

Cultech Limited

CULTECH LTD, PORT TALBOT

Geoenvironmental Site Investigation Report

12307/RAH/20/SI

CLIENT: Cultech Limited

PROJECT: Cultech Ltd, Port Talbot

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1.0 INTRODUCTION

1.1 GENERAL

Cultech Limited have recently constructed a vehicle maintenance workshop and propose to construct an extension to an existing unit within Baglan Industrial Park. Two planning applications (one retrospective and one prospective) have been submitted to Neath and Port Talbot County Borough Council for the two commercial buildings.

The intended retention of the workshop and construction of the extension require site investigation in order to assess the nature and extent of any contamination affecting the application site area(s).

A desk study was previously carried out for the site and reference should be made to Desk Study Report (Ref: 12307/LP/18/DS) dated October 2018.

Intégral Géotechnique (Wales) Limited have been appointed as the Geotechnical Engineers to undertake a site investigation to enable a geoenvironmental appraisal of the site.

This report presents the findings of the site investigation and provides recommendations with regard to geoenvironmental aspects of the project, in particular to address planning condition 2 of two planning applications:

- Planning Application No.: P2019/5517, registered 5th November 2019
- Planning Application No.: P2020/0770, registered 7th September 2020

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1.2 PROPOSED DEVELOPMENT

Vehicle Maintenance Garage

A vehicle maintenance workshop has recently been constructed in the south-west of the site, to the north-east of a previously existing large commercial building, known as Unit 34. The structure is approximately 55m long by 10m wide. The surrounding area comprises hardstanding/chippings for car parking.

1.2 PROPOSED DEVELOPMENT (CONTINUED)

Reference has been made to the following drawings completed by Buckmaster Batcup Architects Ltd:

- Site Block plan, dated October 2019. DWG No.: BBA/658.4.P.03B
- Plans/Elevation, dated February 2019. DWG No.: BBA/658.4.P.02

Side extension to Unit 2

Cultech Ltd are proposing to construct an extension to an existing unit, known as Unit 2, in the northeast of the site for commercial use. Reference has been made to a Site Location Plan dated February 2019 which depicts the outline of the proposed building. The drawing was completed by Buckmasters Batcup Architects, DWG No.: BBA/658.2.P.01D.

The building is indicated to be a small rectangular extension to the north-east of the current unit.

1.3 SCOPE OF WORKS

Following a Desk Study completed by Intégral Géotechnique in October 2018 (report reference: 12307/LP/18/DS), this Site Investigation comprised the following:

The site investigation included:

- An intrusive investigation carried out during November 2020 comprising 7No. dynamic windowless sampling boreholes
- Sampling of fill for laboratory chemical testing
- Sampling of stockpiled materials for laboratory chemical testing
- Gas monitoring for concentrations of methane, carbon dioxide, oxygen, hydrocarbon vapours and gas flow.

1.4 LIMITATIONS

This document is intended to be a working document for further development in discussion with all concerned including the Local Planning Authority, and Natural Resources Wales, as appropriate.

“Contamination” is taken throughout the report to mean the “presence of one or more potentially harmful substances as a result of human activity”. The use of the term in this way does not imply that harm is being or might be caused by the contamination. It should be noted that “contamination” can have different meanings under different regulatory regimes, for example, planning, building control and Part IIA of the Environmental Protection Act 1990.

1.4 LIMITATIONS (CONTINUED)

Naturally elevated concentrations of potentially harmful substances may also be of concern and the significance of any that have been found is also evaluated in this report.

It is important to recognise that there may be areas of contamination that have not been found, or that contaminants are present at concentrations above those that have been found. It is also important to recognise that contamination may be localised and that no investigation, however comprehensive, is capable of finding such occurrences other than by chance.

It should also be noted that vertical and lateral changes in ground conditions may be present between exploratory hole locations.

Access for the intrusive site investigation was limited at the time due to the existing vehicle maintenance workshop which had been constructed at the time of the investigation and storage containers, generators and associated structures located between Unit 34 and the new workshop. Active services were also underlying the site.

In the north of the site, a concrete slab was present beneath the parking area adjacent to Unit 2 (underlying paving slabs), which could not be penetrated, therefore locations WS02 and WS03 were undertaken along the edge of Unit 2 within a narrow gravel channel.

2.0 THE SITE

2.1 SITE LOCATION AND DESCRIPTION

The site is located within Baglan Industrial Park approximately 1.5km northwest of Port Talbot at a National Grid Reference of 275082, 190962.

The site is irregular in shape and the existing units and surrounding land occupies an area of approximately 3.8 hectares. The boundaries of the site are defined by Aberavon Road to the southwest, an undeveloped area of Aberavon Moors, partially used for parking and Christchurch Road to the northwest and existing units within Baglan Industrial Park to the northeast and southeast. A site plan is presented in Figure 1.

The site is situated on relatively level ground at an approximate elevation of 7m AOD.

The southwest portion of the site, is currently occupied by an existing commercial unit (Unit 34) with areas of hardstanding to the northwest and southwest of the building. The hardstanding area to the southwest is used as a car parking area for employees and visitors. The area to the northwest of Unit 34 is used for external storage with several vehicles and mixed materials stored in the area. The vehicle maintenance workshop was present at the time of the investigation, comprising a single rectangular building with corrugated metal exterior and several cars stored inside. The hardstanding area to the southwest of Unit 34 is used as a car parking area for employees and visitors. An electric substation is located within the yard area to the northwest of the building.

The northeast portion of the site is occupied by two smaller units with associated areas of hardstanding and block paving. The area to the northeast of Unit 2 comprised vacant land covered by a combination of hardstanding and block paving, used as a parking/loading area.

The remainder of the site is undeveloped and mainly covered with scrub vegetation with the southwest and southeast boundaries of the site lined with mature trees. A raised plateau of exposed made ground/fill was located in the southeast corner of the site at the time of the investigation, with stockpiles of material also present in this area.

2.2 SITE OPERATIONS

At the time of the investigation the site was operating as a food supplement manufacturer. Unit 2 in the north comprised a workshop unit and the vehicle maintenance workshop in the south was in use with a number of cars being stored and repaired inside.

2.2 SITE OPERATIONS (CONTINUED)

The area of the proposed extension to Unit 2 was vacant.

The area surrounding the vehicle maintenance workshop was largely vacant to the north, east and south, with the exception of several cars/vehicles parked in the area. The area to the southwest of the vehicle maintenance workshop was surfaced by a concrete slab with several storage units (shipping containers and skips) present and generators in the north.

2.3 SURROUNDING LAND USE

The surrounding areas form the rest of Baglan Industrial Park with the buildings all used for various commercial uses.

2.4 AVAILABLE SITE INVESTIGATION DATA

Intégral Géotechnique completed a desk study of the site in 2018 and the findings are included in Desk Study Report (Ref: 12307/LP/18/DS) dated October 2018. The desk study was completed on the full site area detailed in Figure 2 and provided a basis for the design of future site investigations within the site.

There is no available intrusive site investigation data for the site itself to our knowledge.

The British Geological Survey (BGS) have borehole information for areas in the vicinity of the site which is likely to have similar ground conditions. Available boreholes indicate up to 5m of made ground generally comprising dark grey and black granular materials containing slag and ash. The made ground was indicated to overlie soft silty sandy clays with lenses of sand and peat which in turn overlie dense sandy gravels at depths of approximately 15m to 20m.

Baglan Industrial Park occupies an area of former coastal marshland. Prior to development the site was drained by a system of ditches allowing rough grazing. In the late 1970's blast furnace slag from Margam Steelworks was tipped over most of the site to depths of between 1m and 3m.

2.5 CONSULTATIONS WITH REGULATORS

Two planning applications have been made to the Local Authority, one for the vehicle maintenance garage and one for a proposed side extension to Unit 2.

The following planning applications have been referred to:

2.5 CONSULTATIONS WITH REGULATORS (CONTINUED)

Planning Application No.: P2019/5517, registered 5th November 2019

This application relates to the proposed 'Retention of detached vehicle maintenance workshop and laying of stone chippings to form hardstanding/storage and vehicle access areas.'

Neath Port Talbot County Borough Council have granted approval of full planning permission subject to compliance with several conditions. The existing desk study is relevant to Condition 2 part i.

Condition 2: No further development shall commence on site until an assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the Local Planning Authority. This assessment must be carried out by or under the direction of a suitably qualified competent person in accordance with BS10175 (2011) 'Investigation of Potentially Contaminated Sites Code of Practice' and shall assess any contamination on the site, whether or not it originates on the site. The report of the findings shall include:

This includes the following:

- i) A desk top study and establishment of a conceptual site model (CSM)
- ii) An intrusive investigation to assess the extent, scale and nature of contamination which may be present
- iii) An assessment of the potential risks to various receptors including human health, controlled waters and adjoining land
- iv) An appraisal of remedial options, and justification for the preferred remedial option(s)

Reference should be made to the planning application for further details, see Appendix A.

Planning Application No.: P2020/0770, registered 7th September 2020

This application relates to the proposed construction of a 'Single storey side extension to existing unit' (Unit 2).

Neath Port Talbot County Borough Council have granted approval of full planning permission subject to compliance with several conditions. The existing desk study is relevant to Condition 2 part i.

Condition 2: No further development shall commence on site until an assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the Local Planning Authority.

2.5 CONSULTATIONS WITH REGULATORS (CONTINUED)

This assessment must be carried out by or under the direction of a suitably qualified competent person in accordance with BS10175 (2011) 'Investigation of Potentially Contaminated Sites Code of Practice' and shall assess any contamination on the site, whether or not it originates on the site. The report of the findings shall include:

This includes the following:

- i) A desk top study and establishment of a conceptual site model (CSM)
- ii) An intrusive investigation to assess the extent, scale and nature of contamination which may be present
- iii) An assessment of the potential risks to various receptors including human health, controlled waters and adjoining land
- iv) An appraisal of remedial options, and justification for the preferred remedial option(s)

Reference should be made to the planning application for further details, see Appendix A.

A Scope of Proposed Site Investigation Works was produced in November 2020 and submitted to Neath Port Talbot County Borough Council for review (Report ref: 12307/RAH/20/ScSI). The purpose of the report was to provide a detailed scope of works to be carried out in order to provide a site investigation to address Planning Condition 2 part ii) of each planning application. Following consultations with the Environmental Health Officer (EHO) at Neath Port Talbot County Borough Council, the scope of site investigation works was agreed.

3.0 PRELIMINARY CONCEPTUAL SITE MODEL

3.1 RISK ASSESSMENT FRAMEWORK

In order to be consistent with current UK government policies and legislation, it is necessary to identify, assess, estimate, evaluate, and take appropriate action to deal with land contamination, in accordance with the procedures specified in the Environment Agency guidance Land Contamination Risk Management (LCRM) published in October 2020. This replaces the now withdrawn 'Model Procedures for the Management of Land Contamination CLR-11' (Environment Agency 2004).

The risk assessment process is designed to provide a reasoned, structured and pragmatic mechanism for the identification of any potential human health and controlled waters risks associated with land contamination and where necessary to develop a robust remediation strategy to ensure protection of the sensitive receptors (human health of future residents, controlled waters, etc).

In accordance with LCRM, the term 'land contamination' is defined as:

- All land affected by contamination – land that might have contamination present which may, or may or may not, meet the statutory definition of contaminated land,
- Land determined as contaminated land under Part 2A of the Environmental Protection Act 1990.

LCRM provides a tiered approach to risk assessment, comprising a preliminary risk assessment (including the development of an initial conceptual site model), a generic quantitative risk assessment and a detailed quantitative risk assessment. For each tier of risk assessment, the following steps must be followed:

1. Identify the hazard - establish contaminant sources,
2. Assess the hazard – use a source-pathway-receptor linkage approach to determine if there is potential for unacceptable risk,
3. Estimate the risk – predict what degree of harm or pollution may result and how likely it is to occur, and
4. Evaluate the risk – decide whether a risk is unacceptable.

LCRM also provides definitions of the following terms:

- Hazard – a property or situation that in particular circumstances could lead to harm or pollution,

3.1 RISK ASSESSMENT FRAMEWORK (CONTINUED)

- Risk – a combination of the probability, or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence,
- Risk assessment – the formal process of identifying, assessing and evaluating the health and environmental risks that may be associated with a hazard,
- Risk management – the formal process to identify, assess and determine the risks, and to select and take action to mitigate them.

The three essential elements to any risk are defined by LCRM as follows:

- A contaminant, or pollutant, that is in, on, or under the land and that has the potential to cause harm, or pollution (Source)
- A route by which a receptor is, or could be affected by a contaminant (Pathway)
- A receptor, i.e. something that could be adversely affected by a contaminant, for example a person, controlled waters, an organism, an ecosystem, or Part 2A receptors such as buildings, crops or animals (Receptor).

In order for there to be a potential risk, all three of the above elements must be present. If there is a source of contamination and a receptor (for example a resident or site user), then there is only a potential risk if there is a pathway linking the two. Such an active pathway is known as a relevant pollutant linkage. It is possible for the same contaminant to be linked to a receptor via a number of pathways, and hence it is important that all relevant pollutant linkages, to both human health and controlled waters, are separately identified on a site in order that a comprehensive conceptual model can be formed and ultimately a robust remediation strategy designed.

Current practice during Generic Quantitative Risk Assessment of land affected by contamination is to use generic soil screening values based on the appropriate proposed end use. These usually comprise risk based Soil Guideline values (SGVs) or Generic Assessment Criteria (GACs) derived by the Environment Agency's Contaminated Land Exposure Assessment Model (CLEA). The SGVs and the supporting technical guidance were developed in order to assist in the assessment of long term risk to human health from the exposure to contaminated soils.

Revised Statutory Guidance, published in 2012, to support Part 2A of the Environmental Protection Act 1990, introduced a new four category system for classifying land under Part 2A. Category 1 includes land where the level of risk is clearly unacceptable and Category 4 includes land where the level of risk posed is considered to be acceptably low. Under Part 2A, land would be determined as contaminated if it falls within Categories 1 or 2.

3.1 RISK ASSESSMENT FRAMEWORK (CONTINUED)

The revised Part 2A Statutory Guidance was accompanied by an Impact Assessment that identified a role for new 'Category 4 Screening Levels' (C4SLs) that would provide a simple test for determining when land is suitable for use and definitely not contaminated land. A Policy Companion Document including the C4SLs was published in March 2014 (England) and May 2014 (Wales).

The C4SLs have been based on the CLEA methodology and derived using the CLEA model, with modified toxicological and exposure parameters. To date, C4SLs have been released for six substances (arsenic, cadmium, chromium (VI), lead, benzo(a)pyrene and benzene).

The C4SLs have been derived on the assumption that where they exist, they will be used as generic screening criteria within generic quantitative risk assessment.

Following publication of the C4SLs, Land Quality Management (LQM), in conjunction with the Chartered Institute for Environmental Health (CIEH) released Suitable 4 Use Levels (S4ULs) in January 2015.

The S4ULs have been derived in accordance with UK legislation, and using a modified version of the Environment Agency's CLEA software. As such, the S4ULs are based on the concept of minimal or tolerable risk as described in Human Health Toxicological Assessment of Contaminants in Soil (Science Report SR2, Environment Agency 2009a).

S4ULs have been derived for a wider number of substances.

In addition to the existing SGVs, C4SLs and S4ULs, Atkins ATRISK^{soil} also provide a set of Soil Screening Values. These are currently intended to be used in conjunction with SGVs, although they intend to update these values in line with the C4SLs in due course.

We have reviewed all sets of values and intend to use the most appropriate assessment criteria as Tier 1 screening values in the first instance. Where a published S4UL is available, and considered appropriate, this will be used in the first instance.

3.2 CONCEPTUAL MODEL FRAMEWORK

The preliminary stage of the risk assessment process is to develop and define a conceptual site model, based on the desk study and any existing site investigation data. This is used to establish any potential contaminant sources, identify existing and future receptors and assess if there are any potentially active pathways by which a potential risk may be present.

3.2 CONCEPTUAL MODEL FRAMEWORK (CONTINUED)

The preliminary conceptual site model will be developed and refined as site specific data is gathered, such as actual ground conditions and chemical data, resulting in a more robust conceptual understanding of the site.

3.3 CRITICAL SENSITIVE RECEPTOR – HUMAN HEALTH

The vehicle maintenance workshop and the proposed extension to Unit 2 are for continued commercial end use. Therefore, the critical sensitive receptor from a human health perspective is an on site commercial receptor.

In accordance with S4UL/C4SL and CLEA guidance for a standard commercial scenario, the critical sensitive receptor for a commercial end use risk assessment is a female adult, with exposure from 16 to 65 years.

The standard commercial end use conceptual model defined by S4UL/C4SL and CLEA is assumed to be suitable for the purposes of this assessment.

3.4 CRITICAL SENSITIVE RECEPTOR – CONTROLLED WATERS

Based on the continued commercial end use of the site and the findings of the desk study, the critical sensitive receptor from a controlled water perspective is groundwater within the Secondary 'A' Aquifer of the South Wales Middle Coal Measures Formation.

By considering groundwater as the critical sensitive receptor for controlled waters, the groundwater/hydrogeological risk assessment will also be protective of the canal feature which crosses the northwest boundary of the site.

3.5 POTENTIAL CONTAMINANT SOURCES

As identified in the desk study the site remained undeveloped until the 1980's. By the 1980's there was evidence of reprofiling and raising of the topography of the site and the surrounding low lying areas which would have involved the use of imported fill. The site was subsequently developed by the 1990's with three commercial units, associated infrastructure and also an electrical substation.

The potential types of contaminants of concern are listed below:

3.5 POTENTIAL CONTAMINANT SOURCES (CONTINUED)

- Metals, semi-metals, and inorganics within the shallow made ground;
- Polyaromatic hydrocarbons (PAH) within the shallow made ground;
- Asbestos within the shallow made ground.

The site investigation has been designed to address the above identified potential sources.

In addition, the anticipated thickness of made ground anticipated beneath the site alongside the potential for organic materials (peat) to be present within the underlying tidal flat deposits, indicates a risk of on-site ground gas migration to the proposed development.

The Local Authority have also identified a potential risk associated with the former localised storage of vehicles and drums in the vicinity of the vehicle maintenance workshop. Accordingly, a risk of petroleum hydrocarbons also exists within the site area, and the investigation will assess this also.

The desk study identified a risk of Polychlorinated Biphenyls (PCBs) within the shallow made ground in the vicinity of electrical transformers. However, the redevelopment areas are not within the vicinity of the electrical substation and therefore not considered relevant to the conceptual site model specific to the new developments and have not been considered further.

3.6 POTENTIAL EXPOSURE PATHWAYS

Potential exposure pathways for the critical receptors (both human health and controlled waters) are listed below:

- Dermal contact with soil and/or soil derived dust;
- Ingestion of soil;
- Inhalation of soil derived dust;
- Inhalation of vapours – indoor and outdoor air;
- Leaching of contaminants from made ground to groundwater; and
- Transportation of contaminants within groundwater.

In addition, the following exposure pathways have also been considered:

- Ground gas generation and migration; and
- Building materials durability.

3.7 SUMMARY OF CONCEPTUAL EXPOSURE MODEL

A preliminary conceptual exposure model has been developed for the site. This is based on the findings of the desk study, historical review and site walk over and includes all potential sources, pathways and receptors that may be present on site. Those that have been identified as being potentially active require further investigation in the form of sampling and testing of soils and groundwater, followed by appropriate risk assessment.

The preliminary conceptual exposure model will be reviewed and refined following the completion of the site works and laboratory testing.

The preliminary conceptual exposure model is presented below in Table 1.

Table 1: Preliminary Conceptual Exposure Model				
Source		Receptor	Pathway	Potentially Active Pathway?
Origin	Contaminant			
Made ground due filling of the site and construction of the buildings	Metals, semi-metals, non-metals, PAH, asbestos	Commercial end user – human health	Dermal Contact with made ground/dust	✓
			Ingestion of soil	✓
			Inhalation of dust	✓
			Inhalation of vapours – indoor/outdoor	✓
	Metals, semi-metals, inorganics, PAH	Groundwater quality	Leaching from made ground	✓
	Metals, semi-metals, inorganics, PAH	Surface water quality	Transportation within groundwater	✓
Storage of vehicles and drums in the vicinity of new workshop (east of Unit 34)	Petroleum hydrocarbons	Resident – human health	Inhalation of Vapours – indoor/outdoor	✓
	Petroleum hydrocarbons	Groundwater quality	Localised spillage	✓
Ground Gas – organic, gas producing materials	Methane, carbon dioxide	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion	✓ Made ground of potentially significant thicknesses and potential for peat bands to exist within underlying natural ground

4.0 THE SITE INVESTIGATION

4.1 FIELDWORKS

An intrusive site investigation was designed in accordance with BS5930:2015+A1:2020, the Code of Practice for Site Investigations, BS10175:2011+A2:2017, the Code of Practice for Investigation of Potentially Contaminated Sites, and 'Development of Land Affected by Contamination: A Guide for Developers' prepared by Welsh Local Government Association (WLGGA)/Natural Resources Wales (NRW) Land Contamination Working Group, 2017.

The site investigation was also designed to provide information to support and refine the preliminary conceptual site model/conceptual exposure model and to address planning condition 2 of planning applications P2019/5517 and P2020/0770.

An investigation comprising dynamic windowless sampling was undertaken in November 2020.

Unit 2 Extension

Three dynamic windowless sampling boreholes (WS01, WS02 and WS03) were drilled to depths of between 0.7m and 1.0mbgl in the proposed building footprint. A shallow ground gas monitoring well was installed within WS03 to the base of the borehole to allow subsequent monitoring.

Vehicle Maintenance Garage/Workshop

Three dynamic windowless sampling boreholes (WS05, WS06 and WS07) were drilled to depths of between 0.8m and 0.9mbgl around the new vehicle maintenance workshop and an additional borehole was drilled to 0.35mbgl (WS04) in the area of former drums and vehicle storage to obtain a sample for contamination testing. Shallow ground gas monitoring wells were installed within WS05 and WS06 to the base of the boreholes to allow subsequent monitoring.

Representative soil samples were taken from the boreholes for laboratory chemical testing and placed in the appropriate sample containers deemed suitable for the analysis required. Strict protocols were adopted during this process to limit the cross contamination of samples.

A programme of gas monitoring was commenced as soon as the site works were complete. At the time of reporting three gas monitoring visits had been completed.

4.1 FIELDWORKS (CONTINUED)

The fieldworks were supervised by a qualified Geotechnical Engineer from Intégral Géotechnique (Wales) Limited who also logged the dynamic windowless sampling boreholes and prepared their detailed engineering logs in accordance with the requirements of BS5930:2015+A1:2020. The engineering logs provide descriptions of the materials encountered in accordance with BSEN ISO 14688-1 (2002) and 14689-1 (2003) for soils and rocks respectively.

The approximate locations of the dynamic windowless sampling boreholes are shown on Figure 2, while their logs are presented in Appendix B.

Stockpile Sampling

At the time of the investigation, stockpiles were present to the southeast of the new vehicle maintenance workshop and a large area of raised ground was present as indicated on Figure 2.

Stockpile 1, approximately 15m long by between 3m to 5m wide and up to 2m in height was situated on the much larger area of raised ground indicated on Figure 2. All materials were of similar nature comprising gravelly clay with rootlets.

Stockpile 2, located adjacent to the raised area comprised a similar material, darker grey in colour and with frequent anthropogenic materials. This material may have comprised arisings from the construction of the vehicle maintenance workshop.

4.2 FIELD OBSERVATIONS

No visual or olfactory evidence of any contamination was observed during the drilling of the boreholes.

4.3 LABORATORY CHEMICAL TESTING

Representative soil samples were taken from the dynamic windowless sampling boreholes across the site and two samples were also collected from the stockpiled materials. The samples were stored at the appropriate temperature and dispatched to the laboratories of i2 Analytical for laboratory chemical testing within 24 hours.

The samples were tested for a range of contaminants that reflects the historical use of the site, the findings of the desk study and the preliminary conceptual site model/conceptual exposure model. A list of the soil testing carried out is given below:

4.3 LABORATORY CHEMICAL TESTING (CONTINUED)

Beryllium	Cadmium
Total Chromium	Hexavalent Chromium (VI)
Copper	Lead
Mercury	Nickel
Vanadium	Zinc
Arsenic	Boron
Selenium	Elemental Sulphur
Total Cyanide	Total Sulphate
Sulphide	Water Soluble Sulphate
pH	Monohydric Phenol
Polyaromatic Hydrocarbons (PAH)	Asbestos

In addition, four samples of the made ground were subjected to analysis for petroleum hydrocarbons.

Two additional representative samples of made ground were subjected to analysis for pH and water soluble sulphate only.

The results of all the soil testing are presented in Appendix C.

4.4 IN-SITU GAS MONITORING

Gas monitoring standpipes were installed within boreholes WS03, WS05 and WS06 and these have been monitored at fortnightly intervals following completion of the fieldworks.

The gas monitoring programme commenced on 25/11/2020.

The concentration levels of methane, carbon dioxide and oxygen were measured in the standpipes during each visit by using a GA5000 Landfill Gas Analyser. In addition, gas flow rate and the atmospheric pressure at the time of the field measurements were also recorded. A Photo Ionisation Detector (PID) was also used to measure volatile organic compounds (VOCs) during each monitoring visit.

Gas monitoring was carried out over a range of atmospheric pressures to include at least one reading in low and/or falling pressure, in accordance with the recommendations made in CIRIA Report C665.

4.4 IN-SITU GAS MONITORING (CONTINUED)

At the time of writing the programme of gas monitoring was on going. A complete set of ground gas monitoring results will be forwarded as an addendum upon completion of the monitoring programme.

The results of the field gas monitoring to date are presented in Appendix D.

5.0 GROUND CONDITIONS

During the intrusive site investigation made ground was encountered to the base of all locations, extending to depths of between 0.45m and 1.0mbgl. The following provides a summary of the ground conditions encountered within the boreholes.

5.1 AREA ADJACENT TO UNIT 2 (NORTH)

Locations WS01, WS02 and WS03 were undertaken within the proposed footprint of the new extension to Unit 2. The ground conditions were very consistent, with a layer of limestone chippings encountered from ground level to 0.1mbgl in all locations overlying made ground.

Made ground generally comprised dark grey sandy gravel of fine to coarse slag with occasional concrete fragments, brick fragments, timber and scrap metal. The gravel is interpreted to be medium dense becoming dense due to sampler refusal at depths of between 0.7m and 1.0mbgl.

In WS01 only, a thin layer of clay was recorded overlying the slag gravel.

5.2 AREA SURROUNDING VEHICLE MAINTENANCE GARAGE (SOUTH)

Locations WS04, WS05, WS06 and WS07 were undertaken within the vicinity of the vehicle maintenance garage. Made ground was encountered from ground level to the base of all locations, which refused at depths of between 0.35mbgl and 0.9mbgl.

Made ground generally comprised either compact dark grey slightly silty sandy gravel or stiff dark grey sandy gravelly silty clay. Gravel comprised predominantly slag and mudstone, with limestone, brick, concrete, sandstone, burnt shale and quartz encountered in some locations. The materials were locally ashy and occasionally contained anthropogenic materials such as timber fragments.

5.3 GROUNDWATER

Groundwater was not encountered in any of the boreholes during the intrusive investigation.

In addition, groundwater has not been recorded in any of the monitoring wells following the investigation.

5.3 GROUNDWATER (CONTINUED)

The groundwater conditions are based on observations made at the time of the fieldwork. It should be noted that groundwater levels may vary due to seasonal and other effects.

5.4 STOCKPILED MATERIALS

In the south-east corner of the site, a raised plateau of ground was present with a stockpile of material in this area and a second stockpile of material immediately west of it. Approximate outlines are shown on Figure 2.

The raised plateau and Stockpile 1 comprised similar materials, described as “Dark greyish brown sandy gravelly silty clay with cobbles, abundant rootlets and occasional plastic fragments.” Gravel comprised sub-rounded to angular brick, slate, sandstone, quartz, concrete and occasional slag. The material had an organic odour and the soils were interpreted to be largely topsoil/subsoil. One representative sample was obtained for chemical analysis.

Stockpile 2 was described as “Dark grey sandy very gravelly silty clay with occasional timber, plastic, tile and brick fragments and occasional concrete cobbles.” Gravel comprised sub-rounded to sub-angular slag, sandstone, brick and mudstone. The material may have comprised (some of) the arisings associated with excavations for the new workshop building. One representative sample was obtained for chemical analysis.

6.0 CONTAMINATION

6.1 AVERAGING AREAS

In order to assess the laboratory test results reliably and in context, the data have been grouped into an averaging area. An averaging area (or area of interest) is that area of soil to which a receptor is exposed or which otherwise contributes to the creation of hazardous conditions. This may be an area of historical industrial usage, a soil type, or a specific proposed end use.

In the case of this analysis, the averaging area has been determined according to the proposed commercial end use.

6.2 SOIL CONTAMINATION

The Suitable 4 Use Levels (S4ULs) published by LQM have been adopted as critical concentrations against which soil contaminant concentrations can be compared. In the absence of additional published S4ULs, the Category 4 Screening Levels (C4SLs) derived by DEFRA and Soil Screening Values (SSVs) derived by Atkins ATRISK^{soil} for a commercial end use have been adopted, where considered appropriate.

Since the results of the testing indicate total organic carbon content (TOC) in the range of 0.4% to 3.3%, indicating equivalent soil organic matter (SOM) percentages of between 0.7% and 5.7%, the results have been compared to the respective guidelines, where applicable, for 1% SOM in the first instance.

The soil test results for made ground have been summarised and are shown in Appendix E.

6.2.1 Made Ground

The results of the laboratory testing on five samples of made ground indicate that all of the analysed chemical elements or compounds are present at concentrations below the appropriate thresholds and that asbestos was not detected in any of the samples.

6.2.2 Stockpiled Materials

The results of the laboratory testing on two representative samples of the stockpiled materials in the south-east of the site, indicate that all of the analysed chemical elements or compounds are present at concentrations below the appropriate thresholds and that asbestos was not detected in any of the samples.

6.3 GROUND GASES

Ground gas was monitored on a fortnightly basis using a GA 5000 Gas Analyser. The results of the gas monitoring programme to date are included in Appendix D. A summary of the results is given in the following Table 2.

Table 2: Summary of Ground Gas Results				
Borehole	Maximum Methane Concentration (%)	Maximum Carbon Dioxide Concentration (%)	Minimum Oxygen Concentration (%)	Gas Flow Rate (l/hr)
WS03	0.2	<0.5	20.5	<0.3
WS05	0.1	<0.5	20.1	<0.3
WS06	<0.5	0.3	19.3	<0.3

Note: Results based on three rounds of monitoring completed to date.

The results show a maximum methane concentration of 0.2% and a maximum carbon dioxide concentration of 0.3%. The gas flow rate did not exceed the detection/equipment accuracy level of 0.3l/hr during the gas monitoring programme to date. These results indicate a representative gas screening value (GSV) of <0.0015l/hr.

Volatile organic compound concentrations have not been recorded greater than 0.1ppm and carbon monoxide and hydrogen sulphide concentrations have not exceeded 1ppm.

7.0 REVISED CONCEPTUAL EXPOSURE MODEL

The preliminary conceptual exposure model has been reviewed and revised to reflect the findings of the site investigation and the results of the laboratory testing of soils and ground gas monitoring. Pathways identified as a relevant pollutant linkage require appropriate risk assessment or mitigation measures (see Section 8.0).

Table 3: Revised Conceptual Exposure Model						
Source		Receptor	Pathway	Preliminary Active Pathway? (see Sect. 3.8)	Relevant Pollutant Linkage	Justification/ Mitigation
Origin	Contaminant					
Made ground due filling of the site and construction of the buildings	Metals, semi-metals, non-metals, PAH, asbestos	Commercial end user – human health	Dermal Contact with made ground/dust	✓	×	No elevated concentrations identified in made ground.
			Ingestion of soil	✓	×	
			Inhalation of dust	✓	×	
			Inhalation of vapours – indoor/outdoor	✓	×	No sufficiently volatile contaminants identified.
	Metals, semi-metals, inorganics, PAH	Groundwater quality	Leaching from made ground	✓	×	No elevated concentrations identified in soils.
	Metals, semi-metals, inorganics, PAH	Surface water quality	Transportation within groundwater	✓	×	
Storage of vehicles and drums in the vicinity of new workshop (east of Unit 34)	Petroleum hydrocarbons	Resident – human health	Inhalation of Vapours – indoor/outdoor	✓	×	No elevated concentrations identified in made ground.
	Petroleum hydrocarbons	Groundwater quality	Localised spillage	✓	×	
	Petroleum hydrocarbons	Surface water quality	Transportation within groundwater	✓	×	
Ground Gas – organic, gas producing materials	Methane, carbon dioxide	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion	✓	×	Negligible ground gas concentrations identified during monitoring period to date. <i>Full risk assessment following completion of monitoring period.</i>

8.0 RISK ASSESSMENT

8.1 METHODOLOGY

The risk of pollution, health effects or environmental harm occurring as a result of ground contamination is dependent upon three principal factors:

- The scale of the contamination sources;
- The presence of sensitive “receptors”, eg Humans: health of the general public, site occupiers, redevelopment workers. Environment: flora, fauna, etc;
- The existence of migration pathways by which contaminants can reach the sensitive receptors.

This section assesses each of these factors in order to evaluate the overall level of risk and potential harm to receptors. The receptor may be human, a water resource, an eco-system or construction materials. Pathways connecting a perceived hazard to a receptor are referred to as exposure pathways.

The sources of contamination and the links connecting the hazards to the sensitive receptors will represent the basis for the risk assessment.

8.2 SOURCE-PATHWAY-RECEPTOR MODEL

The preliminary conceptual site model was based on the findings of the desk study. This was later reviewed and refined according to the findings of the site investigation, allowing for the ground conditions encountered and the results of laboratory testing of soil and groundwater. Any pathways considered to be inactive were removed from the model and all remaining potentially active pathways require risk assessment.

The pathways shown as potentially active in the Revised Conceptual Site Model in Section 7.0 above have been assessed below.

8.3 HUMAN HEALTH RISK ASSESSMENT

8.3.1 *Site in its Present Condition*

The site does not pose any risks to casual visitors or trespassers in its current condition.

8.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

8.3.2 Future Site Users

New Extension to Unit 2

The contamination test results and investigation observations of the made ground indicate that the analysed chemical elements or compounds are present at concentrations below the appropriate thresholds for the proposed commercial end use. It is therefore considered that the potential risk to end users is low and no remedial measures are required on site with regard to site sourced contamination.

In the event that an unexpected hotspots or suspected contamination is encountered during the construction phase, this will require appropriate inspection and risk assessment to identify if any remedial measures will be required in order to protect end users.

Vehicle Maintenance Workshop

Whilst the vehicle maintenance workshop had been constructed at the time of the intrusive investigation, the ground conditions in the vicinity of the building have been found to be consistent and the made ground is not considered to be of concern. The contamination test results and investigation observations of the made ground indicate that the analysed chemical elements or compounds are present at concentrations below the appropriate thresholds for the proposed commercial end use.

Accordingly, these materials are considered likely to be representative of the made ground beneath the new building and the absence of any elevated contaminant concentrations indicates a low risk to human health and that no remedial measures are required.

Furthermore, the new development has incorporated concrete hardstanding to the west of the new building and a thin layer of gravel (predominantly limestone) in other areas, which further reduces the risk to site end user with minimal areas of exposed formation.

8.3.3 Construction Workers

With future site development works involving the excavation and removal of the made ground, there would be a risk, albeit low, to workers from contaminants in the soils. Appropriate measures are therefore recommended for works involving the made ground materials which are known to be present beneath the site.

Normal good hygiene practices should be adequate to protect the health and safety of redevelopment workers, and should include:

8.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

- Minimum handling of materials;
- Washing of hands prior to all meal breaks, which should be taken in a designated clean area;
- The use of standard protective clothing such as boots and overalls and gloves, where considered relevant.

All excavations should be regularly checked for safe atmospheres.

In dry weather, inhalation of dust and gases should be avoided preferably by the use of dust suppression techniques to minimise fugitive emissions and minimisation of exposed materials at any particular time.

Additionally, a system should be established by which any 'unusual' materials that may be encountered are reported rapidly to the site management, so that the appropriate action may be taken, following specialist advice if necessary. Any unusual material may be identified on site by colour, odour or physical nature.

Reference should be made to the Health and Safety Executive document "Protection of Workers and the General Public during the development of contaminated land" for detailed guidance on these matters.

8.4 RISKS TO VEGETATION

Soft landscaped areas are not proposed in either of the redevelopment areas.

8.5 GROUNDWATER RISK ASSESSMENT

The intrusive site investigation has not identified any elevated contaminant concentrations in the near surface made ground beneath the site. Alongside the absence of groundwater in all locations and the identified ground conditions, the risk to controlled waters is considered to be low.

8.6 GROUND GAS RISK ASSESSMENT

The results of the first three rounds of ground gas monitoring programme indicated a maximum methane concentration of 0.2% and a maximum carbon dioxide concentration of 0.3%. Gas flow rate did not 0.3l/hr. For the proposed commercial development and in accordance with CIRIA Report C665 the GSV corresponds to Characteristic Situation 1.

8.6 GROUND GAS RISK ASSESSMENT (CONTINUED)

In accordance with BS8485:2015 + A1:2019, and based on the results of the gas monitoring with the site being classified as Characteristic Situation 1 (CS1), for Development Type D (commercial/industrial), the minimum gas protection score required is zero, and therefore no specific gas protective measures are required.

It is considered that there is a low risk of ground gas migration to the proposed development site and that protection measures are not required in either the vehicle maintenance workshop or the proposed new extension to Unit 2.

Note that this provisional assessment is based on the first three rounds of the six planned rounds of gas monitoring. The final ground gas risk assessment will be advised at the completion of the monitoring period.

8.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY

8.7.1 Concrete Classification

A summary of the laboratory chemical test results for the chemicals sulphur, total sulphate, water soluble sulphate, sulphide and pH, which may adversely affect the durability of building materials is presented in Appendix E.

Evidence to date does not indicate any specifically aggressive conditions, but it would be reasonable to expect a degree of sulphate and acidic aggressiveness from the made ground.

In accordance with BRE Digest SD1:2005 and adopting the assessment procedure specified therein for brownfield sites, the laboratory chemical test results indicate a characteristic value (taking the highest of the test results) for water soluble sulphate within the made ground of 590mg/l.

Using Table C2 of BRE Digest SD1:2005, this characteristic value corresponds to Design Sulphate Class DS-2.

The groundwater regime of the site has been assessed as 'mobile' and a characteristic pH value within the made ground of 8.2 has been determined (adopting the lowest of the test results). The Design Sulphate Class has been modified to give a site ACEC class of AC-1 for concrete structures constructed within the made ground.

8.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY (CONTINUED)

8.7.2 Water Services

Water supply pipes will need to be protected from any contamination present within the ground. In particular, the presence of organic contaminants (such as PAH and TPH) should be addressed when selecting pipe materials. Measures to protect the pipes will include clean backfill to trenches and possibly alternative material selection. Reference should be made to UKWIR Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, document No. 10/WM/03/21. The final design and selection of the pipe and associated backfill should be agreed with the appropriate Regulator prior to installation.

Based on current results, PAH concentrations in several samples indicate the requirement for alternative pipe selection to PE and PVC pipe, such as barrier pipe. In order to comply with the UKWIR guidance, specific sampling and testing along the actual line of the proposed water supply route may need to be carried out once this has been established.

8.8 WASTE DISPOSAL

Excavated materials generated by the development may be considered as waste and subject to waste controls. Any re-use of excavated materials on-site should be undertaken in accordance with current waste and environmental legislation and which may require the production of an approved Materials Management Plan (MMP) prepared in accordance with the CL:AIRE Code of Practice.

It is recommended that a sustainable development strategy is adopted which reduces to a practicable minimum the generation of waste materials and the need for disposal to a licensed tip. Emphasis should be on recovery and re-use rather than disposal.

However, any waste or surplus materials that are generated will need to be classified in accordance with current EC regulations and Environment Agency guidance prior to disposal. It is the responsibility of the waste producer to classify the waste.

Based on the data obtained from the site investigation works, any waste materials comprising of the existing made ground, including the stockpiled materials, are likely to be classified as non-hazardous waste. Natural ground has not been encountered during the investigation.

Any asbestos containing materials (ACMs) will be classified as hazardous waste.

8.8 WASTE DISPOSAL (CONTINUED)

This classification is provisional and indicative of the likely waste classification based on the data obtained to date (including chemical composition, moisture content, etc.). It also assumes that the materials tested will be representative of future generated waste.

In order to minimise disposal, the materials generated should be segregated and examined, with appropriate testing as necessary, to enable the materials to be sorted or treated into lower classifications, with the resultant benefit of potentially generating re-use rather than disposal.

Once final waste sources and volumes are known, the waste stockpile to be disposed off-site will need to be classified in accordance with Environment Agency/Natural Resources Wales Waste Classification – Guidance on the Classification and Assessment of Waste Technical Guidance WM3 (2015). This is likely to require additional sampling and testing of the generated waste materials to provide an up to date current basis for classification.

Depending on the waste classification, waste acceptance criteria (WAC) testing may be required, in order to determine which class of landfill site the waste can be sent to.

It is recommended that the results of the waste classification and any WAC test results are sent to the intended licensed waste operator prior to disposal in order to confirm their classification and acceptance.

8.9 UNCERTAINTIES

It is important to recognise that there may be areas of contamination within the site that have not been found or that contaminants may be present at concentrations above those that have been found. It is also important to recognise that contamination may be localised and that no investigation, however comprehensive, is capable of finding such occurrences, other than by chance.

The ground beneath the vehicle maintenance workshop has not be examined, however the investigation has covered the surrounding area which was found to be consistent and of low risk to future site users. Thus, it is considered that the ground conditions in the vicinity of the new building are representative of those encountered during the construction of the workshop.

9.0 CONCLUSIONS

The intrusive investigation in the area of both the vehicle maintenance workshop and the new side extension to Unit 2 have encountered largely homogenous made ground. Chemical testing on the made ground soils has not identified a potential risk to site end users and the gas monitoring period to date has not recorded concentrations of carbon dioxide or methane at levels of concern to the proposed end-use.

Accordingly, it is considered that in its current condition, the vehicle maintenance workshop is suitable for commercial end use and that specific remedial measures are not required in the construction of the side extension to Unit 2 with regard to protection of human health.

APPENDIX A

PLANNING APPLICATIONS P2019/5517 & P2020/0770

**NEATH PORT TALBOT COUNTY BOROUGH COUNCIL
CYNGOR BWRDEISTREF SIROL CASTELL-NEDD PORT TALBOT**

**TOWN AND COUNTRY PLANNING ACT 1990
THE TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT
PROCEDURE)(WALES) ORDER 2012**

APPROVAL OF FULL PLANNING PERMISSION

Name and address of the applicant

N Plumber
Cultech Ltd
Unit 2
Christchurch Road
Aberavon
SA12 7BZ

Name and address of the agent

Buckmaster Batcup Architects
Buckmaster Batcup Architects Ltd
70 Walter Road
Swansea
SA1 4QA
United Kingdom

DATE REGISTERED: 7 September 2020

APPLICATION NO: P2020/0770

LOCATION: Unit 2 , Christchurch Road, Aberavon, SA12 7BZ

PROPOSAL: Single-storey side extension to existing unit

NEATH PORT TALBOT COUNTY BOROUGH COUNCIL as the Local Planning Authority in pursuance of its power under the above mentioned Act and Order hereby **GRANTS PLANNING PERMISSION** for the development as described above to be carried out in accordance with the application and the plans submitted therewith, subject to compliance with the following conditions:

Conditions:-

Time Limit Conditions

- 1 The development shall begin no later than five years from the date of this decision.

Reason:

To comply with the requirements of Section 91 of the Town and Country Planning Act 1990.

List of Approved Plans

- 2 The development shall be carried out in accordance with the following approved plans and documents:
Dwg. No. 658.2.P.01C
Dwg. No. 658.2.P.02C.
Dwg. No. 658.2.P.03A.
Dwg. No. 658.2.P.04.

Reason:

In the interests of clarity.

Pre-Commencement Conditions

- 3 No development shall commence on site until an assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the Local Planning Authority. This assessment must be carried out by or under the direction of a suitably qualified competent person in accordance with BS10175 (2011) 'Investigation of Potentially Contaminated Sites Code of Practice' and shall assess any contamination on the site, whether or not it originates on the site. The report of the findings shall include:
- (i) a desk top study to identify all previous uses at the site and potential contaminants associated with those uses and the impacts from those contaminants on land and controlled waters. The desk study shall establish a 'conceptual site model' (CSM) which identifies and assesses all identified potential source, pathway, and receptor linkages;
 - (ii) an intrusive investigation to assess the extent, scale and nature of contamination which may be present, if identified as required by the desk top study;
 - (iii) an assessment of the potential risks to:
 - human health,
 - groundwater and surface waters
 - adjoining land,
 - property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes,- ecological systems,
 - archaeological sites and ancient monuments; and
 - any other receptors identified at (i)
 - (iv) an appraisal of remedial options, and justification for the preferred remedial option(s).

Reason:

To ensure that information provided for the assessment of the risks from land contamination to the future users of the land, neighbouring land, controlled waters, property and ecological systems is sufficient to enable a proper assessment, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 4 No development shall commence on site until a remediation scheme to bring the site to a condition suitable for the intended use by removing any unacceptable risks to human health, buildings, other property and the natural and historic environment shall be prepared and submitted to and approved in writing with the Local Planning Authority. The scheme shall include all works to be undertaken, proposed remediation objectives, remediation criteria and site management procedures. The measures proposed within the remediation scheme shall be implemented in accordance with an agreed programme of works.

Reason:

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

Action Conditions

- 5 Prior to beneficial use of the proposed development commencing, a verification report which demonstrates the effectiveness of the agreed remediation works carried out in accordance with Condition 4 shall have been submitted to and approved in writing by the Local Planning Authority.

Reason:

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 6 In the event that contamination is found at any time when carrying out the approved development that was not previously identified, work on site shall cease immediately and shall be reported in writing to the Local Planning Authority. A Desk Study, Site Investigation, Risk Assessment and where necessary a Remediation Strategy must be undertaken in accordance with the following document:- Land Contamination: A Guide for Developers (WLGA, WAG & EAW, July 2006). This document shall be submitted to and agreed in writing with the Local Planning Authority. Prior to occupation of the development, a verification report which demonstrates the effectiveness of the agreed remediation, shall be submitted to and agreed in writing with the Local Planning Authority.

Reason:

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other off site receptors, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 7 The materials to be used in the construction of the external surfaces of the extension hereby permitted shall match those used in the existing building.

Reason:

In the interest of the visual amenity of the area and to ensure the development complies with Policy BE1 of the Neath Port Talbot Local Development Plan.

- 8 Notwithstanding the provisions of Part 8 of Schedule 2 of the Town and Country Planning (General Permitted Development) Order 1995 (as amended for Wales) (or any order revoking and re-enacting that Order with or without modification) and the details submitted, prior to the installation of any external plant in the area hereby

approved a scheme detailing the specification of the external plant equipment, including height and noise outputs, and also details of the planting for the 'living wall' shall be submitted to and approved in writing by the Local Planning Authority. All plant installed in the area hereby approved shall be undertaken strictly in accordance with the approved scheme, including the 'living wall'. Any plants in the 'living wall' which, within a period of 5 years from their installation die, diseased or a damaged, they shall be replaced in the next planting season with others of similar size and species.

Reason:

In the interests of local amenity, and to ensure compliance with Policies SP16, EN8 and BE1 of the Neath Port Talbot Local Development Plan.

Reasons for Decision:

The decision to recommend planning permission has been taken in accordance with Section 38 of The Planning and Compulsory Purchase Act 2004, which requires that, in determining a planning application the determination must be in accordance with the Development Plan unless material considerations indicate otherwise. The Development Plan comprises the Neath Port Talbot Local Development Plan (2011-2026) adopted January 2016.

It is considered that the proposed development would not have a detrimental impact upon residential amenity or upon the character and appearance of the surrounding area, and there would be no adverse impact upon highway and pedestrian safety. Hence, the proposed development would be in accordance with Policies SC1, EC2, EC3, EN8, TR2 and BE1 of the Neath Port Talbot Local Development Plan.

It is further considered that the decision complies with the Council's well-being objectives and the sustainable development principle in accordance with the requirements of the Well-being of Future Generations (Wales) Act 2015.

Signed:



Ceri Morris – Head of Planning & Public Protection

Date: 30 October 2020

IMPORTANT:

(1) Please note that for all decisions issued after 16th March 2016 for outline or full planning permission, a revised decision notice will be issued whenever a subsequent consent is given, for example providing details of any Reserved Matters approvals (outline applications only) and/or approval of conditions (including on Reserved Matters). This will ensure that the current status of the conditions applied to a consent is clear. Accordingly you are advised to visit www.npt.gov.uk/planning to view the application documentation to see if this is the current version, or whether it has been superseded by a more up-to-date revision of this Decision Notice. For Reserved Matters approvals the revised Decision Notice will only be shown under the Outline approval.

(2) Please note that this consent is specific to the plans and particulars approved as part of the application. Any departure from the approved plans will constitute unauthorised development and may be liable to enforcement action. You (or any subsequent developer) should advise the Council of any actual or proposed variations from the approved plans immediately so that you can be advised how to best resolve the matter.

(3) In addition, any conditions that the Council has imposed on this consent will be listed above and should be read carefully. It is your (or any subsequent developers) responsibility to ensure that the terms of all conditions are met in full at the appropriate time (as outlined in the specific condition). Please note that any works carried out without compliance with the conditions attached to this approval will be entirely at the risk of the persons involved and may result in formal action being taken by the Local Planning Authority.

(4) The developer should have regard to Sections 4, 7, 8 and 8A of the Chronically Sick and Disabled Persons Act 1970 and to the British Standards Institution's Code of Practice for "Design of buildings and their approaches to meet the needs of disabled people" (BS 8300:2009+A1:2010).

(5) From 1st October 2012 it has been an offence to install a public sewer or lateral drain without having an adoption agreement in place. From the 1st October 2012 the vast majority of all existing private sewers and lateral drains which link with the public sewer network were transferred to Welsh Water. For further details on how this will affect your development please contact: Welsh Water Developer Services, PO Box 3146, Cardiff, CF30 0EH. Telephone No. 0800 9172652 or email: developer.services@dwrcymru.com.

IMPORTANT INFORMATION: TOWN AND COUNTRY PLANNING ACT 1990

The applicant's attention is drawn to the notes below.

- (1) If the applicant is aggrieved by the decision of the Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Welsh Government under Section 78 of the Town and Country Planning Act 1990 (as amended).
- (2) You can also appeal to the Welsh Government against a decision to refuse permission or grant subject to conditions in respect of applications made for :- Listed Building or Conservation Area Consent; Consent under a Tree Preservation Order; Advertisement Consent.
- (3) You can also appeal If your application for a Certificate of Lawful Existing Use or Lawful Proposed Use is partly or wholly refused or is granted differently from what you asked for (under Section 195/196) of the Town and Country Planning Act 1990 (as amended).
- (4) If you are aggrieved of the LPAs decision, the following deadlines apply for appeals to be submitted to the Welsh Government (from the date of the Council's decision):-

(1) Planning Permission (with the exception of Minor Commercial and Householder applications – see below)	Within 6 Months
(2) Householder Appeal see endnote i	Within 12 weeks
(3) Minor Commercial Appeal see endnote i	Within 12 weeks
(4) Listed Building or Conservation Area Consent appeals	Within 6 months
(5) Tree Preservation Order (TPO) Consent	Within 28 days
(6) Advertisement Consent	Within 8 weeks
(7) Certificate of Lawfulness of Existing (Section 191) or Proposed (Section 192) Use or Development	Within 6 months
(8) Hazardous Substances Consent	Within 6 months
- (5) Appeals must be made on a form which is obtainable from the Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ – Tel 0303 444 5940, or online at www.planningportal.gov.uk/pcs .
- (6) The Welsh Government has power to allow a longer period for the giving of notice of appeal but they will not normally be prepared to exercise this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- (7) The Welsh Government is not required to entertain an appeal if it appears to them that permission for the proposed development could not have been granted having regard to the statutory requirements to the provisions of the development order, and to any directions given under the Order. They do not in practice refuse to entertain appeals solely because the decision of the Local Planning Authority was based on a direction given by them.
- (8) If permission to develop land is refused or granted subject to conditions, whether by the Local Planning Authority or by the Welsh Government, and the owner of the land claims that the land has become incapable of reasonable beneficial use in its existing state and cannot be rendered capable of reasonable beneficial use by the carrying out of any development which has been or would be permitted, he may serve on the County Borough Council, in which the land is situated, as the case may be, a **purchase notice** requiring that Council purchase his interest in the land

in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

Making an Appeal

- (9) Please note that for all applications received by the LPA after 5th May 2017, it is now a requirement that any appeal made to the Planning Inspectorate (other than Householder and Minor Commercial Appeals, and appeals against refusal to grant advertisement consent) must be accompanied by all the information and evidence you intend to rely upon (a **“full statement of case”**). You must also send a copy of the notice of appeal and full statement of case to the LPA.
- (10) In addition, for ‘planning appeals’ an amendment to an application following notice of appeal may only be made to correct an error.
- (11) Additional details and information on making an appeal to the Welsh Government is available from the Planning Inspectorate at the above address and website. The relevant documents are entitled “making your planning appeal” and “planning appeals Public Local Inquiries”.
- (12) Further correspondence regarding this application should bear the reference number quoted on the top of the decision notice.

THIS NOTICE RELATES ONLY TO A PLANNING DECISION AND DOES NOT RELATE TO OTHER LEGISLATION INCLUDING ANY LEGISLATION UNDER:

- BUILDING REGULATIONS – Please contact buildingcontrol@npt.gov.uk or 01639 686949 to discuss all aspects of the service that is offered by Building Control
- HIGHWAY LEGISLATION

IF PLANNING CONSENT HAS BEEN GRANTED IT IS ADVISABLE TO ESTABLISH WHETHER ANY OTHER FORM OF CONSENT IS REQUIRED AND TO OBTAIN SUCH CONSENT BEFORE COMMENCING DEVELOPMENT

ⁱ Please see the [Town and Country Planning \(Referred Applications and Appeals Procedure\) \(Wales\) Regulations 2017](#) for appeal procedures and for full definitions of:

- *“householder application”* (essentially an application for the enlargement, improvement or other alteration of a dwellinghouse, or development within the curtilage of such a dwellinghouse, or change of use to enlarge the curtilage of a dwelling house)
- *“householder appeal”* means an appeal in relation to a householder application, but excludes an appeal against conditions on the grant of planning permission; or an appeal which is accompanied by an enforcement or listed building consent appeal.
- *“minor commercial application”* (essentially relates to existing buildings of no more than 250 square metres gross external floor space at ground floor level, currently in use for any of the purposes set out in Schedule 1A to The Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2015 which is an application for change of use from Class A1 to A2 or A3; or Class A2 to A3); or the carrying out of building or other operations to a shop front.
- *“minor commercial appeal”* means an appeal in relation to a minor commercial application but excludes an appeal against conditions on the grant of planning permission; or an appeal which is accompanied by an enforcement or listed building consent appeal.

**NEATH PORT TALBOT COUNTY BOROUGH COUNCIL
CYNGOR BWRDEISTREF SIROL CASTELL-NEDD PORT TALBOT**

**TOWN AND COUNTRY PLANNING ACT 1990
THE TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT
PROCEDURE) (WALES) ORDER 2012**

APPROVAL OF FULL PLANNING PERMISSION

Name and address of the applicant

Mr N Plummer
Cultech Ltd
Baglan Industrial Park,
Unit 34, Aberavon Road
Aberavon
SA12 7DJ

Name and address of the agent

Mr Michael Batcup
Buckmaster Batcup Architects Ltd
70 Walter Road
Swansea
SA1 4QA

DATE REGISTERED: 5 November 2019

APPLICATION NO: P2019/5517

LOCATION: Baglan Industrial Park, Unit 34 , Aberavon Road, Aberavon,
SA12 7DJ

PROPOSAL: Retention of detached vehicle maintenance workshop and laying
of stone chippings to form hard standing/storage and vehicle
access areas

NEATH PORT TALBOT COUNTY BOROUGH COUNCIL as the Local Planning Authority
in pursuance of its power under the above mentioned Act and Order hereby **GRANTS
PLANNING PERMISSION** for the development as described above to be carried out in
accordance with the application and the plans submitted therewith, subject to compliance
with the following conditions:

Conditions:-

List of Approved Plans

- 1 The development shall be carried out in accordance with the following approved
plans and documents:
Dwg. No. 658.4.P.01A.
Dwg. No. 658.4.P.02.
Dwg. No. 658.4.P.03B.
Cultech Ltd Flood Consequence Assessment.

Reason:

In the interests of clarity.

Action Conditions

- 2 No further development shall commence on site until an assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the Local Planning Authority. This assessment must be carried out by or under the direction of a suitably qualified competent person in accordance with BS10175 (2011) 'Investigation of Potentially Contaminated Sites Code of Practice' and shall assess any contamination on the site, whether or not it originates on the site. The report of the findings shall include:

(i) a desk top study to identify all previous uses at the site and potential contaminants associated with those uses and the impacts from those contaminants on land and controlled waters. The desk study shall establish a 'conceptual site model' (CSM) which identifies and assesses all identified potential source, pathway, and receptor linkages;

(ii) an intrusive investigation to assess the extent, scale and nature of contamination which may be present, if identified as required by the desk top study;

(iii) an assessment of the potential risks to:

- human health,
- groundwater and surface waters
- adjoining land,
- property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes,- ecological systems,
- archaeological sites and ancient monuments; and
- any other receptors identified at (i)

(iv) an appraisal of remedial options, and justification for the preferred remedial option(s).

Reason:

To ensure that information provided for the assessment of the risks from land contamination to the future users of the land, neighbouring land, controlled waters, property and ecological systems is sufficient to enable a proper assessment, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 3 If required by Condition 2 no further development shall commence on site until a remediation scheme to bring the site to a condition suitable for the intended use by removing any unacceptable risks to human health, buildings, other property and the natural and historic environment shall be prepared and submitted to and approved in writing with the Local Planning Authority. The scheme shall include all works to be undertaken, proposed remediation objectives, remediation criteria and site management procedures. The measures proposed within the remediation scheme shall be implemented in accordance with an agreed programme of works.

Reason:

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 4 Following completion of the remediation strategy on site, and if required by Condition 3, a verification report which demonstrates the effectiveness of the agreed remediation works carried out in accordance with Condition 3 shall be submitted to and approved in writing by the Local Planning Authority.

Reason:

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 5 Prior to the first beneficial occupation of the reception extension hereby approved the property shall be registered with Natural Resources Wales's Flood Warning Service on Tel: 0345 988 1188.

Reason:

In the interest of the occupiers of the building which is located within a C1 Flood Zone and to comply with Policy BE1 of the Neath Port Talbot Local Development Plan.

- 6 Within four months of the date of this permission any machinery and equipment currently stored on the spoil heap area shall be removed from the area, or re-located into the designated storage area (as detailed under Condition 7), and the site levelled and grass seeded in accordance with a scheme to be first submitted to and approved in writing by the Local Planning Authority. All development on site shall be undertake in accordance with the approved scheme, and retained as such thereafter.

Reason:

In the interest of visual amenity and to comply with Policy BE1 of the Neath Port Talbot Local Development Plan.

Regulatory Conditions

- 7 Any outside storage of machinery and other such equipment shall be restricted to the area highlighted on the approved block plan (Dwg. No. 658.4.P.03B), and any equipment stored outside of this area shall be removed from site within four months, as required by Condition 6.

Reason:

In the interest of visual amenity and to comply with Policy BE1 of the Neath Port Talbot Local Development Plan.

- 8 In the event that contamination is found at any time when carrying out the approved development that was not previously identified, work on site shall cease immediately and shall be reported in writing to the Local Planning Authority. A Desk Study, Site Investigation, Risk Assessment and where necessary a Remediation Strategy must be undertaken in accordance with the following document:- Land Contamination: A Guide for Developers (WLGA, WAG & EAW, July 2006). This document shall be submitted to and agreed in writing with the Local Planning Authority. Prior to occupation of the development, a verification report which demonstrates the

effectiveness of the agreed remediation, shall be submitted to and agreed in writing with the Local Planning Authority.

Reason:

To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other off site receptors, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

- 9 The detached workshop hereby permitted shall not be occupied at any time other than for purposes ancillary to the industrial uses of Unit 34 Aberavon Road and Units 2-3 Christchurch Road and shall not be sold, let or sublet as a separate unit.

Reason:

In the interest of clarity and to allow the Local Planning Authority to consider whether the workshop is suitable as a separate Planning Unit, and to accord with Policy BE1 of the Neath Port Talbot Local Development Plan.

Reason For Decision:

The decision to recommend planning permission has been taken in accordance with Section 38 of The Planning and Compulsory Purchase Act 2004, which requires that, in determining a planning application the determination must be in accordance with the Development Plan unless material considerations indicate otherwise. The Development Plan comprises the Neath Port Talbot Local Development Plan (2011-2026) adopted January 2016.

It is considered that the proposed development would not have a detrimental impact upon residential amenity or upon the character and appearance of the surrounding area/open countryside, and there would be no adverse impact upon highway and pedestrian safety. Hence, the proposed development would be in accordance with Policies SC1, EC2, EC3, EN8, TR2 and BE1 of the Neath Port Talbot Local Development Plan.

It is further considered that the decision complies with the Council's well-being objectives and the sustainable development principle in accordance with the requirements of the Well-being of Future Generations (Wales) Act 2015.

Signed:



Nicola Pearce – Head of Planning & Public Protection

Date: 19 December 2019

IMPORTANT:

(1) Please note that for all decisions issued after 16th March 2016 for outline or full planning permission, a revised decision notice will be issued whenever a subsequent consent is given, for example providing details of any Reserved Matters approvals (outline applications only) and/or approval of conditions (including on Reserved Matters). This will ensure that the current status of the conditions applied to a consent is clear. Accordingly you are advised to visit www.npt.gov.uk/planning to view the application documentation to see if this is the current version, or whether it has been superseded by a more up-to-date revision of this Decision Notice. For Reserved Matters approvals the revised Decision Notice will only be shown under the Outline approval.

(2) Please note that this consent is specific to the plans and particulars approved as part of the application. Any departure from the approved plans will constitute unauthorised development and may be liable to enforcement action. You (or any subsequent developer) should advise the Council of any actual or proposed variations from the approved plans immediately so that you can be advised how to best resolve the matter.

(3) In addition, any conditions that the Council has imposed on this consent will be listed above and should be read carefully. It is your (or any subsequent developers) responsibility to ensure that the terms of all conditions are met in full at the appropriate time (as outlined in the specific condition). Please note that any works carried out without compliance with the conditions attached to this approval will be entirely at the risk of the persons involved and may result in formal action being taken by the Local Planning Authority.

(4) The developer should have regard to Sections 4, 7, 8 and 8A of the Chronically Sick and Disabled Persons Act 1970 and to the British Standards Institution's Code of Practice for "Design of buildings and their approaches to meet the needs of disabled people" (BS 8300:2009+A1:2010).

(5) From 1st October 2012 it has been an offence to install a public sewer or lateral drain without having an adoption agreement in place. From the 1st October 2012 the vast majority of all existing private sewers and lateral drains which link with the public sewer network were transferred to Welsh Water. For further details on how this will affect your development please contact: Welsh Water Developer Services, PO Box 3146, Cardiff, CF30 0EH. Telephone No. 0800 9172652 or email: developer.services@dwrcymru.com.

IMPORTANT INFORMATION: TOWN AND COUNTRY PLANNING ACT 1990

The applicant's attention is drawn to the notes below.

- (1) If the applicant is aggrieved by the decision of the Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Welsh Government under Section 78 of the Town and Country Planning Act 1990 (as amended).
- (2) You can also appeal to the Welsh Government against a decision to refuse permission or grant subject to conditions in respect of applications made for :- Listed Building or Conservation Area Consent; Consent under a Tree Preservation Order; Advertisement Consent.
- (3) You can also appeal If your application for a Certificate of Lawful Existing Use or Lawful Proposed Use is partly or wholly refused or is granted differently from what you asked for (under Section 195/196) of the Town and Country Planning Act 1990 (as amended).
- (4) If you are aggrieved of the LPAs decision, the following deadlines apply for appeals to be submitted to the Welsh Government (from the date of the Council's decision):-

(1) Planning Permission (with the exception of Minor Commercial and Householder applications – see below)	Within 6 Months
(2) Householder Appeal see endnote i	Within 12 weeks
(3) Minor Commercial Appeal see endnote i	Within 12 weeks
(4) Listed Building or Conservation Area Consent appeals	Within 6 months
(5) Tree Preservation Order (TPO) Consent	Within 28 days
(6) Advertisement Consent	Within 8 weeks
(7) Certificate of Lawfulness of Existing (Section 191) or Proposed (Section 192) Use or Development	Within 6 months
(8) Hazardous Substances Consent	Within 6 months
- (5) Appeals must be made on a form which is obtainable from the Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ – Tel 0303 444 5940, or online at www.planningportal.gov.uk/pcs .
- (6) The Welsh Government has power to allow a longer period for the giving of notice of appeal but they will not normally be prepared to exercise this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- (7) The Welsh Government is not required to entertain an appeal if it appears to them that permission for the proposed development could not have been granted having regard to the statutory requirements to the provisions of the development order, and to any directions given under the Order. They do not in practice refuse to entertain appeals solely because the decision of the Local Planning Authority was based on a direction given by them.
- (8) If permission to develop land is refused or granted subject to conditions, whether by the Local Planning Authority or by the Welsh Government, and the owner of the land claims that the land has become incapable of reasonable beneficial use in its existing state and cannot be rendered capable of reasonable beneficial use by the carrying out of any development which has been or would be permitted, he may serve on the County Borough Council, in which the land is situated, as the case may be, a **purchase notice** requiring that Council purchase his interest in the land

in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

Making an Appeal

- (9) Please note that for all applications received by the LPA after 5th May 2017, it is now a requirement that any appeal made to the Planning Inspectorate (other than Householder and Minor Commercial Appeals, and appeals against refusal to grant advertisement consent) must be accompanied by all the information and evidence you intend to rely upon (a **“full statement of case”**). You must also send a copy of the notice of appeal and full statement of case to the LPA.
- (10) In addition, for ‘planning appeals’ an amendment to an application following notice of appeal may only be made to correct an error.
- (11) Additional details and information on making an appeal to the Welsh Government is available from the Planning Inspectorate at the above address and website. The relevant documents are entitled “making your planning appeal” and “planning appeals Public Local Inquiries”.
- (12) Further correspondence regarding this application should bear the reference number quoted on the top of the decision notice.

THIS NOTICE RELATES ONLY TO A PLANNING DECISION AND DOES NOT RELATE TO OTHER LEGISLATION INCLUDING ANY LEGISLATION UNDER:

- BUILDING REGULATIONS – Please contact buildingcontrol@npt.gov.uk or 01639 686949 to discuss all aspects of the service that is offered by Building Control
- HIGHWAY LEGISLATION

IF PLANNING CONSENT HAS BEEN GRANTED IT IS ADVISABLE TO ESTABLISH WHETHER ANY OTHER FORM OF CONSENT IS REQUIRED AND TO OBTAIN SUCH CONSENT BEFORE COMMENCING DEVELOPMENT

ⁱ Please see the [Town and Country Planning \(Referred Applications and Appeals Procedure\) \(Wales\) Regulations 2017](#) for appeal procedures and for full definitions of:

- *“householder application”* (essentially an application for the enlargement, improvement or other alteration of a dwellinghouse, or development within the curtilage of such a dwellinghouse, or change of use to enlarge the curtilage of a dwelling house)
- *“householder appeal”* means an appeal in relation to a householder application, but excludes an appeal against conditions on the grant of planning permission; or an appeal which is accompanied by an enforcement or listed building consent appeal.
- *“minor commercial application”* (essentially relates to existing buildings of no more than 250 square metres gross external floor space at ground floor level, currently in use for any of the purposes set out in Schedule 1A to The Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2015 which is an application for change of use from Class A1 to A2 or A3; or Class A2 to A3); or the carrying out of building or other operations to a shop front.
- *“minor commercial appeal”* means an appeal in relation to a minor commercial application but excludes an appeal against conditions on the grant of planning permission; or an appeal which is accompanied by an enforcement or listed building consent appeal.

APPENDIX B

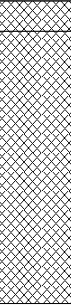
DYNAMIC WINDOWLESS SAMPLING BOREHOLE LOGS

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd		Project No.: 12307		Borehole No.: WS01 Sheet 1 of 1	
Location: Port Talbot		Client: Cultech Ltd		Coordinates:		Hole Type: WLS	
Equipment: GEO 26		Diameter of Casing:		Level:		Scale 1:25	
Diameter of Boring: 101mm		Depth of Casing:		Dates 17/11/2020 -		Logged By: RAH	

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES		0.10		MADE GROUND: Dark grey medium sub-angular to angular GRAVEL of limestone chippings. Plastic textile membrane. MADE GROUND: Firm to stiff red brown and dark grey slightly sandy gravelly silty CLAY. Gravel comprises fine to coarse sub-angular limestone and slag. (Medium dense becoming dense) MADE GROUND: Compact dark grey GRAVEL of fine to coarse sub-angular slag with occasional cobbles. Frequently slag cement gravel.	
					0.10			
					0.25			
					0.70			
							End of Borehole at 0.70 m	

Remarks: 1. Sampler refusal at 0.7mbgl. 2. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)		W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation		
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		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd		Project No.: 12307		Borehole No.: WS02 Sheet 1 of 1	
Location: Port Talbot				Client: Cultech Ltd		Coordinates:		Hole Type: WLS	
Equipment: GEO 26				Diameter of Casing:		Level:		Scale 1:25	
Diameter of Boring: 101mm				Depth of Casing:		Dates 17/11/2020 -		Logged By: RAH	

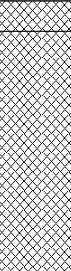
Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			MADE GROUND: Dark grey fine to medium sub-angular to angular GRAVEL of limestone chippings. MADE GROUND: Compact dark grey sandy GRAVEL of fine to coarse sub-rounded to angular slag with occasional concrete, brick and limestone. Contains occasional scrap metal and timber. (Medium dense becoming dense)	
		0.50	ES						
					1.00			End of Borehole at 1.00 m	1
									2
									3
									4
									5

Remarks: 1. Hand excavated to 0.5mbgl. 2. Sampler refusal at 1.0mbgl. 3. No groundwater encountered.				Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)				W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation			
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Intégral Géotechnique		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd			Project No.: 12307		Borehole No.: WS02A Sheet 1 of 1	
Location: Port Talbot				Client: Cultech Ltd			Coordinates:		Hole Type: WLS	
Equipment: GEO 26				Diameter of Casing:			Level:		Scale 1:25	
Diameter of Boring:				Depth of Casing:			Dates 17/11/2020 -		Logged By: RAH	
Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.08			PAVING SLABS.		
					0.13			Brown SAND.		
					0.15			CONCRETE SLAB.		
					Borehole repositioned.					
					End of Borehole at 0.15 m					
Remarks: 1. Borehole initiated - concrete slab encountered beneath paving stones.										
Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)							W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation			
AGS										

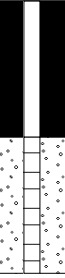
		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd		Project No.: 12307		Borehole No.: WS03 Sheet 1 of 1	
Location: Port Talbot				Client: Cultech Ltd		Coordinates:		Hole Type: WLS	
Equipment: GEO 26				Diameter of Casing:		Level:		Scale 1:25	
Diameter of Boring: 101mm				Depth of Casing:		Dates 17/11/2020 -		Logged By: RAH	

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			MADE GROUND: Dark grey fine to medium sub-angular to angular GRAVEL of limestone chippings. MADE GROUND: Compact dark grey very sandy GRAVEL of fine to coarse sub-rounded to angular slag with occasional concrete cobbles and brick fragments. Slag is frequently slag cement and blue grey slag. (Medium dense becoming dense/very dense)	
		0.80	ES		0.90				
								End of Borehole at 0.90 m	1
									2
									3
									4
									5

Remarks: 1. Sampler refusal at 0.9mbgl. 2. Gas monitoring well installed to base: 0.5m plain pipe and bentonite backfill underlain by 0.5m of slotted pipe with gravel filter. 3. No groundwater encountered.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)		W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation		
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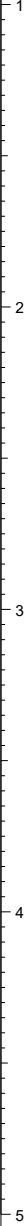
[illegible]

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd		Project No.: 12307		Borehole No.: WS05 Sheet 1 of 1	
Location: Port Talbot				Client: Cultech Ltd		Coordinates:		Hole Type: WLS	
Equipment: GEO 26				Diameter of Casing:		Level:		Scale 1:25	
Diameter of Boring: 101mm				Depth of Casing:		Dates 17/11/2020 -		Logged By: RAH	

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.20		MADE GROUND: Compact light brown slightly silty sandy GRAVEL of fine to coarse angular to sub-angular limestone, mudstone and concrete.		
					0.30		MADE GROUND: Compact dark blue grey slightly silty to silty GRAVEL of fine to coarse sub-angular mudstone.		
							MADE GROUND: Compact dark grey locally blue grey slightly silty sandy to very sandy ashy GRAVEL of fine to coarse sub-angular slag with occasional cobbles. (Medium dense becoming very dense)		
					0.90		End of Borehole at 0.90 m		
								1	
								2	
								3	
								4	
								5	

Remarks: 1. Sampler refusal at 0.9mbgl. 2. No groundwater encountered. 3. Gas monitoring well installed to base: 0.45m plain pipe and bentonite backfill underlain by 0.45m of slotted pipe with gravel filter.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)		W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation		
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		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd		Project No.: 12307		Borehole No.: WS06 Sheet 1 of 1	
Location: Port Talbot				Client: Cultech Ltd		Coordinates:		Hole Type: WLS	
Equipment: GEO 26				Diameter of Casing:		Level:		Scale 1:25	
Diameter of Boring: 101mm				Depth of Casing:		Dates 17/11/2020 -		Logged By: RAH	

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.05		MADE GROUND: Light grey brown sandy GRAVEL of fine to coarse sub-angular to angular limestone and concrete. MADE GROUND: Compact dark grey slightly silty sandy to very sandy ashy GRAVEL of sub-angular to angular slag, sandstone and occasional brick fragments. Contains very occasional timber fragments. (Medium dense)	
		0.30	ES					
		0.60	ES		0.45		MADE GROUND: Stiff dark grey to black slightly sandy gravelly to very gravelly ashy silty CLAY with occasional cobbles. Tending to gravel. Gravel and cobbles comprise fine to coarse sub-angular slag and mudstone.	
					0.80			
End of Borehole at 0.80 m								

Remarks: 1. Sampler refusal at 0.8mbgl. 2. No groundwater encountered. 3. Gas monitoring well installed to base: 0.4m plain pipe and bentonite backfill underlain by 0.4m of slotted pipe with gravel filter.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)		W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation		
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		Integral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Cultech Ltd		Project No.: 12307		Borehole No.: WS07 Sheet 1 of 1	
Location: Port Talbot				Client: Cultech Ltd		Coordinates:		Hole Type: WLS	
Equipment: GEO 26				Diameter of Casing:		Level:		Scale 1:25	
Diameter of Boring: 101mm				Depth of Casing:		Dates 17/11/2020 -		Logged By: RAH	

Well	Water Strikes	Samples & In situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES		0.10		MADE GROUND: Grey and pinkish brown sandy very gravelly silty CLAY. Gravel comprises fine to coarse sub-angular to angular limestone, brick and concrete. MADE GROUND: Stiff to very stiff dark grey slightly sandy gravelly silty CLAY. Locally ashy. Gravel comprises fine to coarse sub-rounded to angular slag, mudstone, sandstone, burnt shale and brick. ...Becoming darker with depth. ...Grading to gravel of slag at base.	
					0.80			
End of Borehole at 0.80 m								

Remarks: 1. Sampler refusal at 0.8mbgl. 2. No groundwater encountered.				Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample SPT - Standard Penetration Test (split spoon) CPT - Standard Penetration Test (solid cone)				W - Water sample U - Undisturbed sample TCR - Total Core Recovery SCR - Solid Core Recovery RQD - Rock Quality Designation			
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APPENDIX C

LABORATORY CHEMICAL TEST RESULTS

Rebecca Hitt
Integral Geotechnique
Integral House
7 Beddau Way
Castlegate Business Park
CF83 2AX

t: 02920807991
f: 02920862176
e: rebecca@integralgeotec.com

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

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

Analytical Report Number : 20-42155

Project / Site name:	Cultech Ltd	Samples received on:	19/11/2020
Your job number:	12307	Samples instructed on/ Analysis started on:	19/11/2020
Your order number:	12307	Analysis completed by:	27/11/2020
Report Issue Number:	1	Report issued on:	27/11/2020
Samples Analysed:	9 soil samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 20-42155
Project / Site name: Cultech Ltd
Your Order No: 12307

Lab Sample Number	1688507	1688508	1688509	1688510
Sample Reference	WS01	WS02	WS04	WS05
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.40	0.50	0.20	0.50
Date Sampled	17/11/2020	17/11/2020	17/11/2020	17/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	5.2
Total mass of sample received	kg	0.001	NONE	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10	10.2	8.7	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	3100	2700	700	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.59	0.31	0.11	0.41
Sulphide	mg/kg	1	MCERTS	4000	2100	6.3	-
Total Sulphur	mg/kg	50	MCERTS	7700	4200	830	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.4	0.7	2.1	-
Loss on Ignition @ 450oC	%	0.2	MCERTS	0.6	2.2	11.2	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.42	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.2	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.24	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	0.86	-
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Analytical Report Number: 20-42155
Project / Site name: Cultech Ltd
Your Order No: 12307

Lab Sample Number	1688507	1688508	1688509	1688510
Sample Reference	WS01	WS02	WS04	WS05
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.40	0.50	0.20	0.50
Date Sampled	17/11/2020	17/11/2020	17/11/2020	17/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.1	4.4	9.6	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	6.4	5.6	1.2	-
Boron (water soluble)	mg/kg	0.2	MCERTS	5.5	1.3	0.5	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.4	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	6.3	7.9	13	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3.3	18	35	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1.4	9.8	31	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	5.9	30	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	5.1	3.3	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	18	20	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	6.8	27	94	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	3.1	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	-
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	-

TPH Total C5 - C44	mg/kg	10	NONE	< 10	< 10	< 10	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-42155
Project / Site name: Cultech Ltd
Your Order No: 12307

Lab Sample Number	1688511	1688512	1688513	1688514
Sample Reference	WS06	WS06	WS07	SP1
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	0.60	0.40	None Supplied
Date Sampled	17/11/2020	17/11/2020	17/11/2020	17/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Accreditation Status
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	12
Total mass of sample received	kg	0.001	NONE	0.8

Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9	8.7	9	8.2
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	400	1200	730
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.48	0.044	0.21	0.051
Sulphide	mg/kg	1	MCERTS	-	3.5	190	120
Total Sulphur	mg/kg	50	MCERTS	-	1200	1400	630
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	3.3	2	1.8
Loss on Ignition @ 450oC	%	0.2	MCERTS	-	24.4	11.5	6.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	0.9	0.78	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.28
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.44	0.37
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.45	0.37
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.32	0.37
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	0.43	0.43
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.32	0.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.21	0.41
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.21	0.35
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	0.9	3.16	2.88
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Analytical Report Number: 20-42155
Project / Site name: Cultech Ltd
Your Order No: 12307

Lab Sample Number	1688511	1688512	1688513	1688514
Sample Reference	WS06	WS06	WS07	SP1
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	0.60	0.40	None Supplied
Date Sampled	17/11/2020	17/11/2020	17/11/2020	17/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Accreditation
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-
Chromium (hexavalent)	mg/kg	4	MCERTS	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	< 8.4	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-	< 10	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-	-	< 10	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	< 8.4	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-	< 10	-

TPH Total C5 - C44	mg/kg	10	NONE	-	-	< 10	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-42155
Project / Site name: Cultech Ltd
Your Order No: 12307

Lab Sample Number	1688515			
Sample Reference	SP2			
Sample Number	None Supplied			
Depth (m)	None Supplied			
Date Sampled	17/11/2020			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	890
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.14
Sulphide	mg/kg	1	MCERTS	140
Total Sulphur	mg/kg	50	MCERTS	1500
Total Organic Carbon (TOC)	%	0.1	MCERTS	2.2
Loss on Ignition @ 450oC	%	0.2	MCERTS	12.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.73
Pyrene	mg/kg	0.05	MCERTS	0.69
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.45
Chrysene	mg/kg	0.05	MCERTS	0.6
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.32
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.32
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.58
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Analytical Report Number: 20-42155
Project / Site name: Cultech Ltd
Your Order No: 12307

Lab Sample Number					1688515
Sample Reference					SP2
Sample Number					None Supplied
Depth (m)					None Supplied
Date Sampled					17/11/2020
Time Taken					None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accred- itation Status	MCERTS	
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS		8.6
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS		1.4
Boron (water soluble)	mg/kg	0.2	MCERTS		1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS		0.4
Chromium (hexavalent)	mg/kg	4	MCERTS		< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS		11
Copper (aqua regia extractable)	mg/kg	1	MCERTS		35
Lead (aqua regia extractable)	mg/kg	1	MCERTS		24
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS		0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS		32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS		< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS		20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS		120

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-

TPH Total C5 - C44	mg/kg	10	NONE	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-42155

Project / Site name: Cultech Ltd

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1688507	WS01	None Supplied	0.4	Brown clay and loam.
1688508	WS02	None Supplied	0.5	Brown clay and loam with gravel.
1688509	WS04	None Supplied	0.2	Brown loam and clay with gravel.
1688510	WS05	None Supplied	0.5	Brown loam and clay with gravel.
1688511	WS06	None Supplied	0.3	Brown loam and clay with gravel.
1688512	WS06	None Supplied	0.6	Grey loam and clay with gravel.
1688513	WS07	None Supplied	0.4	Brown clay and loam with gravel.
1688514	SP1	None Supplied	None Supplied	Brown clay and loam.
1688515	SP2	None Supplied	None Supplied	Brown clay and loam.

Analytical Report Number : 20-42155
Project / Site name: Cultech Ltd

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

Analytical Report Number : 20-42155
Project / Site name: Cultech Ltd

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE

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

APPENDIX D

IN-SITU GAS MONITORING RESULTS

FIELD GAS MONITORING RESULTS - SUMMARY

Job No.: 12307
 Site: Cultech Port Talbot

Maximum Methane Concentration (%v/v)	Maximum Carbon Dioxide Concentration (%v/v)	Maximum Gas Concentration (%v/v)	Maximum Gas Flow Rate (l/hr)	GSV (l/hr)
<0.5	<0.5	<0.5	<0.3	<0.0015

Methane							
Location	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Maximum
WS 3	0.20	0.10	0.10				0.20
WS 5	0.10	0.10	0.10				0.10
WS 6	<0.5	<0.5	<0.5				<0.50

Carbon Dioxide							
Location	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Maximum
WS 3	<0.5	0.10	0.10				<0.50
WS 5	<0.5	0.10	<0.5				<0.50
WS 6	0.20	0.30	0.20				0.30

Oxygen							
Location	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Minimum
WS 3	20.80	20.50	19.90				19.90
WS 5	20.60	20.10	19.40				19.40
WS 6	19.30	19.50	20.10				19.30

Gas Flow Rate							
Location	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Maximum
WS 3	<0.3	<0.3	<0.3				<0.30
WS 5	<0.3	<0.3	<0.3				<0.30
WS 6	<0.3	<0.3	<0.3				<0.30

FIELD GAS MONITORING RESULTS

Job No.: 12307
 Site: Cultech Port Talbot
 Monitoring Date: 25.11.20
 Monitoring Round: 1

Monitoring Conditions

Weather: Sunny
 Ambient Temp: 8 °C
 Instrument: GA5000

Barometric Pressure (mb)

On Arrival: 993
 During Monitoring: 993
 End of Monitoring: 993

Location	Well Base Level (mbgl)	Water Level (mbgl)	Methane (CH4) %v/v		Methane % LEL		Oxygen (O2) %v/v		Carbon Dioxide (CO2) %v/v		Carbon Monoxide (CO) (ppm)	Hydrogen Sulphide (H2S) (ppm)	Peak Gas Flow (l/hr)	VOC Vapours (ppm>background)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady				
WS 3	0.73	Dry	0.20	0.20	4.00	4.00	20.80	20.80	<0.5	<0.5	<1	<1	<0.3	0.10
WS 5	0.83	Dry	0.10	0.10	2.00	2.00	20.60	20.60	<0.5	<0.5	<1	<1	<0.3	<0.1
WS 6	0.81	Dry	<0.5	<0.5			19.30	19.30	0.20	0.20	<1	<1	<0.3	<0.1

Typical Instrument Accuracy:

%CH ₄	0-70% +/- 0.5%	CO	0-500ppm +/- 2% FS	LEL = Lower Explosive Limit
%CO ₂	0-60% +/- 0.5%	H ₂ S	0-5000ppm +/- 2.0% FS	N/R = No Reading Taken
%O ₂	0-25% +/- 1.0%	Flow from borehole	+/- 0.3l/h	FS = Full Scale

Notes:

FIELD GAS MONITORING RESULTS

Job No.: 12307
Site: Cultech Port Talbot
Monitoring Date: 09.12.20
Monitoring Round: 2

Monitoring Conditions

Weather:	Cloudy	
Ambient Temp:	4	°C
Instrument:	GA5000	

Barometric Pressure (mb)

On Arrival:	1007
During Monitoring:	1007
End of Monitoring:	1007

Location	Well Base Level (mbgl)	Water Level (mbgl)	Methane (CH4) %w/v		Methane % LEL		Oxygen (O2) %v/v		Carbon Dioxide (CO2) %v/v		Carbon Monoxide (CO) (ppm)	Hydrogen Sulphide (H2S) (ppm)	Peak Gas Flow (l/hr)	VOC Vapours (ppm>background)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady				
WS 3	0.73	Dry	0.10	0.10	2.00	2.00	20.50	20.50	0.10	0.10	<1	<1	<0.3	<0.1
WS 5	0.83	Dry	0.10	0.10	2.00	2.00	20.10	20.10	0.10	0.10	<1	<1	<0.3	<0.1
WS 6	0.81	Dry	<0.5	<0.5			19.50	19.50	0.30	0.30	<1	<1	<0.3	<0.1
Typical Instrument Accuracy:														
%CH ₄	0-70% +/- 0.5%		CO	0-500ppm +/- 2% FS										
%CO ₂	0-60% +/- 0.5%		H ₂ S	0-5000ppm +/- 2.0% FS										
%O ₂	0-25% +/- 1.0%		Flow from borehole +/- 0.3l/h											
LEL = Lower Explosive Limit														
N/R = No Reading Taken														
FS = Full Scale														
Notes:														

FIELD GAS MONITORING RESULTS

Job No.: 12307
 Site: Cultech Port Talbot
 Monitoring Date: 16.12.20
 Monitoring Round: 3

Monitoring Conditions

Weather: Cloudy
 Ambient Temp: 8 °C
 Instrument: GA5000

Barometric Pressure (mb)

On Arrival: 997
 During Monitoring: 997
 End of Monitoring: 997

Location	Well Base Level (mbgl)	Water Level (mbgl)	Methane (CH4) %v/v		Methane % LEL		Oxygen (O2) %v/v		Carbon Dioxide (CO2) %v/v		Carbon Monoxide (CO) (ppm)	Hydrogen Sulphide (H2S) (ppm)	Peak Gas Flow (l/hr)	VOC Vapours (ppm>background)
			Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady				
WS 3	0.73	Dry	0.10	0.10	2.00	2.00	19.90	19.90	0.10	0.10	<1	<1	<0.3	<0.1
WS 5	0.83	Dry	0.10	0.10	2.00	2.00	19.40	19.90	<0.5	<0.5	<1	<1	<0.3	<0.1
WS 6	0.81	Dry	<0.5	<0.5			20.10	20.10	0.20	0.20	<1	<1	<0.3	<0.1
Typical Instrument Accuracy: %CH ₄ 0-70% +/- 0.5% CO 0-500ppm +/- 2% FS %CO ₂ 0-60% +/- 0.5% H ₂ S 0-5000ppm +/- 2.0% FS %O ₂ 0-25% +/- 1.0% Flow from borehole +/- 0.3l/h LEL = Lower Explosive Limit N/R = No Reading Taken FS = Full Scale														
Notes: 														

APPENDIX E

SUMMARY OF CHEMICAL TEST RESULTS

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 12307
Site: Cultech Ltd
Soil Type: Made Ground
Soil Organic Matter: 1%

No.	Location	Depth (m)	Arsenic (mg/kg)	Boron (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (Elemental) (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
1	WS01	0.40	3.1	5.5	6.4	< 0.2	6.3	< 4.0	3.3	1.4	< 0.3	< 1.0	5.1	32	6.8
2	WS02	0.50	4.4	1.3	5.6	< 0.2	7.9	< 4.0	18	9.8	0.5	5.9	3.3	18	27
3	WS04	0.20	9.6	0.5	1.2	0.4	13	< 4.0	35	31	< 0.3	30	< 1.0	20	94
4	WS05	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-
5	WS06	0.30	-	-	-	-	-	-	-	-	-	-	-	-	-
6	WS06	0.60	8.7	0.9	0.84	< 0.2	4.5	< 4.0	48	23	< 0.3	30	< 1.0	9.2	73
7	WS07	0.40	11	0.6	1.7	< 0.2	13	< 4.0	40	30	< 0.3	31	< 1.0	22	100
8	SP1	-	20	0.9	0.95	0.8	14	< 4.0	56	84	< 0.3	26	< 1.0	23	180
9	SP2	-	8.6	1.3	1.4	0.4	11	< 4.0	35	24	0.3	32	< 1.0	20	120
Screening Criteria Value			640.0	240000.0	12.0	190.0	-	33.0	68000.0	2330.0	58.0	980.0	12000.0	9000.0	730000.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	-	S4UL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

INORGANIC CHEMICALS & OTHERS

Job No.: 12307
 Site: Cultech Ltd
 Soil Type: Made Ground
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Cyanide (mg/kg)	Loss on ignition, dried solids (%)	Moisture content at 30 C (%)	Phenol (mg/kg)	pH (pH units)	Water Soluble Sulphate (g/l)	Sulphate Total as SO4 (mg/kg)	Sulphide (mg/kg)	Total Sulphur (mg/kg)	TOC by Ignition in O2 (%)	Equivalent SOM (%)	Asbestos in Soil	Asbestos Quantification (%)
1	WS01	0.40	< 1	0.60	5.20	< 1.0	10.00	0.59	3100.00	4000.00	7700.00	0.40	0.69	Not-detected	-
2	WS02	0.50	< 1	2.20	7.90	< 1.0	10.20	0.31	2700.00	2100.00	4200.00	0.70	1.20	Not-detected	-
3	WS04	0.20	< 1	11.20	9.00	< 1.0	8.70	0.11	700.00	6.30	830.00	2.10	3.61	Not-detected	-
4	WS05	0.50	-	-	8.30	-	9.10	0.41	-	-	-	-	<0.1	-	-
5	WS06	0.30	-	-	9.90	-	9.00	0.48	-	-	-	-	<0.1	-	-
6	WS06	0.60	< 1	24.40	12.00	< 1.0	8.70	0.04	400.00	3.50	1200.00	3.30	5.68	Not-detected	-
7	WS07	0.40	< 1	11.50	9.10	< 1.0	9.00	0.21	1200.00	190.00	1400.00	2.00	3.44	Not-detected	-
8	SP1	-	< 1	6.40	16.00	< 1.0	8.20	0.05	730.00	120.00	630.00	1.80	3.10	Not-detected	-
9	SP2	-	< 1	12.20	13.00	< 1.0	8.40	0.14	890.00	140.00	1500.00	2.20	3.78	Not-detected	-
Screening Criteria Value			34.0	-	-	440.0	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	IOM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 12307
Site: Cultech Ltd
Soil Type: Made Ground
Soil Organic Matter: 1%

No.	Location	Depth (m)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(ghi)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(ah)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(123cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
1	WS01	0.40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2	WS02	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3	WS04	0.20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.2	< 0.05	< 0.05	< 0.05	0.42	0.24
4	WS05	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	WS06	0.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	WS06	0.60	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.9	< 0.05
7	WS07	0.40	< 0.05	< 0.05	< 0.05	0.32	0.21	0.32	< 0.05	0.21	0.43	< 0.05	0.44	< 0.05	< 0.05	< 0.05	0.78	0.45
8	SP1	-	< 0.05	< 0.05	0.28	0.37	0.35	0.3	< 0.05	0.41	0.43	< 0.05	0.37	< 0.05	< 0.05	< 0.05	< 0.05	0.37
9	SP2	-	< 0.05	< 0.05	< 0.05	0.45	0.32	0.3	< 0.05	0.32	0.6	< 0.05	0.73	< 0.05	< 0.05	< 0.05	1.2	0.69
Screening Criteria Value			84000.0	83000.0	520000.0	170.0	35.0	44.0	3800.0	1200.0	350.0	3.5	23000.0	63000.0	500.0	190.0	22000.0	54000.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

PETROLEUM HYDROCARBONS

Job No.: 12307
Site: Cultech Ltd
Soil Type: Made Ground
Soil Organic Matter: 1%

No.	Location	Depth (m)	Aliphatic C5-C6 (mg/kg)	Aliphatic C6-C8 (mg/kg)	Aliphatic C8-C10 (mg/kg)	Aliphatic C10- C12 EPH (mg/kg)	Aliphatic C12- C16 EPH (mg/kg)	Aliphatic C16-C35 EPH (mg/kg)	Aliphatic C35- C44 EPH (mg/kg)	Aromatic C5-C7 (mg/kg)	Aromatic C7-C8 (mg/kg)	Aromatic C8-C10 (mg/kg)	Aromatic C10- C12 EPH (mg/kg)	Aromatic C12- C16 EPH (mg/kg)	Aromatic C16- C21 EPH (mg/kg)	Aromatic C21- C35 EPH (mg/kg)	Aromatic C35- C40 EPH (mg/kg)
1	WS01	0.40	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
2	WS02	0.50	< 0.001	< 0.001	< 0.001	3.1	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
3	WS04	0.20	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
4	WS05	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	WS06	0.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	WS06	0.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	WS07	0.40	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
8	SP1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	SP2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Screening Criteria Value			3200.0	7800.0	2000.0	9700.0	59000.0	1600000.0	1600000.0	27.0	56000.0	3500.0	16000.0	36000.0	28000.0	28000.0	28000.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

FIGURES



NORTH

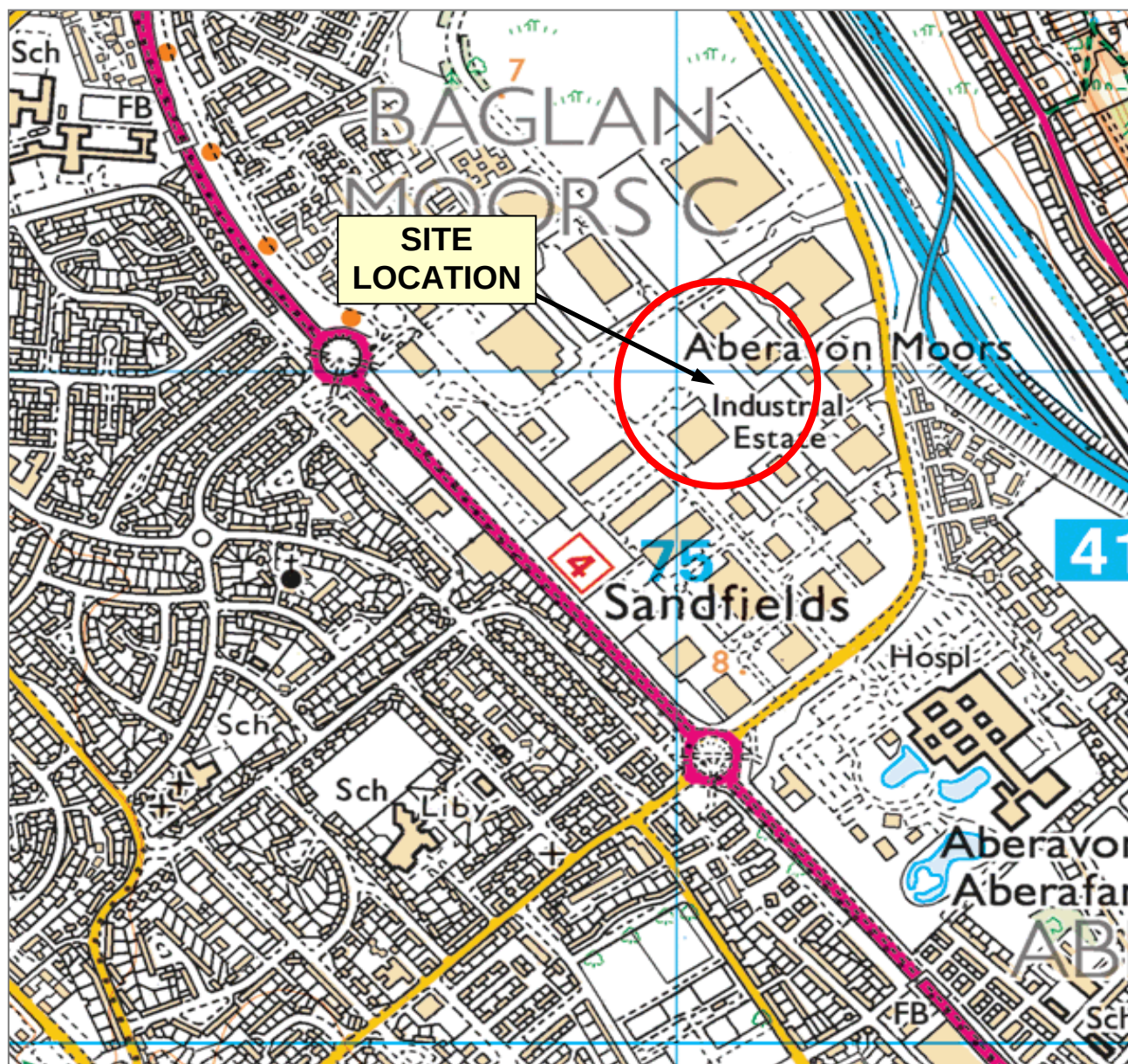


Figure 1: Site Location

12307: Cultech, Port Talbot

Intégral
Géotechnique

Intégral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 2080 7991

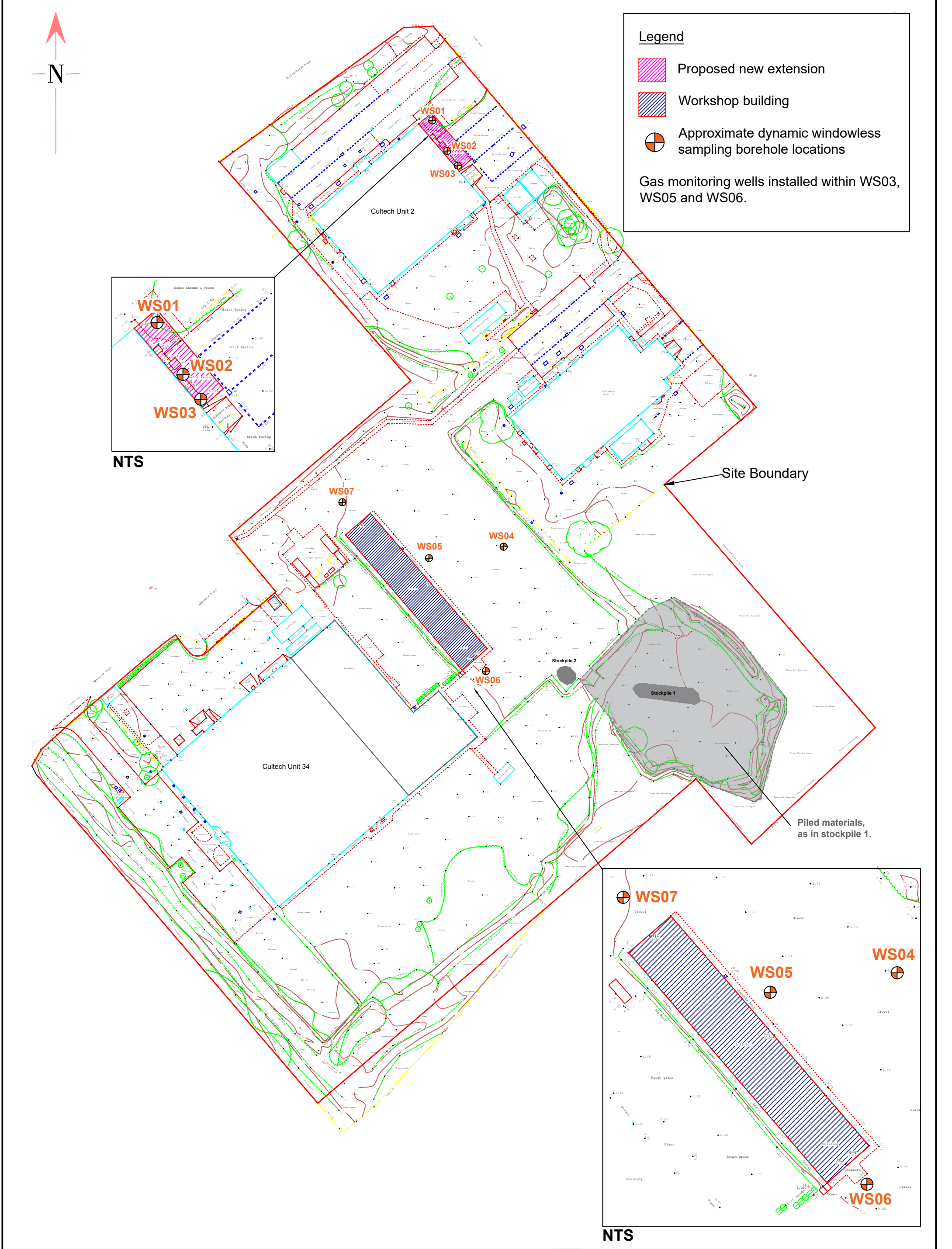


Figure 2: Exploratory Hole Location Plan