, the risk of ground gas is assessed as negligible and remediation to protect end users of the site will not be required.

6.2 CONTROLLED WATERS

Groundwater was not encountered during the ground investigation works. A pond was noted adjacent the south-western corner of the site.

Slightly elevated concentrations of lead were identified in the stockpile of made ground to the north of the site. However, the stockpile will be removed prior to the proposed redevelopment works. In addition, the majority of the site (including the area in close proximity to the pond) is underlain by cohesive deposits. It is considered that these will inhibit the migration of any contamination to the pond.

Based on the above the risk to controlled waters is considered to be negligible.

7.0 PHASE II CONCEPTUAL SITE MODEL

The conceptual model for the site considers the development proposal for residential dwellings with associated private gardens and driveways and the information gathered during the Phase I and II assessments.

The site's former uses as a farm and agricultural fields are considered in respect to potential contaminative sources. The previously identified surrounding potentially contaminative land uses are also considered.

Based on our contamination assessment and analysis contained in Section 6.1, elevated concentrations of lead have been identified within a stockpile of made ground to the north of the site. However, it is understood that the stockpile will require removal prior to the redevelopment of the site. It is considered the removal of the stockpile will be sufficient to break the source-pathway-receptor linkage to end users. Therefore, the risk to human health with regard to contaminated soils is considered to be negligible.

A reassessment of the site setting, and potential ground gas sources has revised the risk of ground gas to negligible.

For the environment (controlled waters) the primary receptor is the secondary B aquifer underlying the site and pond adjacent to the south-west corner. The elevated concentrations of lead within the made ground stockpile could potentially pose a risk to controlled waters. However, the stockpile will require removal prior to redevelopment of the site. It is considered that the removal of this material will be sufficient to break the source-pathway-receptor linkage. Therefore, the risk to controlled waters is assessed as negligible.

The development of the conceptual model is illustrated on Figure 7.1.

Figure 7.1: Phase II Conceptual Site Model

HUMAN HEALTH			
SOURCE	PATHWAY	RECEPTOR	SOLUTION
Elevated concentrations of lead within made ground stockpile.	Dermal contact with potentially contaminated made ground and natural strata, ingestion and inhalation of potentially contaminated soil dust, ingestion of vegetables that have taken up the potential contamination and potentially contaminated soil attached to vegetables	End Users (Residents).	Stockpile will be removed prior to redevelopment works – negligible risk identified once removed.
		Construction Workers.	Standard PPE gloves and overalls should be worn during removal of stockpile. Negligible risk identified once material removed.
No significant ground gas sources identified.	Inhalation of ground gas (Carbon Dioxide and Methane).	End Users (Residents).	Negligible risk identified – no remediation works required.
		Construction Workers.	Negligible risk identified - no remediation works required.
CONTROLLED WATERS			
Elevated concentrations of lead within made ground stockpile.	Leaching of contaminants and vertical migration to the groundwater. Inhibited due to presence of cohesive deposits.	Secondary B Aquifer.	Stockpile will be removed prior to redevelopment works – negligible risk identified once removed.
	Leaching of contaminants and horizontal migration to surface water. Inhibited due to presence of cohesive deposits.	Pond adjacent south-west corner.	Negligible risk identified – no remediation works required.

8.0 RISK MANAGEMENT & REMEDIATION

Previous sections have quantified the risk posed to identified receptors, which in some instances, require remediation to protect or reduce levels of risk. The following section details measures and recommendations for dealing with risks associated with soil and groundwater contamination in respect to the development proposal for residential dwellings with associated private gardens and driveways.

8.1 REMEDIATION TO PROTECT END USERS

Elevated lead has been identified within a stockpile of made ground situated to the northern area of the site. If left in situ, remediation would be required in order to protect future end users of the site. However, the stockpile will require removal prior to redevelopment of the site. Providing the made ground is removed, no further remediation to protect end users is considered to be necessary.

8.2 REMEDIATION TO PROTECT CONTROLLED WATERS

Removal of the stockpile of made ground as detailed above is considered sufficient to protect controlled waters.

8.3 REMEDIATION TO PROTECT CONSTRUCTION WORKERS

Basic PPE such as gloves and overalls are recommended during the removal of the made ground stockpile. No other remediation is required to protect this receptor.

8.4 WASTE MANAGEMENT

Generally Made Ground and natural soils should be classified as non-hazardous for disposal, and are suitable for use in a recovery project without attracting land fill tax.

Additional WAC testing may be required or requested by any potential designated waste receiver.

9.0 RECOMMENDATIONS

Recommendations for further assessment of the site include:

- Should any signs of contamination be evident during construction activities, a qualified environmental specialist should be consulted to assess the risk posed to end users and the environment.
- Removal of made ground stockpile to north of site.
- Ground investigation to confirm foundation design for buildings proposed in the area of the made ground stockpile once it has been removed.
- Aboricultural survey to assist with traditional foundation design.
- Soakaway testing to be undertaken in granular strata to the north of the site to demonstrate suitability for soakaway drainage if it is to be utilised.

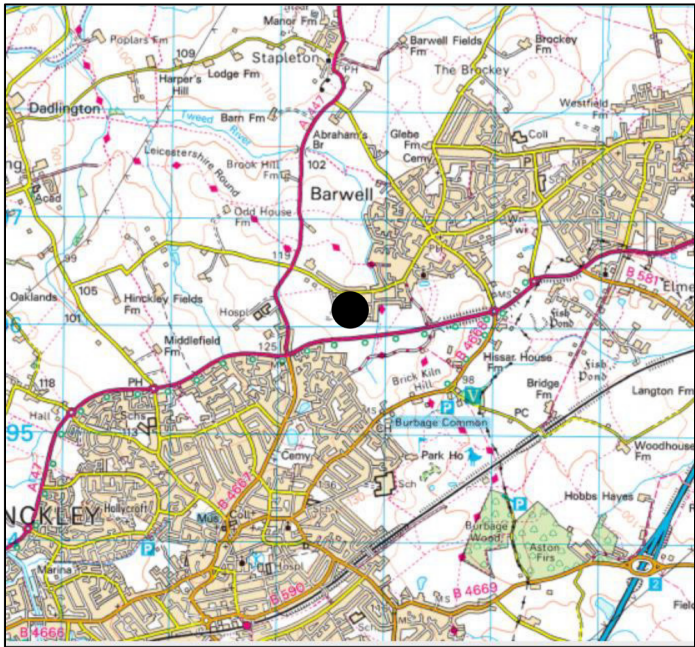
10.0 CONCLUSIONS

The Phase II ground investigation has illustrated that the proposed development of the site for residential dwellings with associated private gardens and driveways does not pose a significant risk to end users of the site or the environment providing the above recommendations are adhered to.

Traditional foundations will be suitable for the majority of the proposed dwellings, although deepening of foundation in accordance with NHBC Guidance Chapter 4.2 – Building Near Trees is recommended. Piling may be required for plots situated within tree influencing distance.

Appendix A

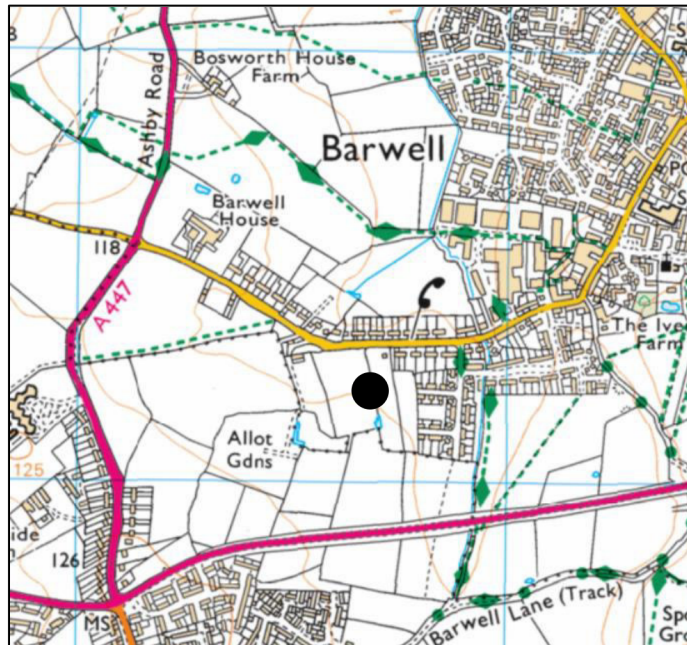




KEY:

● Approximate Site Location

DO NOT SCALE



TITLE:

Site Location Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

09.2020

SCALE :

NTS

DRAWN :

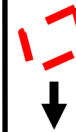
PD

DWG No:

Figure 1

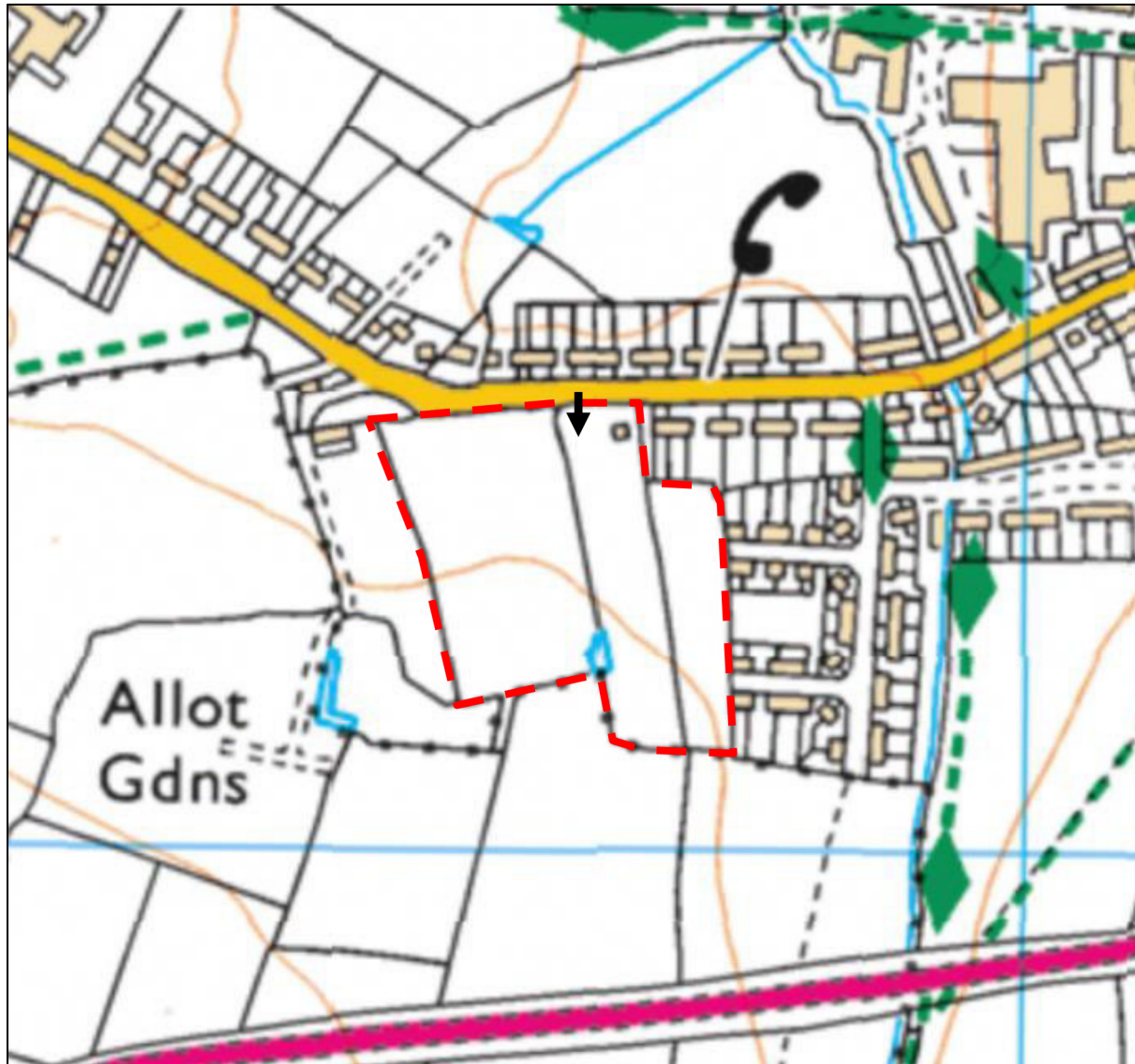


KEY:



Site Boundary

Access



DO NOT SCALE



TITLE:

Site Layout

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

09.2020

SCALE :

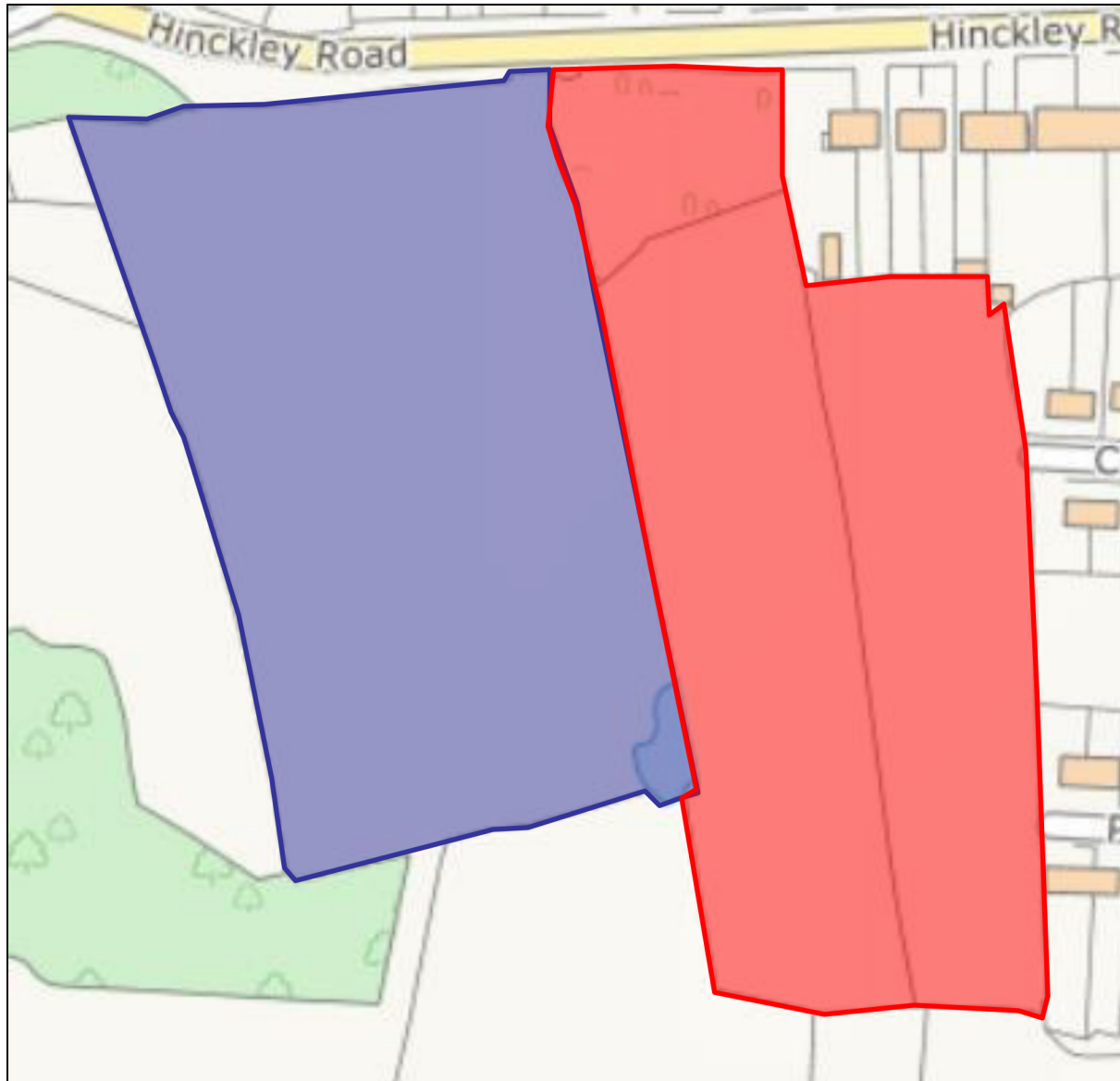
NTS

DRAWN :

PD

DWG No:

Figure 2



KEY:



Parcel 1 - area of proposed residential redevelopment (Subject of Phase II Report)



Parcel 2 - area of proposed burial ground (not included in Phase II Report)

DO NOT SCALE



TITLE:

Proposed End Use Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

09.2020

SCALE :

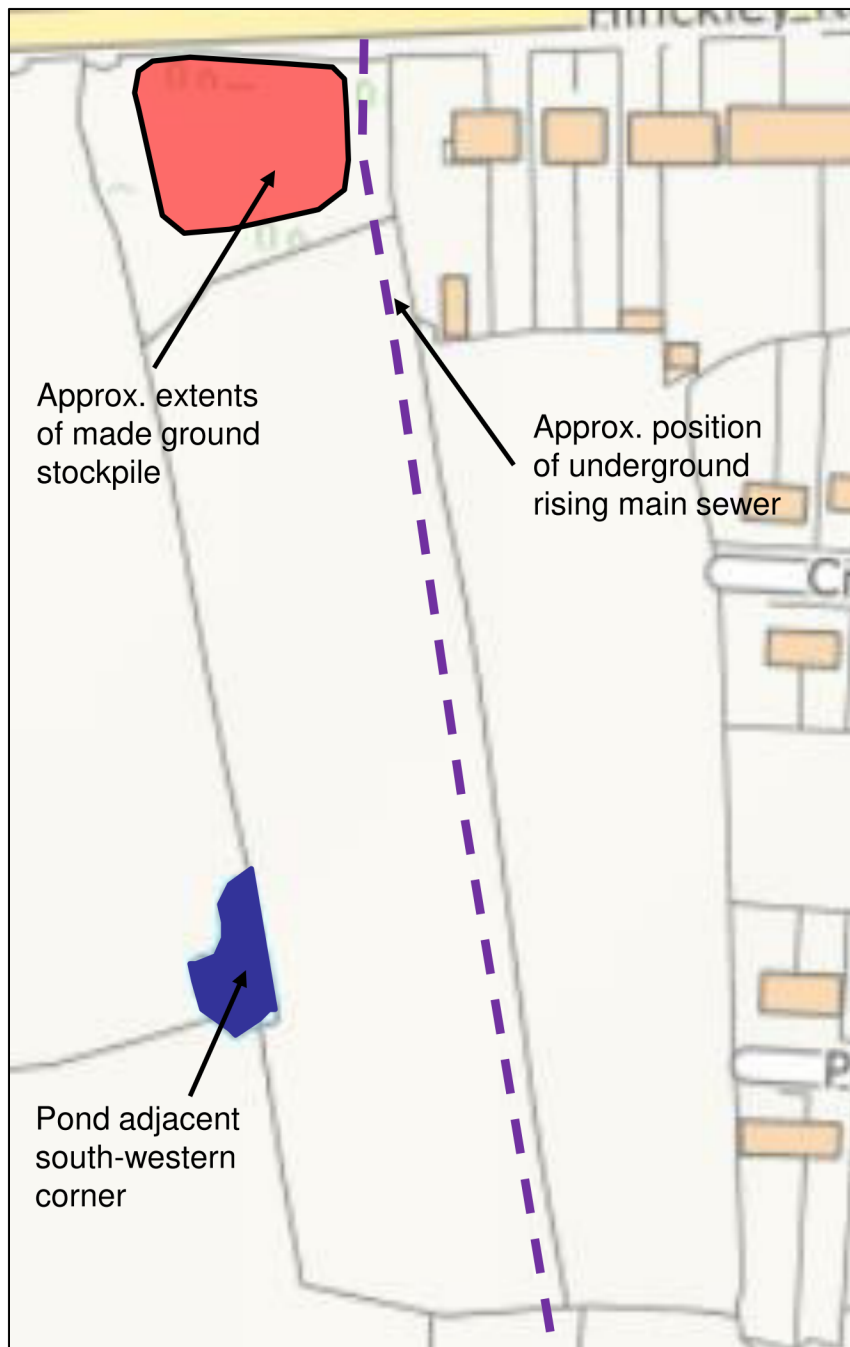
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DRAWN :

PD

DWG No:

Figure 3



KEY:

DO NOT SCALE



TITLE:

Site Features Plan

PROJECT:

Crabtree Farm, Barwell

PROJECT No:

EAL.02.20

DATE:

09.2020

SCALE :

NTS

DRAWN :

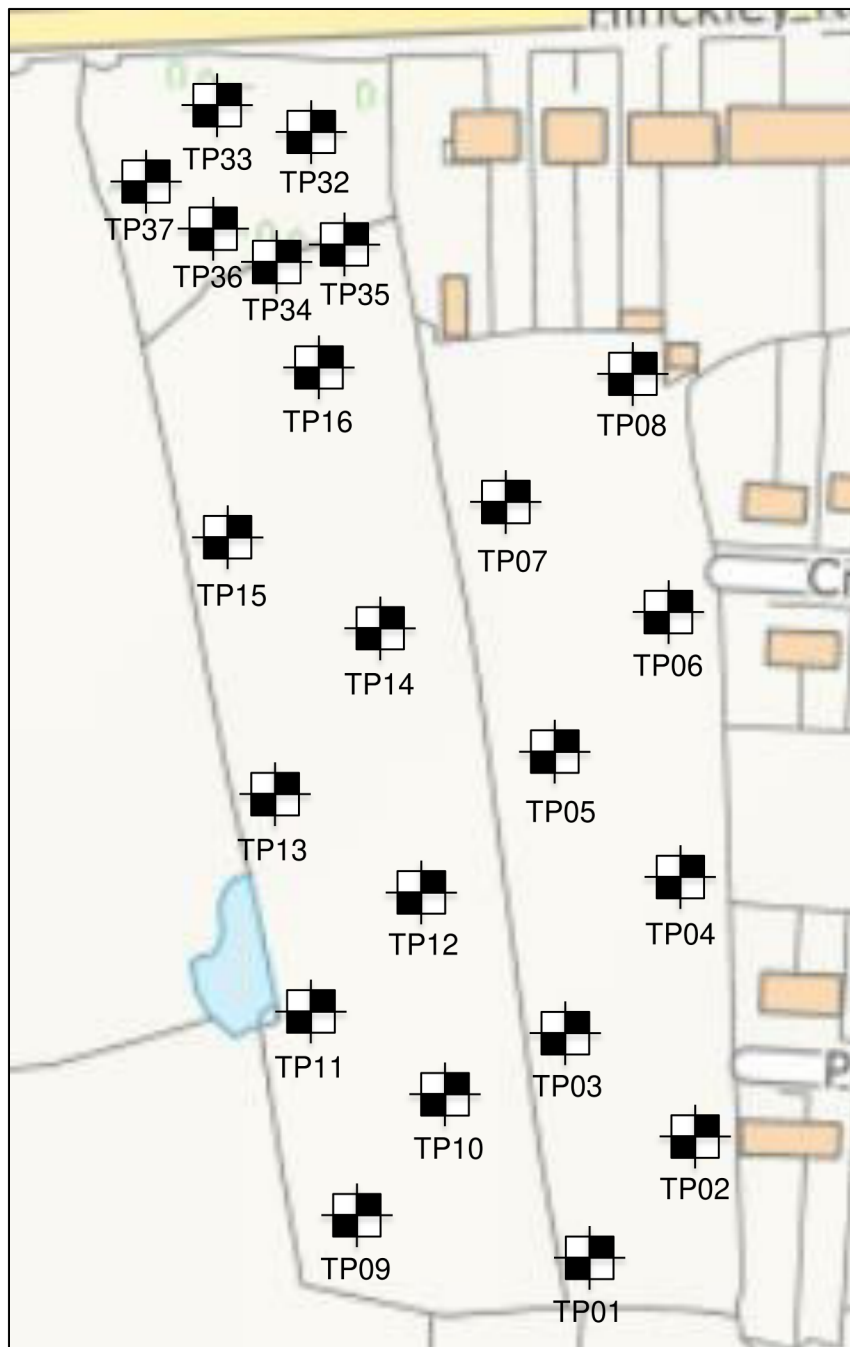
PD

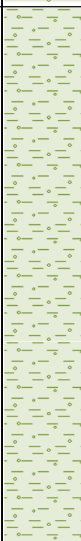
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Figure 4

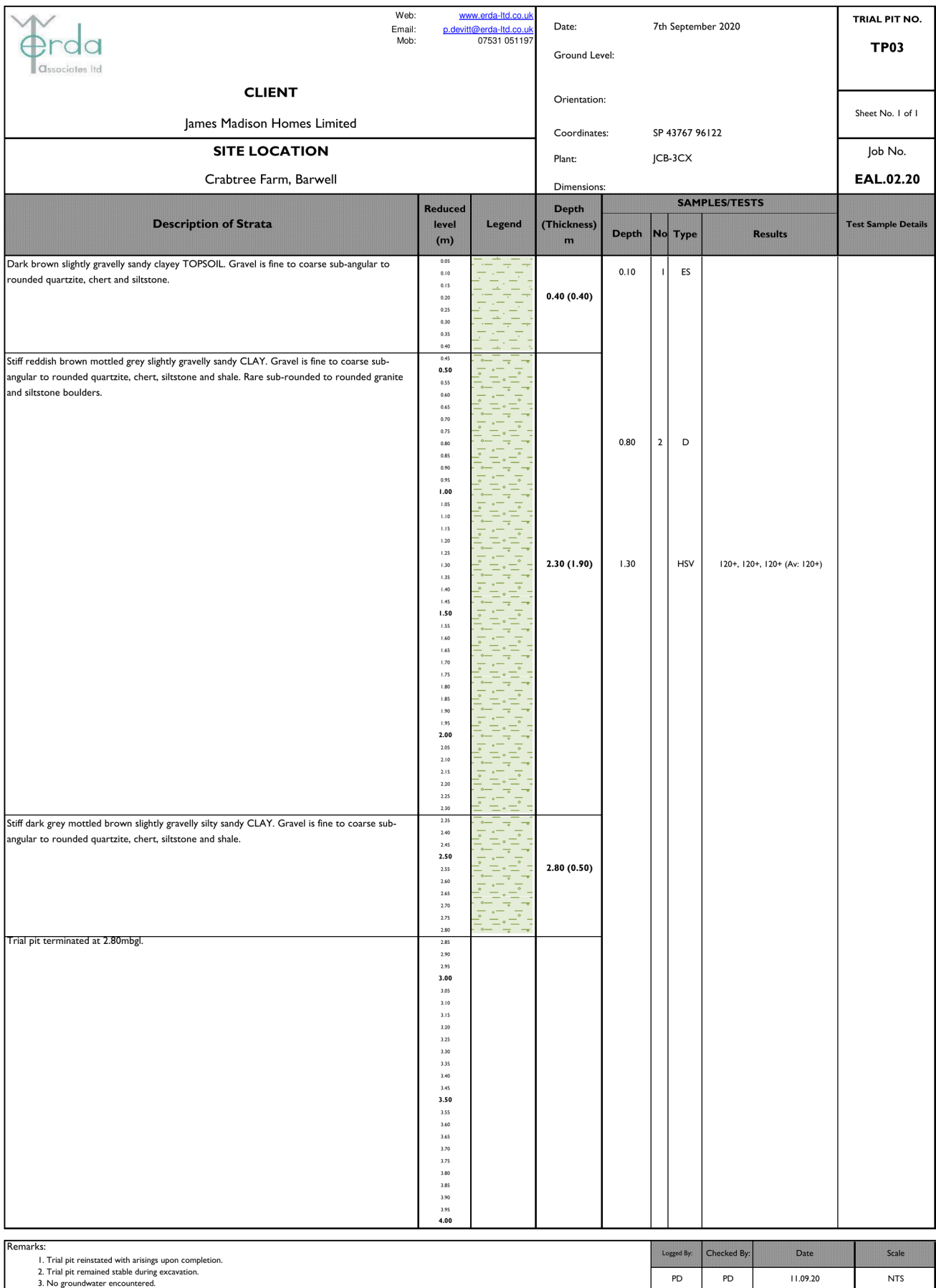
Appendix B



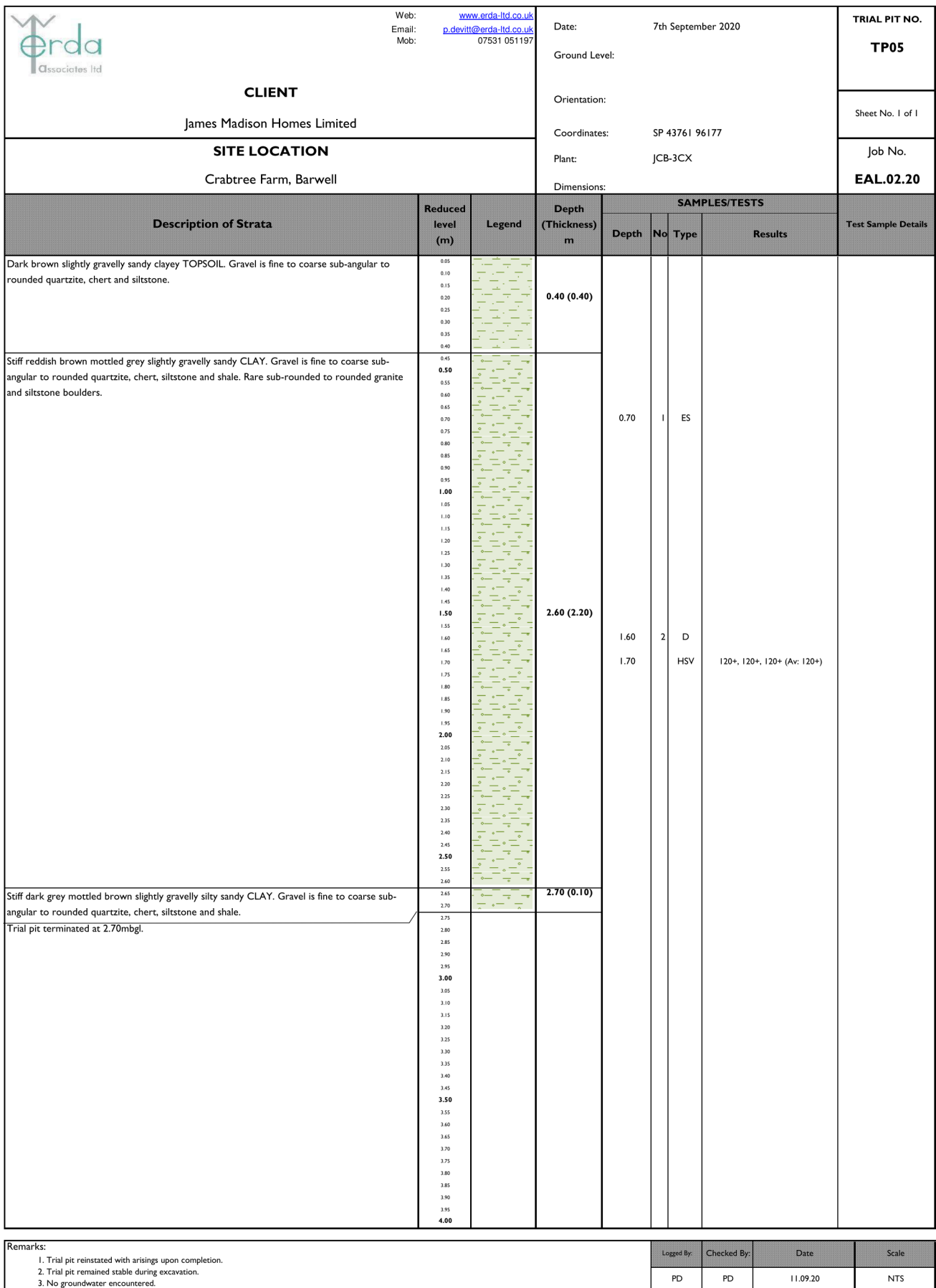


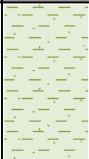
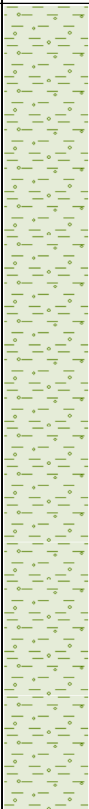
 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43773 96080 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP01	
						Sheet No. 1 of 1			
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20			
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details	
				Depth	No	Type	Results		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.30	1	ES			
Stiff dark brown mottled grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40		1.40 (1.00)	1.00		HSV	120+, 120+, 120+ (Av: 120+)		
Stiff dark grey mottled brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00		3.00 (1.60)	1.60	2	D			
				2.10		HSV	120+, 120+, 120+ (Av: 120+)		
Trial pit terminated at 3.00mbgl.	3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00								
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale		
				PD	PD	11.09.20	NTS		

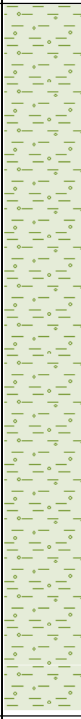
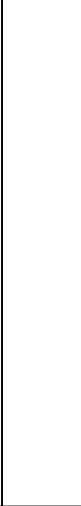
 Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197			Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 443791 296105 Plant: JCB-3CX Dimensions:		TRIAL PIT NO. TP02 Sheet No. 1 of 1 Job No. EAL.02.20		
CLIENT James Madison Homes Limited							
SITE LOCATION Crabtree Farm, Barwell							
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details
				Depth	No	Type	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30		0.30 (0.30)				
Stiff orangish brown slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70		0.70 (0.40)	0.50	1	ES	
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90		1.90 (1.20)	0.90		HSV	120+, 120+, 120+ (Av: 120+)
Stiff dark grey mottled brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50		2.50 (0.60)	1.70	2	D	
Medium dense reddish brown gravelly SAND. Gravel is fine to coarse sub-rounded to rounded quartzite.	2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90		2.90 (0.40)	2.20		HSV	120+, 120+, 120+ (Av: 120+)
Trial pit terminated at 2.90mbgl.	2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00						
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Minor sidewall collapses from 2.50m to 2.90mbgl. 3. Minor water ingress from 2.50mbgl.				Logged By: PD	Checked By: PD	Date: 11.09.20	Scale: NTS

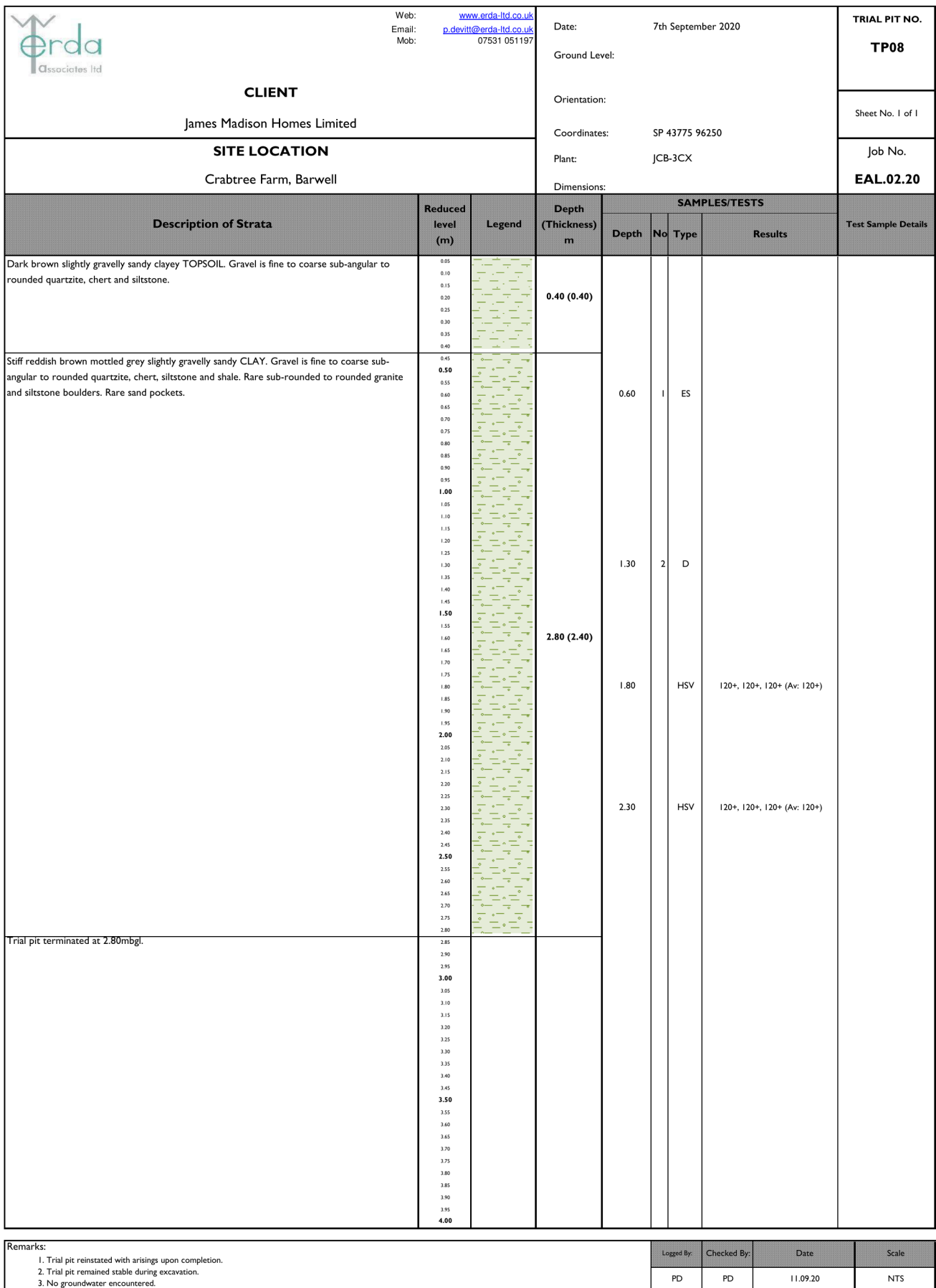


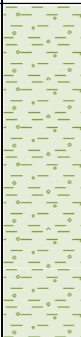
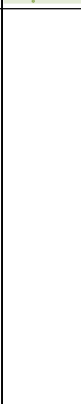
 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43788 96151 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP04
						Sheet No. 1 of 1		
						Job No. EAL.02.20		
SITE LOCATION Crabtree Farm, Barwell								
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.30	1	ES		
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20		1.20 (0.80)					
Stiff dark grey mottled brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70		2.70 (1.50)	1.80		HSV	120+, 120+, 120+ (Av: 120+)	
				2.30	2	D		
Trial pit terminated at 2.70mbgl.	2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale	
				PD	PD	11.09.20	NTS	

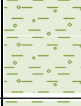
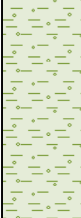


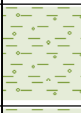
 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43787 96206 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP06
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50		0.50 (0.50)	0.20	1	ES		
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90		2.90 (2.40)	0.90		HSV	120+, 120+, 120+ (Av: 120+)	
Trial pit terminated at 2.90mbgl.	2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00			2.20	2	D		
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.								
				Logged By:	Checked By:	Date:	Scale:	
				PD	PD	11.09.20	NTS	

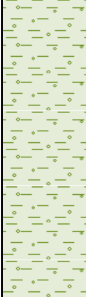
 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43753 96227 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP07
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.10	1	ES		
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50		2.50 (2.10)	0.80	2	D		
Trial pit terminated at 2.50mbgl.	2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By: PD	Checked By: PD	Date: 11.09.20	Scale: NTS	

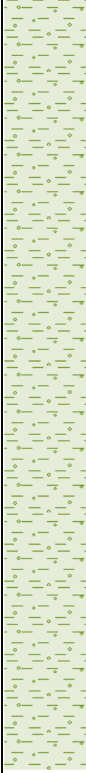


 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43721 96079 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP09
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details	
				Depth	No	Type		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.30	I	ES		
Stiff dark brown mottled grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40		1.40 (1.00)	1.30		HSV	120+, 120+, 119 (Av: 120)	
Stiff dark grey mottled brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	1.45 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80		2.80 (1.40)					
Trial pit terminated at 2.80mbgl.	2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale	
				PD	PD	11.09.20	NTS	

 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43749 96108 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP10	
						Sheet No. 1 of 1			
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20			
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details	
				Depth	No	Type	Results		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.10	1	ES			
Stiff light yellowish brown mottled grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.45 0.50 0.55 0.60 0.65 0.70		0.70 (0.30)	0.50		HSV	120+, 120+, 120+ (Av: 120+)		
Stiff dark brown mottled grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40		1.40 (0.70)						
Stiff dark grey mottled brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20		2.20 (0.80)	1.80	2	D			
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90		2.90 (0.70)	2.30	3	D			
Trial pit terminated at 2.90mbgl.	2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00								
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale		
				PD	PD	11.09.20	NTS		

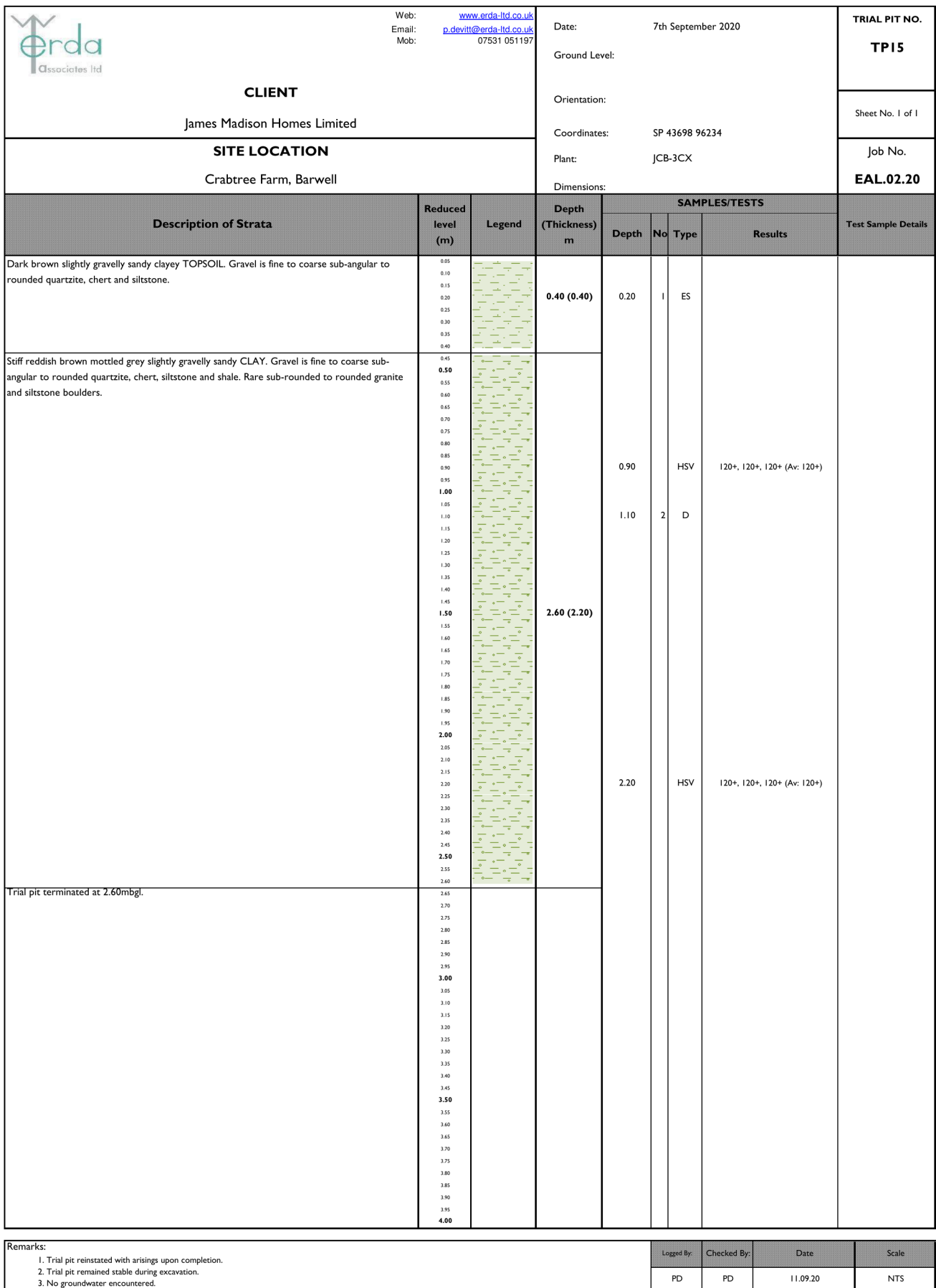
 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43717 96125 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP11
						Sheet No. 1 of 1		
						Job No. EAL.02.20		
SITE LOCATION Crabtree Farm, Barwell								
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)					
Stiff light yellowish brown mottled grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80		0.80 (0.40)					
Stiff dark brown mottled grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.85 0.90 0.95 1.00 1.05 1.10		1.10 (0.30)	0.90 1.00	1	ES HSV	120+, 120+, 120+ (Av: 120+)	
Stiff dark grey mottled brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00		3.00 (1.90)	1.90	2	D		
Trial pit terminated at 3.00mbgl.	3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale	
				PD	PD	11.09.20	NTS	

 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43736 96157 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP12
						Sheet No. 1 of 1		
						Job No. EAL.02.20		
SITE LOCATION Crabtree Farm, Barwell								
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details	
				Depth	No	Type		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.20	1	ES		
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30		1.30 (0.90)	1.10 1.20	2	HSV D	120+, 120+, 120+ (Av: 120+)	
Trial pit terminated at 1.30mbgl.	1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks:				Logged By: PD Checked By: PD Date: 11.09.20 Scale: NTS				

 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43709 96175 Plant: JCB-3CX Dimensions:		TRIAL PIT NO. TP13	
				Sheet No. 1 of 1			
SITE LOCATION Crabtree Farm, Barwell						Job No. EAL.02.20	
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details
				Depth	No	Type	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.10	1	ES	
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70		2.70 (2.30)	1.60		HSV	108, 120+, 120+ (Av: 116)
Trial pit terminated at 2.70mbgl.				2.10	2	D	
	2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00						

Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.	Logged By:	Checked By:	Date	Scale
	PD	PD	11.09.20	NTS

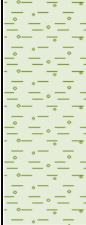
 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43723 96215 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP14
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details	
				Depth	No	Type		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)					
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90			0.60	I	ES		
				1.30		HSV	I20+, I20+, I20+ (Av: I20+)	
Trial pit terminated at 2.90mbgl.	2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date:	Scale:	
				PD	PD	11.09.20	NTS	

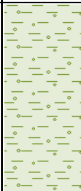


 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 7th September 2020 Ground Level: Orientation: Coordinates: SP 43713 96260 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP16
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details	
				Depth	No	Type		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.30	1	ES		
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale. Rare sub-rounded to rounded granite and siltstone boulders.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50		2.50 (2.10)	1.00 1.30	 2	HSV D	120+, 120+, 120+ (Av: 120+)	
Trial pit terminated at 2.50mbgl.	2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale	
				PD	PD	11.09.20	NTS	

		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 9th September 2020 Ground Level: Orientation: Coordinates: SP 43715 96296 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP32	
CLIENT James Madison Homes Limited								Sheet No. 1 of 1	
SITE LOCATION Crabtree Farm, Barwell								Job No. EAL.02.20	
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details	
				Depth	No	Type	Results		
MADE GROUND comprising dark brown clayey gravelly sand. Gravel is fine to coarse sub-angular to angular brick, concrete and tile fragments. Occasional angular brick and concrete cobbles.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)	0.20	1	ES			
MADE GROUND comprising light orangish brown clayey gravelly sand. Gravel is fine to coarse sub-angular to angular brick, concrete and tile fragments. Occasional angular brick and concrete cobbles.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30		2.30 (1.90)	1.30	2	ES			
Trial pit terminated at 2.30mbgl.	2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00								
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale		
				PD	PD	11.09.20	NTS		

 Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197			Date: 9th September 2020 Ground Level: Orientation: Coordinates: SP 43701 96300 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP33	
CLIENT James Madison Homes Limited							Sheet No. 1 of 1	
SITE LOCATION Crabtree Farm, Barwell							Job No. EAL.02.20	
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
MADE GROUND comprising dark brown clayey gravelly sand. Gravel is fine to coarse sub-angular to angular brick, concrete and tile fragments. Occasional angular brick and concrete cobbles.	0.05 0.10 0.15 0.20 0.25 0.30		0.30 (0.30)					
MADE GROUND comprising light orangish brown gravelly sand. Gravel is fine to coarse sub-angular to angular brick, concrete and tile fragments. Occasional angular brick and concrete cobbles.	0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.40 2.45 2.50 2.55 2.60		2.60 (2.30)	0.50	1	ES		
Medium dense yellowish brown SAND.	2.65 2.70		2.70 (0.10)	2.50	2	ES		
Trial pit terminated at 2.70mbgl.	2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale	
				PD	PD	11.09.20	NTS	

 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 9th September 2020 Ground Level: Orientation: Coordinates: SP 43703 96270 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP34
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
MADE GROUND comprising dark brown slightly gravelly sandy clay. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone. Rare brick fragments.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50		0.50 (0.50)	0.40	1	ES		
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20		1.20 (0.70)					
Trial pit terminated at 1.20mbgl.	1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By: PD	Checked By: PD	Date: 11.09.20	Scale: NTS	

 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 9th September 2020 Ground Level: Orientation: Coordinates: SP 43715 96275 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP35
						Sheet No. 1 of 1		
		SITE LOCATION Crabtree Farm, Barwell				Job No. EAL.02.20		
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details	
				Depth	No	Type		
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30		0.30 (0.30)					
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90		0.90 (0.60)					
Trial pit terminated at 0.90mbgl.	0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date:	Scale:	
				PD	PD	11.09.20	NTS	

 CLIENT James Madison Homes Limited		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 9th September 2020 Ground Level: Orientation: Coordinates: SP 43696 96274 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP36
						Sheet No. 1 of 1		
						Job No. EAL.02.20		
SITE LOCATION Crabtree Farm, Barwell								
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS				Test Sample Details
				Depth	No	Type	Results	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone.	0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40		0.40 (0.40)					
Stiff reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to rounded quartzite, chert, siltstone and shale.	0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20		1.20 (0.80)					
Trial pit terminated at 1.20mbgl.	1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00							
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date:	Scale:	
				PD	PD	11.09.20	NTS	

		Web: www.erda-ltd.co.uk Email: p.devitt@erda-ltd.co.uk Mob: 07531 051197		Date: 9th September 2020 Ground Level: Orientation: Coordinates: SP 43678 96290 Plant: JCB-3CX Dimensions:				TRIAL PIT NO. TP37	
CLIENT James Madison Homes Limited								Sheet No. 1 of 1	
SITE LOCATION Crabtree Farm, Barwell								Job No. EAL.02.20	
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			Test Sample Details		
				Depth	No	Type			
MADE GROUND comprising dark brown slightly gravelly sandy clay. Gravel is fine to coarse sub-angular to rounded quartzite, chert and siltstone. Rare brick and concrete fragments.	0.05 0.10 0.15 0.20 0.25 0.30		0.30 (0.30)	0.20	1	ES			
Medium dense yellowish brown SAND.	0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 1.15 1.20 1.25 1.30 1.35 1.40 1.45 1.50 1.55 1.60 1.65 1.70 1.75 1.80 1.85 1.90 1.95 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50		2.50 (2.20)	1.90	2	D			
				2.30	3	ES			
Trial pit terminated at 2.50mbgl.	2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20 3.25 3.30 3.35 3.40 3.45 3.50 3.55 3.60 3.65 3.70 3.75 3.80 3.85 3.90 3.95 4.00								
Remarks: 1. Trial pit reinstated with arisings upon completion. 2. Trial pit remained stable during excavation. 3. No groundwater encountered.				Logged By:	Checked By:	Date	Scale		
				PD	PD	11.09.20	NTS		

Appendix C





ANALYTICAL TEST REPORT

Contract no: 89261

Contract name: Barwell (Parcel 1 Area)

Client reference: EAL.02.20

Clients name: Erda Associates

Clients address: 102 Scalpcliffe Road
Burton on Trent
Staffordshire
DE15 9AB

Samples received: 14 September 2020

Analysis started: 14 September 2020

Analysis completed: 24 September 2020

Report issued: 24 September 2020

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:

Dave Bowerbank
Customer Support Hero

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
89261-1	TP01	0.30	Sandy Loam with Gravel & Roots	-	-	16.9
89261-2	TP01	1.60	Clay With Gravel	-	-	15.0
89261-3	TP03	0.10	Sandy Loam With Gravel	-	-	16.1
89261-4	TP06	0.20	Sandy Loam With Gravel	-	-	13.8
89261-5	TP07	0.10	Sandy Loam With Gravel	-	-	14.4
89261-6	TP07	0.80	Clay With Gravel	-	-	14.0
89261-7	TP08	0.60	Clay With Gravel	-	-	15.0
89261-8	TP09	0.30	Clay With Gravel	-	-	17.7
89261-10	TP12	0.20	Clayey Sand With Gravel	-	-	19.0
89261-11	TP14	0.60	Clayey Sand With Gravel	-	-	15.8
89261-12	TP15	0.20	Clayey Sand With Gravel & Roots	-	-	18.0
89261-13	TP16	0.30	Clayey Sand With Gravel & Roots	-	-	16.2
89261-14	TP16	1.30	Sandy Clay With Gravel	-	-	13.9
89261-15	TP32	0.20	Clayey Sand With Gravel	-	-	19.2
89261-16	TP32	1.30	Clayey Sand With Gravel	-	-	11.8
89261-17	TP33	0.50	Clayey Sand With Gravel	-	-	11.5
89261-18	TP33	2.50	Clayey Sand With Gravel	-	-	24.9
89261-19	TP37	0.20	Clayey Sand With Gravel	-	-	27.1

Chemtech Environmental Limited

SOILS

Lab number Sample id Depth (m) Date sampled			89261-1 TP01 0.30 07/09/2020	89261-2 TP01 1.60 07/09/2020	89261-3 TP03 0.10 07/09/2020	89261-4 TP06 0.20 07/09/2020	89261-5 TP07 0.10 07/09/2020	89261-6 TP07 0.80 07/09/2020
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	11	-	8.8	7.3	8.5	-
Cadmium (total)	CE127 ^M	mg/kg Cd	0.2	-	<0.2	0.2	0.2	-
Chromium (total)	CE127 ^M	mg/kg Cr	87	-	81	72	79	-
Chromium (VI)	CE146	mg/kg CrVI	<1	-	<1	<1	<1	-
Copper (total)	CE127 ^M	mg/kg Cu	16	-	14	17	18	-
Lead (total)	CE127 ^M	mg/kg Pb	48	-	33	43	42	-
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	-	<0.5	<0.5	<0.5	-
Nickel (total)	CE127 ^M	mg/kg Ni	17	-	16	14	16	-
Selenium (total)	CE127 ^M	mg/kg Se	1.3	-	1.1	1.1	1.2	-
Vanadium (total)	CE127 ^M	mg/kg V	40	-	36	34	35	-
Zinc (total)	CE127 ^M	mg/kg Zn	73	-	58	61	62	-
pH	CE004 ^M	units	6.6	8.1	6.9	6.2	6.0	6.8
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	37	27	11	13	10	12
Sulphate (total)	CE062 ^M	mg/kg SO ₄	508	-	404	569	495	-
Organic matter content (OMC)	CE005	% w/w	5.5	-	4.0	5.3	4.8	-
Estimate of TOC (calculated from OMC)	CE005	% w/w C	3.2	-	2.3	3.1	2.8	-
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Acenaphthylene	CE087 ^M	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Acenaphthene	CE087 ^M	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Fluorene	CE087 ^U	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Phenanthrene	CE087 ^M	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Anthracene	CE087 ^U	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Fluoranthene	CE087 ^M	mg/kg	0.02	-	<0.02	0.06	0.03	-
Pyrene	CE087 ^M	mg/kg	0.02	-	<0.02	0.05	0.03	-
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02	-	<0.02	0.03	<0.02	-
Chrysene	CE087 ^M	mg/kg	<0.03	-	<0.03	0.04	<0.03	-
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02	-	<0.02	0.06	0.03	-
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.03	-	<0.03	<0.03	<0.03	-
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	-	<0.02	0.03	<0.02	-
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	-	<0.02	0.02	<0.02	-
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	-	<0.02	<0.02	<0.02	-
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	-	<0.02	0.02	<0.02	-
PAH (total of USEPA 16)	CE087	mg/kg	<0.34	-	<0.34	<0.34	<0.34	-
TPH								
VPH (>C5-C7)	CE067	mg/kg	-	-	-	-	-	-
VPH (>C7-C8)	CE067	mg/kg	-	-	-	-	-	-
VPH (>C8-C10)	CE067	mg/kg	-	-	-	-	-	-
EPH (>C10-C12)	CE033 ^U	mg/kg	-	-	-	-	-	-
EPH (>C12-C16)	CE033 ^M	mg/kg	-	-	-	-	-	-
EPH (>C16-C21)	CE033 ^M	mg/kg	-	-	-	-	-	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-1 TP01 0.30 07/09/2020	89261-2 TP01 1.60 07/09/2020	89261-3 TP03 0.10 07/09/2020	89261-4 TP06 0.20 07/09/2020	89261-5 TP07 0.10 07/09/2020	89261-6 TP07 0.80 07/09/2020
Test	Method	Units						
EPH (>C21-C35)	CE033 ^M	mg/kg	-	-	-	-	-	-
EPH (>C35-C44)	CE033 ^M	mg/kg	-	-	-	-	-	-
Organochlorine Pesticides								
2,4'-DDD (O,P'-DDD)	CE112	mg/kg	-	-	<0.01	-	-	-
4,4'-DDD (P,P'-DDD)	CE112	mg/kg	-	-	<0.01	-	-	-
2,4'-DDE (O,P'-DDE)	CE112	mg/kg	-	-	<0.01	-	-	-
4,4'-DDE (P,P'-DDE)	CE112	mg/kg	-	-	<0.01	-	-	-
2,4'-DDT (O,P'-DDT)	CE112	mg/kg	-	-	<0.01	-	-	-
4,4'-DDT (P,P'-DDT)	CE112	mg/kg	-	-	<0.01	-	-	-
2,6-Dichlorobenzonitrile	CE112	mg/kg	-	-	<0.01	-	-	-
4,4'-Dichlorobenzophenone	CE112	mg/kg	-	-	<0.01	-	-	-
Aldrin	CE112	mg/kg	-	-	<0.01	-	-	-
Alpha-HCH	CE112	mg/kg	-	-	<0.01	-	-	-
Benfluralin	CE112	mg/kg	-	-	<0.01	-	-	-
Beta-HCH	CE112	mg/kg	-	-	<0.01	-	-	-
Biphenyl	CE112	mg/kg	-	-	<0.01	-	-	-
Chlorfenson	CE112	mg/kg	-	-	<0.01	-	-	-
Chloroneb	CE112	mg/kg	-	-	<0.01	-	-	-
Chlorothalonil	CE112	mg/kg	-	-	<0.01	-	-	-
cis-Chlordane	CE112	mg/kg	-	-	<0.01	-	-	-
cis-Nonachlor	CE112	mg/kg	-	-	<0.01	-	-	-
Delta-HCH	CE112	mg/kg	-	-	<0.01	-	-	-
Dichlofluanid	CE112	mg/kg	-	-	<0.01	-	-	-
Dicloran	CE112	mg/kg	-	-	<0.01	-	-	-
Dicofol	CE112	mg/kg	-	-	<0.01	-	-	-
Dieldrin	CE112	mg/kg	-	-	<0.01	-	-	-
Diphenylamine	CE112	mg/kg	-	-	<0.01	-	-	-
Endosulphan A	CE112	mg/kg	-	-	<0.01	-	-	-
Endosulphan B	CE112	mg/kg	-	-	<0.01	-	-	-
Endosulphan ether	CE112	mg/kg	-	-	<0.01	-	-	-
Endosulphan sulphate	CE112	mg/kg	-	-	<0.01	-	-	-
Endrin	CE112	mg/kg	-	-	<0.01	-	-	-
Endrin aldehyde	CE112	mg/kg	-	-	<0.01	-	-	-
Endrin ketone	CE112	mg/kg	-	-	<0.01	-	-	-
Ethalfuralin	CE112	mg/kg	-	-	<0.01	-	-	-
Fenson	CE112	mg/kg	-	-	<0.01	-	-	-
Gamma-HCH (Lindane)	CE112	mg/kg	-	-	<0.01	-	-	-
HCB	CE112	mg/kg	-	-	<0.01	-	-	-
Heptachlor	CE112	mg/kg	-	-	<0.01	-	-	-
Heptachlor epoxide	CE112	mg/kg	-	-	<0.01	-	-	-
Isodrin	CE112	mg/kg	-	-	<0.01	-	-	-
Isopropalin	CE112	mg/kg	-	-	<0.01	-	-	-

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Lab number Sample id Depth (m) Date sampled			89261-1 TP01 0.30 07/09/2020	89261-2 TP01 1.60 07/09/2020	89261-3 TP03 0.10 07/09/2020	89261-4 TP06 0.20 07/09/2020	89261-5 TP07 0.10 07/09/2020	89261-6 TP07 0.80 07/09/2020
Test	Method	Units						
Methoxychlor	CE112	mg/kg	-	-	<0.01	-	-	-
Methoxychlor olefin	CE112	mg/kg	-	-	<0.01	-	-	-
Mirex	CE112	mg/kg	-	-	<0.01	-	-	-
Nitralin	CE112	mg/kg	-	-	<0.01	-	-	-
Nitrofen	CE112	mg/kg	-	-	<0.01	-	-	-
Oxyfluorfen	CE112	mg/kg	-	-	<0.01	-	-	-
Pendimethalin	CE112	mg/kg	-	-	<0.01	-	-	-
Pentachloroaniline	CE112	mg/kg	-	-	<0.01	-	-	-
Pentachloroanisole	CE112	mg/kg	-	-	<0.01	-	-	-
Pentachlorobenzene	CE112	mg/kg	-	-	<0.01	-	-	-
Pentachlorobenzonitrile	CE112	mg/kg	-	-	<0.01	-	-	-
Pentachloronitrobenzene (Quintozene)	CE112	mg/kg	-	-	<0.01	-	-	-
Pentachlorothioanisole	CE112	mg/kg	-	-	<0.01	-	-	-
Profluralin	CE112	mg/kg	-	-	<0.01	-	-	-
Tetrachloronitrobenzene (Tecnazene)	CE112	mg/kg	-	-	<0.01	-	-	-
Tetradifon	CE112	mg/kg	-	-	<0.01	-	-	-
THPI (Tetrahydrophthalimide)	CE112	mg/kg	-	-	<0.01	-	-	-
Tolyfluanid	CE112	mg/kg	-	-	<0.01	-	-	-
trans-Chlordane	CE112	mg/kg	-	-	<0.01	-	-	-
trans-Nonachlor	CE112	mg/kg	-	-	<0.01	-	-	-
Trifluralin	CE112	mg/kg	-	-	<0.01	-	-	-
Organophosphate Pesticides								
Acephate	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Azinphos ethyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Azinphos methyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Bromophos ethyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Chlorpyrifos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Chlorpyrifos methyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Coumaphos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Demeton-S-methyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Diazinon	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Dichlorvos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Dimethoate	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Disulfoton	CE113	mg/kg	<0.01	-	-	<0.01	-	-
EPN	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Ethion	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Ethoprophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Famphur	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Fenclorophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Fenitrothion	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Fensulfothion	CE113	mg/kg	<0.01	-	-	<0.01	-	-

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Lab number Sample id Depth (m) Date sampled			89261-1 TP01 0.30 07/09/2020	89261-2 TP01 1.60 07/09/2020	89261-3 TP03 0.10 07/09/2020	89261-4 TP06 0.20 07/09/2020	89261-5 TP07 0.10 07/09/2020	89261-6 TP07 0.80 07/09/2020
Test	Method	Units						
Isazophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Malathion	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Merphos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Methamidophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Methidathion	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Methomyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Monocrotophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Naled	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Omethoate	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Parathion	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Parathion methyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Phorate	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Phosalone	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Phosmet	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Pirimiphos ethyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Pirimiphos methyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Profenofos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Prothiophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Pyraclofos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Pyrazophos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Pyridaphention	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Quinalphos	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Sulfotep	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Thiofanox	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Thionazin	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Tolclofos-methyl	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Trichlorfon	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Triethyl thiophosphate	CE113	mg/kg	<0.01	-	-	<0.01	-	-
Acid Herbicides								
2,4-D	CE114	mg/kg	-	-	-	-	-	-
2,4,5-T	CE114	mg/kg	-	-	-	-	-	-
2,4-DB	CE114	mg/kg	-	-	-	-	-	-
Acifluorfen	CE114	mg/kg	-	-	-	-	-	-
Bentazon	CE114	mg/kg	-	-	-	-	-	-
Bromoxynil	CE114	mg/kg	-	-	-	-	-	-
Chloramben	CE114	mg/kg	-	-	-	-	-	-
Dalapon	CE114	mg/kg	-	-	-	-	-	-
Dicamba	CE114	mg/kg	-	-	-	-	-	-
3,5-Dichlorobenzoic acid (DBA)	CE114	mg/kg	-	-	-	-	-	-
Dichlorprop (2,4-DP)	CE114	mg/kg	-	-	-	-	-	-
Dinoseb (DNBP)	CE114	mg/kg	-	-	-	-	-	-
2,4,5-TP	CE114	mg/kg	-	-	-	-	-	-

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SOILS

Lab number			89261-1	89261-2	89261-3	89261-4	89261-5	89261-6
Sample id			TP01	TP01	TP03	TP06	TP07	TP07
Depth (m)			0.30	1.60	0.10	0.20	0.10	0.80
Date sampled			07/09/2020	07/09/2020	07/09/2020	07/09/2020	07/09/2020	07/09/2020
Test	Method	Units						
Fluroxypyr	CE114	mg/kg	-	-	-	-	-	-
Imazapyr	CE114	mg/kg	-	-	-	-	-	-
Ioxynil	CE114	mg/kg	-	-	-	-	-	-
MCPA	CE114	mg/kg	-	-	-	-	-	-
Mecoprop (MCP)	CE114	mg/kg	-	-	-	-	-	-
Pentachlorophenol	CE114	mg/kg	-	-	-	-	-	-
Picloram	CE114	mg/kg	-	-	-	-	-	-
2,3,6-TBA	CE114	mg/kg	-	-	-	-	-	-
4-Chlorophenoxyacetic acid (4-CPA)	CE114	mg/kg	-	-	-	-	-	-
Phenoxyacetic acid	CE114	mg/kg	-	-	-	-	-	-
Propanil (DCPA)	CE114	mg/kg	-	-	-	-	-	-
DCPA diacid	CE114	mg/kg	-	-	-	-	-	-
Organonitrogen Pesticides								
Ametryn	CE210	µg/l	-	-	-	-	-	-
Atraton	CE210	µg/l	-	-	-	-	-	-
Atrazine	CE210	µg/l	-	-	-	-	-	-
Prometon	CE210	µg/l	-	-	-	-	-	-
Prometryn	CE210	µg/l	-	-	-	-	-	-
Propazine	CE210	µg/l	-	-	-	-	-	-
Simazine	CE210	µg/l	-	-	-	-	-	-
Simetryn	CE210	µg/l	-	-	-	-	-	-
Terbutylazine	CE210	µg/l	-	-	-	-	-	-
Terbutryn	CE210	µg/l	-	-	-	-	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	-	-	-	-	-	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-7 TP08 0.60 07/09/2020	89261-8 TP09 0.30 07/09/2020	89261-10 TP12 0.20 07/09/2020	89261-11 TP14 0.60 07/09/2020	89261-12 TP15 0.20 07/09/2020	89261-13 TP16 0.30 07/09/2020
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	8.2	13	9.1	10	8.9	8.2
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	<0.2	0.2	0.2	0.2	0.2
Chromium (total)	CE127 ^M	mg/kg Cr	91	80	83	84	93	85
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	22	16	18	18	18	18
Lead (total)	CE127 ^M	mg/kg Pb	20	31	36	25	40	46
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	38	22	22	30	16	16
Selenium (total)	CE127 ^M	mg/kg Se	2.1	1.6	1.5	1.8	1.2	1.2
Vanadium (total)	CE127 ^M	mg/kg V	60	53	43	55	36	36
Zinc (total)	CE127 ^M	mg/kg Zn	72	66	64	60	67	68
pH	CE004 ^M	units	6.5	6.1	6.3	6.4	6.1	6.1
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	<10	10	11	15	51	14
Sulphate (total)	CE062 ^M	mg/kg SO ₄	108	445	421	279	656	458
Organic matter content (OMC)	CE005	% w/w	3.2	4.9	4.9	3.6	6.5	4.9
Estimate of TOC (calculated from OMC)	CE005	% w/w C	1.9	2.8	2.9	2.1	3.7	2.8
PAH								
Naphthalene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	CE087 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Phenanthrene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	CE087 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	CE087 ^M	mg/kg	<0.02	<0.02	0.03	<0.02	0.04	0.04
Pyrene	CE087 ^M	mg/kg	<0.02	<0.02	0.02	<0.02	0.03	0.03
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
Chrysene	CE087 ^M	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Benzo(b)fluoranthene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	0.03	0.03
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PAH (total of USEPA 16)	CE087	mg/kg	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
TPH								
VPH (>C5-C7)	CE067	mg/kg	-	-	-	-	-	-
VPH (>C7-C8)	CE067	mg/kg	-	-	-	-	-	-
VPH (>C8-C10)	CE067	mg/kg	-	-	-	-	-	-
EPH (>C10-C12)	CE033 ^U	mg/kg	-	-	-	-	-	-
EPH (>C12-C16)	CE033 ^M	mg/kg	-	-	-	-	-	-
EPH (>C16-C21)	CE033 ^M	mg/kg	-	-	-	-	-	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-7 TP08 0.60 07/09/2020	89261-8 TP09 0.30 07/09/2020	89261-10 TP12 0.20 07/09/2020	89261-11 TP14 0.60 07/09/2020	89261-12 TP15 0.20 07/09/2020	89261-13 TP16 0.30 07/09/2020
Test	Method	Units						
EPH (>C21-C35)	CE033 ^M	mg/kg	-	-	-	-	-	-
EPH (>C35-C44)	CE033 ^M	mg/kg	-	-	-	-	-	-
Organochlorine Pesticides								
2,4'-DDD (O,P'-DDD)	CE112	mg/kg	-	-	-	-	-	-
4,4'-DDD (P,P'-DDD)	CE112	mg/kg	-	-	-	-	-	-
2,4'-DDE (O,P'-DDE)	CE112	mg/kg	-	-	-	-	-	-
4,4'-DDE (P,P'-DDE)	CE112	mg/kg	-	-	-	-	-	-
2,4'-DDT (O,P'-DDT)	CE112	mg/kg	-	-	-	-	-	-
4,4'-DDT (P,P'-DDT)	CE112	mg/kg	-	-	-	-	-	-
2,6-Dichlorobenzonitrile	CE112	mg/kg	-	-	-	-	-	-
4,4'-Dichlorobenzophenone	CE112	mg/kg	-	-	-	-	-	-
Aldrin	CE112	mg/kg	-	-	-	-	-	-
Alpha-HCH	CE112	mg/kg	-	-	-	-	-	-
Benfluralin	CE112	mg/kg	-	-	-	-	-	-
Beta-HCH	CE112	mg/kg	-	-	-	-	-	-
Biphenyl	CE112	mg/kg	-	-	-	-	-	-
Chlorfenson	CE112	mg/kg	-	-	-	-	-	-
Chloroneb	CE112	mg/kg	-	-	-	-	-	-
Chlorothalonil	CE112	mg/kg	-	-	-	-	-	-
cis-Chlordane	CE112	mg/kg	-	-	-	-	-	-
cis-Nonachlor	CE112	mg/kg	-	-	-	-	-	-
Delta-HCH	CE112	mg/kg	-	-	-	-	-	-
Dichlofluanid	CE112	mg/kg	-	-	-	-	-	-
Dicloran	CE112	mg/kg	-	-	-	-	-	-
Dicofol	CE112	mg/kg	-	-	-	-	-	-
Dieldrin	CE112	mg/kg	-	-	-	-	-	-
Diphenylamine	CE112	mg/kg	-	-	-	-	-	-
Endosulphan A	CE112	mg/kg	-	-	-	-	-	-
Endosulphan B	CE112	mg/kg	-	-	-	-	-	-
Endosulphan ether	CE112	mg/kg	-	-	-	-	-	-
Endosulphan sulphate	CE112	mg/kg	-	-	-	-	-	-
Endrin	CE112	mg/kg	-	-	-	-	-	-
Endrin aldehyde	CE112	mg/kg	-	-	-	-	-	-
Endrin ketone	CE112	mg/kg	-	-	-	-	-	-
Ethalfuralin	CE112	mg/kg	-	-	-	-	-	-
Fenson	CE112	mg/kg	-	-	-	-	-	-
Gamma-HCH (Lindane)	CE112	mg/kg	-	-	-	-	-	-
HCB	CE112	mg/kg	-	-	-	-	-	-
Heptachlor	CE112	mg/kg	-	-	-	-	-	-
Heptachlor epoxide	CE112	mg/kg	-	-	-	-	-	-
Isodrin	CE112	mg/kg	-	-	-	-	-	-
Isopropalin	CE112	mg/kg	-	-	-	-	-	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-7 TP08 0.60 07/09/2020	89261-8 TP09 0.30 07/09/2020	89261-10 TP12 0.20 07/09/2020	89261-11 TP14 0.60 07/09/2020	89261-12 TP15 0.20 07/09/2020	89261-13 TP16 0.30 07/09/2020
Test	Method	Units						
Methoxychlor	CE112	mg/kg	-	-	-	-	-	-
Methoxychlor olefin	CE112	mg/kg	-	-	-	-	-	-
Mirex	CE112	mg/kg	-	-	-	-	-	-
Nitralin	CE112	mg/kg	-	-	-	-	-	-
Nitrofen	CE112	mg/kg	-	-	-	-	-	-
Oxyfluorfen	CE112	mg/kg	-	-	-	-	-	-
Pendimethalin	CE112	mg/kg	-	-	-	-	-	-
Pentachloroaniline	CE112	mg/kg	-	-	-	-	-	-
Pentachloroanisole	CE112	mg/kg	-	-	-	-	-	-
Pentachlorobenzene	CE112	mg/kg	-	-	-	-	-	-
Pentachlorobenzonitrile	CE112	mg/kg	-	-	-	-	-	-
Pentachloronitrobenzene (Quintozone)	CE112	mg/kg	-	-	-	-	-	-
Pentachlorothioanisole	CE112	mg/kg	-	-	-	-	-	-
Profluralin	CE112	mg/kg	-	-	-	-	-	-
Tetrachloronitrobenzene (Tecnazene)	CE112	mg/kg	-	-	-	-	-	-
Tetradifon	CE112	mg/kg	-	-	-	-	-	-
THPI (Tetrahydrophthalimide)	CE112	mg/kg	-	-	-	-	-	-
Tolyfluanid	CE112	mg/kg	-	-	-	-	-	-
trans-Chlordane	CE112	mg/kg	-	-	-	-	-	-
trans-Nonachlor	CE112	mg/kg	-	-	-	-	-	-
Trifluralin	CE112	mg/kg	-	-	-	-	-	-
Organophosphate Pesticides								
Acephate	CE113	mg/kg	-	-	-	-	-	-
Azinphos ethyl	CE113	mg/kg	-	-	-	-	-	-
Azinphos methyl	CE113	mg/kg	-	-	-	-	-	-
Bromophos ethyl	CE113	mg/kg	-	-	-	-	-	-
Chlorpyrifos	CE113	mg/kg	-	-	-	-	-	-
Chlorpyrifos methyl	CE113	mg/kg	-	-	-	-	-	-
Coumaphos	CE113	mg/kg	-	-	-	-	-	-
Demeton-S-methyl	CE113	mg/kg	-	-	-	-	-	-
Diazinon	CE113	mg/kg	-	-	-	-	-	-
Dichlorvos	CE113	mg/kg	-	-	-	-	-	-
Dimethoate	CE113	mg/kg	-	-	-	-	-	-
Disulfoton	CE113	mg/kg	-	-	-	-	-	-
EPN	CE113	mg/kg	-	-	-	-	-	-
Ethion	CE113	mg/kg	-	-	-	-	-	-
Ethoprophos	CE113	mg/kg	-	-	-	-	-	-
Famphur	CE113	mg/kg	-	-	-	-	-	-
Fenclorophos	CE113	mg/kg	-	-	-	-	-	-
Fenitrothion	CE113	mg/kg	-	-	-	-	-	-
Fensulfothion	CE113	mg/kg	-	-	-	-	-	-

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SOILS

Lab number			89261-7	89261-8	89261-10	89261-11	89261-12	89261-13
Sample id			TP08	TP09	TP12	TP14	TP15	TP16
Depth (m)			0.60	0.30	0.20	0.60	0.20	0.30
Date sampled			07/09/2020	07/09/2020	07/09/2020	07/09/2020	07/09/2020	07/09/2020
Test	Method	Units						
Isazophos	CE113	mg/kg	-	-	-	-	-	-
Malathion	CE113	mg/kg	-	-	-	-	-	-
Merphos	CE113	mg/kg	-	-	-	-	-	-
Methamidophos	CE113	mg/kg	-	-	-	-	-	-
Methidathion	CE113	mg/kg	-	-	-	-	-	-
Methomyl	CE113	mg/kg	-	-	-	-	-	-
Monocrotophos	CE113	mg/kg	-	-	-	-	-	-
Naled	CE113	mg/kg	-	-	-	-	-	-
Omethoate	CE113	mg/kg	-	-	-	-	-	-
Parathion	CE113	mg/kg	-	-	-	-	-	-
Parathion methyl	CE113	mg/kg	-	-	-	-	-	-
Phorate	CE113	mg/kg	-	-	-	-	-	-
Phosalone	CE113	mg/kg	-	-	-	-	-	-
Phosmet	CE113	mg/kg	-	-	-	-	-	-
Pirimiphos ethyl	CE113	mg/kg	-	-	-	-	-	-
Pirimiphos methyl	CE113	mg/kg	-	-	-	-	-	-
Profenofos	CE113	mg/kg	-	-	-	-	-	-
Prothiophos	CE113	mg/kg	-	-	-	-	-	-
Pyraclofos	CE113	mg/kg	-	-	-	-	-	-
Pyrazophos	CE113	mg/kg	-	-	-	-	-	-
Pyridaphention	CE113	mg/kg	-	-	-	-	-	-
Quinalphos	CE113	mg/kg	-	-	-	-	-	-
Sulfotep	CE113	mg/kg	-	-	-	-	-	-
Thiofanox	CE113	mg/kg	-	-	-	-	-	-
Thionazin	CE113	mg/kg	-	-	-	-	-	-
Tolclofos-methyl	CE113	mg/kg	-	-	-	-	-	-
Trichlorfon	CE113	mg/kg	-	-	-	-	-	-
Triethyl thiophosphate	CE113	mg/kg	-	-	-	-	-	-
Acid Herbicides								
2,4-D	CE114	mg/kg	-	-	-	-	<0.01	-
2,4,5-T	CE114	mg/kg	-	-	-	-	<0.01	-
2,4-DB	CE114	mg/kg	-	-	-	-	<0.01	-
Acifluorfen	CE114	mg/kg	-	-	-	-	<0.01	-
Bentazon	CE114	mg/kg	-	-	-	-	<0.01	-
Bromoxynil	CE114	mg/kg	-	-	-	-	<0.01	-
Chloramben	CE114	mg/kg	-	-	-	-	<0.01	-
Dalapon	CE114	mg/kg	-	-	-	-	<0.01	-
Dicamba	CE114	mg/kg	-	-	-	-	<0.01	-
3,5-Dichlorobenzoic acid (DBA)	CE114	mg/kg	-	-	-	-	<0.01	-
Dichlorprop (2,4-DP)	CE114	mg/kg	-	-	-	-	<0.01	-
Dinoseb (DNBP)	CE114	mg/kg	-	-	-	-	<0.01	-
2,4,5-TP	CE114	mg/kg	-	-	-	-	<0.01	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-7 TP08 0.60 07/09/2020	89261-8 TP09 0.30 07/09/2020	89261-10 TP12 0.20 07/09/2020	89261-11 TP14 0.60 07/09/2020	89261-12 TP15 0.20 07/09/2020	89261-13 TP16 0.30 07/09/2020
Test	Method	Units						
Fluroxypyr	CE114	mg/kg	-	-	-	-	<0.01	-
Imazapyr	CE114	mg/kg	-	-	-	-	<0.01	-
Ioxynil	CE114	mg/kg	-	-	-	-	<0.01	-
MCPA	CE114	mg/kg	-	-	-	-	<0.01	-
Mecoprop (MCP)	CE114	mg/kg	-	-	-	-	<0.01	-
Pentachlorophenol	CE114	mg/kg	-	-	-	-	<0.01	-
Picloram	CE114	mg/kg	-	-	-	-	<0.01	-
2,3,6-TBA	CE114	mg/kg	-	-	-	-	<0.01	-
4-Chlorophenoxyacetic acid (4-CPA)	CE114	mg/kg	-	-	-	-	<0.01	-
Phenoxyacetic acid	CE114	mg/kg	-	-	-	-	<0.01	-
Propanil (DCPA)	CE114	mg/kg	-	-	-	-	<0.01	-
DCPA diacid	CE114	mg/kg	-	-	-	-	<0.01	-
Organonitrogen Pesticides								
Ametryn	CE210	µg/l	-	-	<0.01	-	-	-
Atraton	CE210	µg/l	-	-	<0.01	-	-	-
Atrazine	CE210	µg/l	-	-	<0.01	-	-	-
Prometon	CE210	µg/l	-	-	<0.01	-	-	-
Prometryn	CE210	µg/l	-	-	<0.01	-	-	-
Propazine	CE210	µg/l	-	-	<0.01	-	-	-
Simazine	CE210	µg/l	-	-	<0.01	-	-	-
Simetryn	CE210	µg/l	-	-	<0.01	-	-	-
Terbutylazine	CE210	µg/l	-	-	<0.01	-	-	-
Terbutryn	CE210	µg/l	-	-	<0.01	-	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	-	-	-	-	-	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-14 TP16 1.30 07/09/2020	89261-15 TP32 0.20 09/09/2020	89261-16 TP32 1.30 09/09/2020	89261-17 TP33 0.50 09/09/2020	89261-18 TP33 2.50 09/09/2020	89261-19 TP37 0.20 09/09/2020
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	-	11	6.7	7.1	17	5.3
Cadmium (total)	CE127 ^M	mg/kg Cd	-	4.4	0.3	0.8	0.6	0.3
Chromium (total)	CE127 ^M	mg/kg Cr	-	62	108	91	93	58
Chromium (VI)	CE146	mg/kg CrVI	-	<1	<1	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	-	75	21	42	184	29
Lead (total)	CE127 ^M	mg/kg Pb	-	365	44	120	230	54
Mercury (total)	CE127 ^M	mg/kg Hg	-	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	-	30	26	24	36	10
Selenium (total)	CE127 ^M	mg/kg Se	-	1.7	1.4	0.9	1.6	0.6
Vanadium (total)	CE127 ^M	mg/kg V	-	35	43	30	47	18
Zinc (total)	CE127 ^M	mg/kg Zn	-	434	77	174	293	86
pH	CE004 ^M	units	7.6	7.6	7.6	7.6	7.5	6.3
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	18	17	14	16	40	26
Sulphate (total)	CE062 ^M	mg/kg SO ₄	-	656	224	560	905	930
Organic matter content (OMC)	CE005	% w/w	-	8.2	2.6	4.7	11.1	43.2
Estimate of TOC (calculated from OMC)	CE005	% w/w C	-	4.8	1.5	2.7	6.4	25.0
PAH								
Naphthalene	CE087 ^M	mg/kg	-	<0.02	<0.02	<0.02	0.02	<0.02
Acenaphthylene	CE087 ^M	mg/kg	-	0.09	<0.02	<0.02	0.05	<0.02
Acenaphthene	CE087 ^M	mg/kg	-	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	CE087 ^U	mg/kg	-	0.03	<0.02	<0.02	<0.02	<0.02
Phenanthrene	CE087 ^M	mg/kg	-	0.39	0.16	0.06	0.27	0.06
Anthracene	CE087 ^U	mg/kg	-	0.20	0.04	0.03	0.08	0.02
Fluoranthene	CE087 ^M	mg/kg	-	1.03	0.38	0.18	0.90	0.16
Pyrene	CE087 ^M	mg/kg	-	0.96	0.34	0.16	0.84	0.16
Benzo(a)anthracene	CE087 ^U	mg/kg	-	0.61	0.18	0.10	0.51	0.09
Chrysene	CE087 ^M	mg/kg	-	0.66	0.20	0.12	0.54	0.10
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	1.14	0.25	0.17	0.72	0.13
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	0.37	0.10	0.06	0.27	0.05
Benzo(a)pyrene	CE087 ^U	mg/kg	-	0.71	0.18	0.10	0.47	0.09
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	0.75	0.18	0.11	0.42	0.06
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	0.13	0.03	<0.02	0.05	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	0.72	0.16	0.11	0.37	0.06
PAH (total of USEPA 16)	CE087	mg/kg	-	7.81	2.20	1.19	5.50	0.99
TPH								
VPH (>C5-C7)	CE067	mg/kg	-	-	-	<0.1	<0.1	-
VPH (>C7-C8)	CE067	mg/kg	-	-	-	<0.1	<0.1	-
VPH (>C8-C10)	CE067	mg/kg	-	-	-	<0.1	<0.1	-
EPH (>C10-C12)	CE033 ^U	mg/kg	-	-	-	<4	<4	-
EPH (>C12-C16)	CE033 ^M	mg/kg	-	-	-	<4	<4	-
EPH (>C16-C21)	CE033 ^M	mg/kg	-	-	-	14	22	-

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SOILS

Lab number			89261-14	89261-15	89261-16	89261-17	89261-18	89261-19
Sample id			TP16	TP32	TP32	TP33	TP33	TP37
Depth (m)			1.30	0.20	1.30	0.50	2.50	0.20
Date sampled			07/09/2020	09/09/2020	09/09/2020	09/09/2020	09/09/2020	09/09/2020
Test	Method	Units						
EPH (>C21-C35)	CE033 ^M	mg/kg	-	-	-	203	150	-
EPH (>C35-C44)	CE033 ^M	mg/kg	-	-	-	125	68	-
Organochlorine Pesticides								
2,4'-DDD (O,P'-DDD)	CE112	mg/kg	-	-	-	-	-	-
4,4'-DDD (P,P'-DDD)	CE112	mg/kg	-	-	-	-	-	-
2,4'-DDE (O,P'-DDE)	CE112	mg/kg	-	-	-	-	-	-
4,4'-DDE (P,P'-DDE)	CE112	mg/kg	-	-	-	-	-	-
2,4'-DDT (O,P'-DDT)	CE112	mg/kg	-	-	-	-	-	-
4,4'-DDT (P,P'-DDT)	CE112	mg/kg	-	-	-	-	-	-
2,6-Dichlorobenzonitrile	CE112	mg/kg	-	-	-	-	-	-
4,4'-Dichlorobenzophenone	CE112	mg/kg	-	-	-	-	-	-
Aldrin	CE112	mg/kg	-	-	-	-	-	-
Alpha-HCH	CE112	mg/kg	-	-	-	-	-	-
Benfluralin	CE112	mg/kg	-	-	-	-	-	-
Beta-HCH	CE112	mg/kg	-	-	-	-	-	-
Biphenyl	CE112	mg/kg	-	-	-	-	-	-
Chlorfenson	CE112	mg/kg	-	-	-	-	-	-
Chloroneb	CE112	mg/kg	-	-	-	-	-	-
Chlorothalonil	CE112	mg/kg	-	-	-	-	-	-
cis-Chlordane	CE112	mg/kg	-	-	-	-	-	-
cis-Nonachlor	CE112	mg/kg	-	-	-	-	-	-
Delta-HCH	CE112	mg/kg	-	-	-	-	-	-
Dichlofluanid	CE112	mg/kg	-	-	-	-	-	-
Dicloran	CE112	mg/kg	-	-	-	-	-	-
Dicofol	CE112	mg/kg	-	-	-	-	-	-
Dieldrin	CE112	mg/kg	-	-	-	-	-	-
Diphenylamine	CE112	mg/kg	-	-	-	-	-	-
Endosulphan A	CE112	mg/kg	-	-	-	-	-	-
Endosulphan B	CE112	mg/kg	-	-	-	-	-	-
Endosulphan ether	CE112	mg/kg	-	-	-	-	-	-
Endosulphan sulphate	CE112	mg/kg	-	-	-	-	-	-
Endrin	CE112	mg/kg	-	-	-	-	-	-
Endrin aldehyde	CE112	mg/kg	-	-	-	-	-	-
Endrin ketone	CE112	mg/kg	-	-	-	-	-	-
Ethalfuralin	CE112	mg/kg	-	-	-	-	-	-
Fenson	CE112	mg/kg	-	-	-	-	-	-
Gamma-HCH (Lindane)	CE112	mg/kg	-	-	-	-	-	-
HCB	CE112	mg/kg	-	-	-	-	-	-
Heptachlor	CE112	mg/kg	-	-	-	-	-	-
Heptachlor epoxide	CE112	mg/kg	-	-	-	-	-	-
Isodrin	CE112	mg/kg	-	-	-	-	-	-
Isopropalin	CE112	mg/kg	-	-	-	-	-	-

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SOILS

Lab number Sample id Depth (m) Date sampled			89261-14 TP16 1.30 07/09/2020	89261-15 TP32 0.20 09/09/2020	89261-16 TP32 1.30 09/09/2020	89261-17 TP33 0.50 09/09/2020	89261-18 TP33 2.50 09/09/2020	89261-19 TP37 0.20 09/09/2020
Test	Method	Units						
Methoxychlor	CE112	mg/kg	-	-	-	-	-	-
Methoxychlor olefin	CE112	mg/kg	-	-	-	-	-	-
Mirex	CE112	mg/kg	-	-	-	-	-	-
Nitralin	CE112	mg/kg	-	-	-	-	-	-
Nitrofen	CE112	mg/kg	-	-	-	-	-	-
Oxyfluorfen	CE112	mg/kg	-	-	-	-	-	-
Pendimethalin	CE112	mg/kg	-	-	-	-	-	-
Pentachloroaniline	CE112	mg/kg	-	-	-	-	-	-
Pentachloroanisole	CE112	mg/kg	-	-	-	-	-	-
Pentachlorobenzene	CE112	mg/kg	-	-	-	-	-	-
Pentachlorobenzonitrile	CE112	mg/kg	-	-	-	-	-	-
Pentachloronitrobenzene (Quintozene)	CE112	mg/kg	-	-	-	-	-	-
Pentachlorothioanisole	CE112	mg/kg	-	-	-	-	-	-
Profluralin	CE112	mg/kg	-	-	-	-	-	-
Tetrachloronitrobenzene (Tecnazene)	CE112	mg/kg	-	-	-	-	-	-
Tetradifon	CE112	mg/kg	-	-	-	-	-	-
THPI (Tetrahydrophthalimide)	CE112	mg/kg	-	-	-	-	-	-
Tolyfluanid	CE112	mg/kg	-	-	-	-	-	-
trans-Chlordane	CE112	mg/kg	-	-	-	-	-	-
trans-Nonachlor	CE112	mg/kg	-	-	-	-	-	-
Trifluralin	CE112	mg/kg	-	-	-	-	-	-
Organophosphate Pesticides								
Acephate	CE113	mg/kg	-	-	-	-	-	-
Azinphos ethyl	CE113	mg/kg	-	-	-	-	-	-
Azinphos methyl	CE113	mg/kg	-	-	-	-	-	-
Bromophos ethyl	CE113	mg/kg	-	-	-	-	-	-
Chlorpyrifos	CE113	mg/kg	-	-	-	-	-	-
Chlorpyrifos methyl	CE113	mg/kg	-	-	-	-	-	-
Coumaphos	CE113	mg/kg	-	-	-	-	-	-
Demeton-S-methyl	CE113	mg/kg	-	-	-	-	-	-
Diazinon	CE113	mg/kg	-	-	-	-	-	-
Dichlorvos	CE113	mg/kg	-	-	-	-	-	-
Dimethoate	CE113	mg/kg	-	-	-	-	-	-
Disulfoton	CE113	mg/kg	-	-	-	-	-	-
EPN	CE113	mg/kg	-	-	-	-	-	-
Ethion	CE113	mg/kg	-	-	-	-	-	-
Ethoprophos	CE113	mg/kg	-	-	-	-	-	-
Famphur	CE113	mg/kg	-	-	-	-	-	-
Fenclorophos	CE113	mg/kg	-	-	-	-	-	-
Fenitrothion	CE113	mg/kg	-	-	-	-	-	-
Fensulfothion	CE113	mg/kg	-	-	-	-	-	-

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SOILS

Lab number			89261-14	89261-15	89261-16	89261-17	89261-18	89261-19
Sample id			TP16	TP32	TP32	TP33	TP33	TP37
Depth (m)			1.30	0.20	1.30	0.50	2.50	0.20
Date sampled			07/09/2020	09/09/2020	09/09/2020	09/09/2020	09/09/2020	09/09/2020
Test	Method	Units						
Isazophos	CE113	mg/kg	-	-	-	-	-	-
Malathion	CE113	mg/kg	-	-	-	-	-	-
Merphos	CE113	mg/kg	-	-	-	-	-	-
Methamidophos	CE113	mg/kg	-	-	-	-	-	-
Methidathion	CE113	mg/kg	-	-	-	-	-	-
Methomyl	CE113	mg/kg	-	-	-	-	-	-
Monocrotophos	CE113	mg/kg	-	-	-	-	-	-
Naled	CE113	mg/kg	-	-	-	-	-	-
Omethoate	CE113	mg/kg	-	-	-	-	-	-
Parathion	CE113	mg/kg	-	-	-	-	-	-
Parathion methyl	CE113	mg/kg	-	-	-	-	-	-
Phorate	CE113	mg/kg	-	-	-	-	-	-
Phosalone	CE113	mg/kg	-	-	-	-	-	-
Phosmet	CE113	mg/kg	-	-	-	-	-	-
Pirimiphos ethyl	CE113	mg/kg	-	-	-	-	-	-
Pirimiphos methyl	CE113	mg/kg	-	-	-	-	-	-
Profenofos	CE113	mg/kg	-	-	-	-	-	-
Prothiophos	CE113	mg/kg	-	-	-	-	-	-
Pyraclofos	CE113	mg/kg	-	-	-	-	-	-
Pyrazophos	CE113	mg/kg	-	-	-	-	-	-
Pyridaphention	CE113	mg/kg	-	-	-	-	-	-
Quinalphos	CE113	mg/kg	-	-	-	-	-	-
Sulfotep	CE113	mg/kg	-	-	-	-	-	-
Thiofanox	CE113	mg/kg	-	-	-	-	-	-
Thionazin	CE113	mg/kg	-	-	-	-	-	-
Tolclofos-methyl	CE113	mg/kg	-	-	-	-	-	-
Trichlorfon	CE113	mg/kg	-	-	-	-	-	-
Triethyl thiophosphate	CE113	mg/kg	-	-	-	-	-	-
Acid Herbicides								
2,4-D	CE114	mg/kg	-	-	-	-	-	-
2,4,5-T	CE114	mg/kg	-	-	-	-	-	-
2,4-DB	CE114	mg/kg	-	-	-	-	-	-
Acifluorfen	CE114	mg/kg	-	-	-	-	-	-
Bentazon	CE114	mg/kg	-	-	-	-	-	-
Bromoxynil	CE114	mg/kg	-	-	-	-	-	-
Chloramben	CE114	mg/kg	-	-	-	-	-	-
Dalapon	CE114	mg/kg	-	-	-	-	-	-
Dicamba	CE114	mg/kg	-	-	-	-	-	-
3,5-Dichlorobenzoic acid (DBA)	CE114	mg/kg	-	-	-	-	-	-
Dichlorprop (2,4-DP)	CE114	mg/kg	-	-	-	-	-	-
Dinoseb (DNBP)	CE114	mg/kg	-	-	-	-	-	-
2,4,5-TP	CE114	mg/kg	-	-	-	-	-	-

Chemtech Environmental Limited

SOILS

Lab number			89261-14	89261-15	89261-16	89261-17	89261-18	89261-19
Sample id			TP16	TP32	TP32	TP33	TP33	TP37
Depth (m)			1.30	0.20	1.30	0.50	2.50	0.20
Date sampled			07/09/2020	09/09/2020	09/09/2020	09/09/2020	09/09/2020	09/09/2020
Test	Method	Units						
Fluroxypyr	CE114	mg/kg	-	-	-	-	-	-
Imazapyr	CE114	mg/kg	-	-	-	-	-	-
Ioxynil	CE114	mg/kg	-	-	-	-	-	-
MCPA	CE114	mg/kg	-	-	-	-	-	-
Mecoprop (MCP)	CE114	mg/kg	-	-	-	-	-	-
Pentachlorophenol	CE114	mg/kg	-	-	-	-	-	-
Picloram	CE114	mg/kg	-	-	-	-	-	-
2,3,6-TBA	CE114	mg/kg	-	-	-	-	-	-
4-Chlorophenoxyacetic acid (4-CPA)	CE114	mg/kg	-	-	-	-	-	-
Phenoxyacetic acid	CE114	mg/kg	-	-	-	-	-	-
Propanil (DCPA)	CE114	mg/kg	-	-	-	-	-	-
DCPA diacid	CE114	mg/kg	-	-	-	-	-	-
Organonitrogen Pesticides								
Ametryn	CE210	µg/l	-	-	-	-	-	-
Atraton	CE210	µg/l	-	-	-	-	-	-
Atrazine	CE210	µg/l	-	-	-	-	-	-
Prometon	CE210	µg/l	-	-	-	-	-	-
Prometryn	CE210	µg/l	-	-	-	-	-	-
Propazine	CE210	µg/l	-	-	-	-	-	-
Simazine	CE210	µg/l	-	-	-	-	-	-
Simetryn	CE210	µg/l	-	-	-	-	-	-
Terbutylazine	CE210	µg/l	-	-	-	-	-	-
Terbutryn	CE210	µg/l	-	-	-	-	-	-
Subcontracted analysis								
Asbestos (qualitative)	\$	-	-	NAD	NAD	NAD	NAD	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Vanadium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg V
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO ₄
CE005	Organic matter content (OMC)	Based on BS 1377, Colorimetry	Dry		0.1	% w/w
CE005	Estimate of TOC (calculated from OMC)	Calculation from Organic Matter Content	Dry		0.1	% w/w C
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE067	VPH (>C7-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE033	EPH (>C10-C35)	Solvent extraction, GC-FID	As received		7	mg/kg
CE033	EPH (>C10-C12)	Solvent extraction, GC-FID	As received	U	4	mg/kg
CE033	EPH (>C12-C16)	Solvent extraction, GC-FID	As received	M	4	mg/kg
CE033	EPH (>C16-C21)	Solvent extraction, GC-FID	As received	M	4	mg/kg
CE033	EPH (>C21-C35)	Solvent extraction, GC-FID	As received	M	6	mg/kg
CE033	EPH (>C35-C44)	Solvent extraction, GC-FID	As received	M	10	mg/kg
CE112	2,4'-DDD (O,P'-DDD)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	4,4'-DDD (P,P'-DDD)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	2,4'-DDE (O,P'-DDE)	Solvent extraction, GC-MS	As received		0.01	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE112	4,4'-DDE (P,P'-DDE)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	2,4'-DDT (O,P'-DDT)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	4,4'-DDT (P,P'-DDT)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	2,6-Dichlorobenzonitrile	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	4,4'-Dichlorobenzophenone	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Aldrin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Alpha-HCH	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Benfluralin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Beta-HCH	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Biphenyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Chlorfenson	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Chloroneb	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Chlorothalonil	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	cis-Chlordane	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	cis-Nonachlor	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Delta-HCH	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Dichlofluanid	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Dicloran	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Dicofol	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Dieldrin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Diphenylamine	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endosulphan A	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endosulphan B	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endosulphan ether	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endosulphan sulphate	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endrin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endrin aldehyde	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Endrin ketone	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Ethalfuralin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Fenson	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Gamma-HCH (Lindane)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	HCB	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Heptachlor	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Heptachlor epoxide	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Isodrin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Isopropalin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Methoxychlor	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Methoxychlor olefin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Mirex	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Nitralin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Nitrofen	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Oxyfluorfen	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Pendimethalin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Pentachloroaniline	Solvent extraction, GC-MS	As received		0.01	mg/kg

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE112	Pentachloroanisole	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Pentachlorobenzene	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Pentachlorobenzonitrile	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Pentachloronitrobenzene (Quintozone)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Pentachlorothioanisole	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Prodiamine	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Profluralin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Tetrachloronitrobenzene (Tecnazene)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Tetradifon	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	THPI (Tetrahydrophthalimide)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Tolyfluanid	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	trans-Chlordane	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	trans-Nonachlor	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE112	Trifluralin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Acephate	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Azinphos ethyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Azinphos methyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Bromophos ethyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Chlorpyrifos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Chlorpyrifos methyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Coumaphos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Demeton-S-methyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Diazinon	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Dichlorvos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Dimethoate	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Disulfoton	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	EPN	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Ethion	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Ethoprophos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Famphur	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Fenchlorphos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Fenitrothion	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Fensulfothion	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Isazophos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Malathion	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Merphos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Methamidophos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Methidathion	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Methomyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Monocrotophos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Naled	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Omethoate	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Parathion	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Parathion methyl	Solvent extraction, GC-MS	As received		0.01	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE113	Phorate	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Phosalone	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Phosmet	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Pirimiphos ethyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Pirimiphos methyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Profenofos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Prothiophos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Pyraclofos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Pyrazophos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Pyridaphention	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Quinalphos	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Sulfotep	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Thiofanox	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Thionazin	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Tolclofos-methyl	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Trichlorfon	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE113	Triethyl thiophosphate	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	2,4-D	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	2,4,5-T	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	2,4-DB	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Acifluorfen	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Bentazon	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Bromoxynil	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Chloramben	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Dalapon	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Dicamba	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	3,5-Dichlorobenzoic acid (DBA)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Dichlorprop (2,4-DP)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Dinoseb (DNBP)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	2,4,5-TP	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Fluroxypyr	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Imazapyr	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Ioxynil	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	MCPA	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Mecoprop (MCP)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Pentachlorophenol	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Picloram	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	2,3,6-TBA	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	4-Chlorophenoxyacetic acid (4-CPA)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Phenoxyacetic acid	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	Propanil (DCPA)	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE114	DCPA diacid	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Ametryn	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Atraton	Solvent extraction, GC-MS	As received		0.01	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE210	Atrazine	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Prometon	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Prometryn	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Propazine	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Simazine	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Simetryn	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Terbutylazine	Solvent extraction, GC-MS	As received		0.01	mg/kg
CE210	Terbutryn	Solvent extraction, GC-MS	As received		0.01	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
89261-1	TP01	0.30	N	
89261-2	TP01	1.60	N	
89261-3	TP03	0.10	N	
89261-4	TP06	0.20	N	
89261-5	TP07	0.10	N	
89261-6	TP07	0.80	N	
89261-7	TP08	0.60	N	
89261-8	TP09	0.30	N	
89261-10	TP12	0.20	N	
89261-11	TP14	0.60	N	
89261-12	TP15	0.20	N	
89261-13	TP16	0.30	N	
89261-14	TP16	1.30	N	
89261-15	TP32	0.20	N	
89261-16	TP32	1.30	N	
89261-17	TP33	0.50	N	
89261-18	TP33	2.50	N	
89261-19	TP37	0.20	N	



LABORATORY REPORT



4043

Contract Number: PSL20/4985

Report Date: 23 September 2020

Client's Reference: 89261

Client Name: Chemtech Environmental on behalf of Erda Associates Ltd
102 Scalpcliffe Road
Burton on Trent
Staffordshire
DE15 9AB

For the attention of: Phil Devitt

Contract Title: Barwell

Date Received: 21/9/2020

Date Commenced: 21/9/2020

Date Completed: 23/9/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

S Royle
(Laboratory Manager)

A Watkins
(Director)

S Eyre
(Senior Technician)

R Berriman
(Quality Manager)

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(Senior Technician)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL

Professional Soils Laboratory

Barwell

Contract No:

PSL20/4985

Client Ref:

89261

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



4043

PSL

Professional Soils Laboratory

Barwell

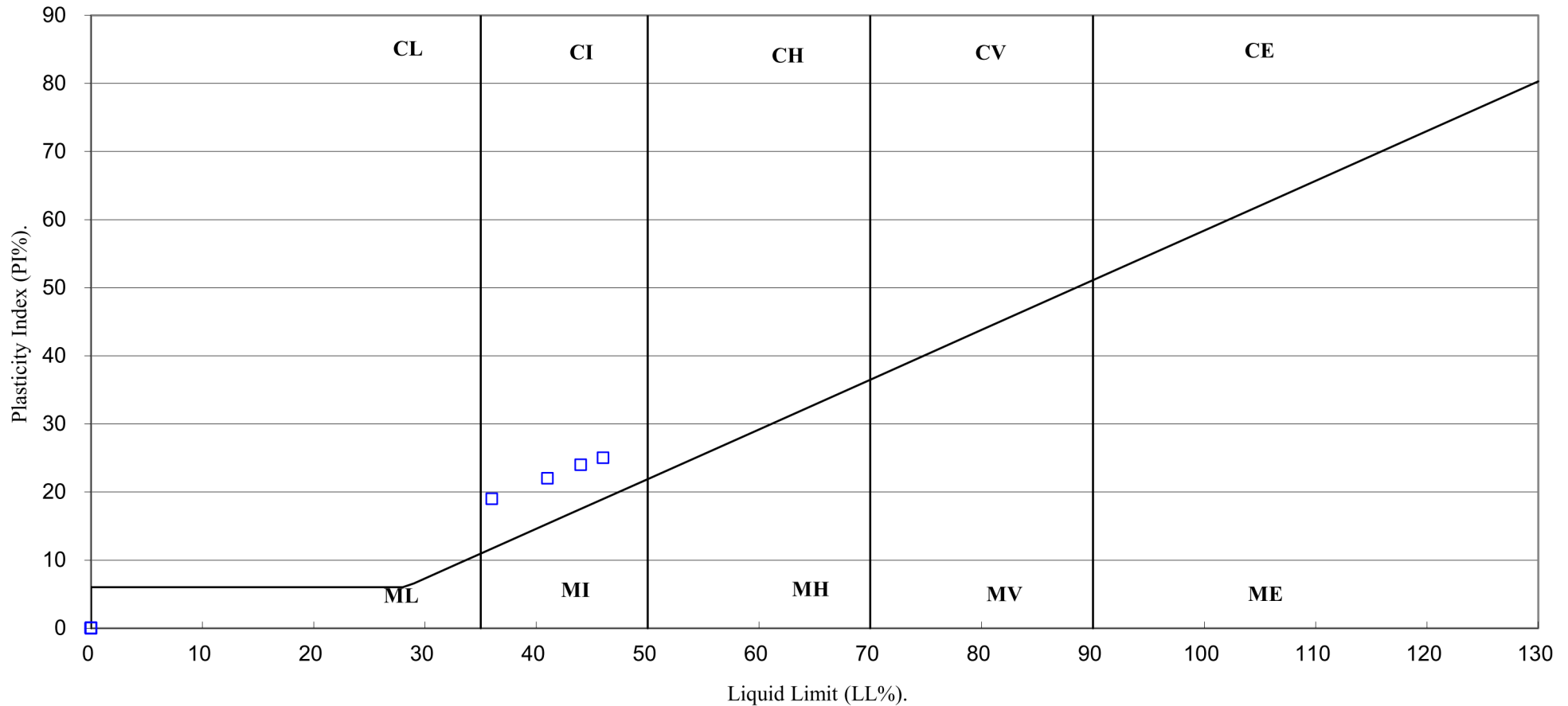
Contract No:

PSL20/4985

Client Ref:

89261

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL

Professional Soils Laboratory

Barwell

Contract No:

PSL20/4985

Client Ref:

89261

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

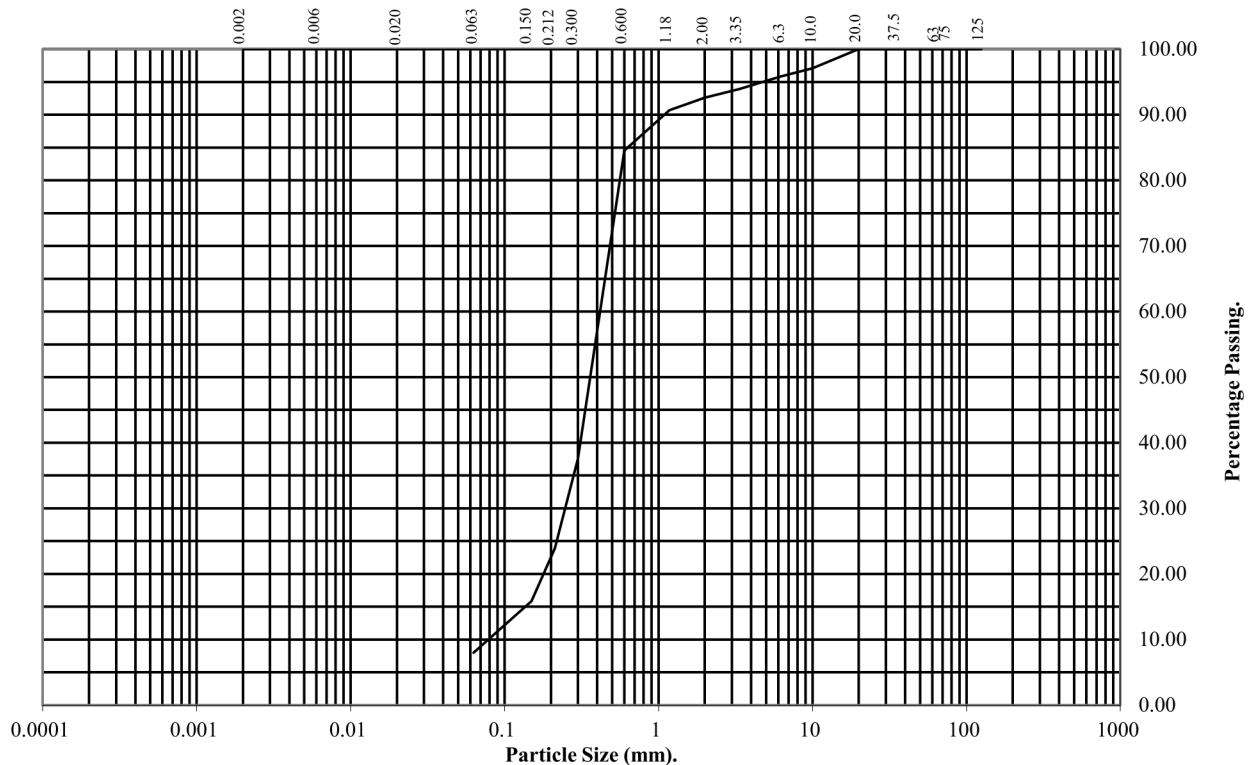
Hole Number: TP37

Top Depth (m): 1.90

Sample Number:

Base Depth(m):

Sample Type: D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	96
3.35	94
2	93
1.18	91
0.6	85
0.3	38
0.212	24
0.15	16
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	85
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Barwell

Contract No:
PSL20/4985
Client Ref:
89261

Appendix D



Tier 1 Assessment Criteria

Determinand	Residential With Produce	Residential Without Produce	Allotments	Commercial (Office)	Commercial (Warehouse)
Arsenic	32.40	35.00	43.00	635.00	635.00
Cadmium	5.17	17.70	1.05	230.00	230.00
Mercury, elemental	1.02	1.02	316.00	109.00	83.40
Mercury, inorganic	169.00	238.00	80.30	3640.00	3640.00
Mercury, methyl	11.40	14.10	7.97	407.00	409.00
Selenium	350.00	595.00	121.00	13000.00	13000.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toulene	611.00	2710.00	118.00	189000.00	166000.00
Lead	210.00	210.00	84.00	2300.00	2300.00
Nickel	130.00	130*	180.00	980.00	980.00
Total Cyanide	34.00	34.00			
Benzo(a)pyrene	3.00	3.20	3.50	36.00	14.40
Dibenz(ah)anthracene	0.30	0.32	0.43	3.60	13.00
Acenaphthene	1100.00	6000.00	200.00	100000.00	103000.00
Acenaphthylene	920.00	6000.00	160.00	100000.00	103000.00
Anthracene	11000.00	37000.00	2200.00	540000.00	542000.00
Benzo(a)anthracene	13.00	15.00	13.00	180.00	97.50
Benzo(b)fluoranthene	3.70	4.00	3.90	45.00	103.00
Benzo(ghi)perylene	350.00	360.00	640.00	4000.00	661.00
Benzo(k)fluoranthene	100.00	110.00	130.00	1200.00	144.00
Chrysene	27.00	32.00	19.00	350.00	143.00
Fluoranthene	890.00	1600.00	290.00	23000.00	22700.00
Fluorene	860.00	4500.00	160.00	71000.00	70700.00
Indeno(123cd)pyrene	41.00	46.00	39.00	510.00	61.70
Phenanthrene	440.00	1500.00	90.00	23000.00	22600.00
Pyrene	2000.00	3800.00	620.00	54000.00	54500.00
Naphthalene	13.00	13.00	24.00	1100.00	875.00
Chromium VI	3.38	4.12	2.11	34.20	34.20
Chromium III	627.00	627.00	15300.00	8840.00	8840.00
Copper	2330.00	6200*	524.00	71700.00	71700.00
Vanadium	79.00	226.00	17.90	5590.00	5590.00
Zinc	3750.00	40400*	618.00	665000.00	665000.00

Note:

All figures are in mg/kg

Values calculated using CLEA v1.071

Soil type chosen is sandy loam, pH 7

All organic determinands calculated using 6% SOM

PAH = S4UL (except warehouse model - CLEA v1.071)

* Phytotoxic assessment based on pH range of <6.0 to >7.0, Copper = 100-200mg/kg, Nickel=60-110mg/kg, Zinc = 200-300mg/kg

Tier 1 Assessment Criteria

Determinand	Residential With Produce	Residential Without Produce	Allotments	Commercial (Office)	Commercial (Warehouse)
Benzene	0.33	1.00	0.07	94.70	80.30
Ethylbenzene	354.00	843.00	91.20	65700.00	55600.00
Phenol	415.00	519.00	282.00	37600.00	38000.00
Toulene	611.00	2710.00	118.00	189000.00	166000.00
Xylene, o-	246.00	321.00	159.00	34600.00	27600.00
Xylene, m-	240.00	302.00	175.00	32700.00	26100.00
Xylene, p-	228.00	288.00	164.00	31400.00	25100.00
Aliphatic C5-C6	113.00	113.00	3910.00	12800.00	10800.00
Aliphatic C6-C8	48.10	48.20	13300.00	5470.00	4620.00
Aliphatic C8-C10	108.00	109.00	1710.00	11900.00	10200.00
Aliphatic C10-C12	537.00	538.00	7280.00	49300.00	43700.00
Aliphatic C12-C16	3030.00	3040.00	13400.00	90500.00	89600.00
Aliphatic C16-C35	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aliphatic C35-C44	88400.00	89100.00	281000.00	1910000.00	1910000.00
Aromatic C5-C7	275.00	978.00	57.30	89900.00	76800.00
Aromatic C7-C8	611.00	2710.00	118.00	189000.00	166000.00
Aromatic C8-C10	151.00	189.00	50.50	17800.00	15700.00
Aromatic C10-C12	346.00	866.00	73.80	34500.00	33800.00
Aromatic C12-C16	593.00	1710.00	134.00	37800.00	37800.00
Aromatic C16-C21	770.00	1340.00	260.00	28600.00	28600.00
Aromatic C21-C35	1230.00	1340.00	1550.00	28600.00	28600.00
Aromatic C35-C44	1230.00	1340.00	1550.00	28600.00	28600.00
Combined Aliphatic and Aromatic C44-C70	1300.00	1340.00	2950.00	28600.00	28600.00

Note:

All figures are in mg/kg

Values calculated using CLEA v1.071

Soil type chosen is sandy loam, pH 7

All organic determinands calculated using 6% SOM