

Vale of Glamorgan Council

**INNOVATION QUARTER, HOOD ROAD,
BARRY WATERFRONT, BARRY**

Site Investigation Report

11539/RB/15

CLIENT: Vale of Glamorgan Council

PROJECT: Innovation Quarter, Hood Road,
Barry Waterfront, Barry

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1.0 INTRODUCTION

1.1 GENERAL

The Vale of Glamorgan Council are proposing to market a site at the Innovation Quarter/Hood Road, Barry Waterfront, Barry for redevelopment. The site is split into three parts with the southwest part of the site intended for an educational end-use as part of the proposed adjacent school, the central and eastern site area intended for commercial end use and the northern area intended for a public car park end use.

In 2012, the intended use of the site was entirely for educational end use. At this time, Intégral Géotechnique (Wales) Limited were commissioned to undertake a site investigation and the findings reported in Site Investigation Report No. 10973/RB/12/RevA dated May 2012.

Intégral Géotechnique (Wales) Limited have now been appointed as the Geotechnical Engineers to review the existing site investigation data in respect to the now proposed end uses, and provide a report to enable a geotechnical and geoenvironmental appraisal of the site and provide a basis for design.

This report presents the findings of the previous site investigation and gives recommendations for the design of foundations, floor slabs and other geotechnical and geo-environmental aspects of the project.

1.2 PROPOSED DEVELOPMENT

The proposed development is split into three areas comprising educational end use in the southwest, commercial in the centre/east and public car parking in the north. The proposed educational land parcel will adjoin onto a proposed school to the south. The development is likely to comprise a school building together with car parking areas and drop off facilities. The central and eastern parts of the site are proposed for commercial end use. A new building is proposed adjacent to the eastern boundary, with areas of car parking. A public car park is also proposed in the northern part of the site.

1.3 SCOPE OF WORKS

The work instructed included a desk study of available information, site reconnaissance and intrusive investigation. This was followed by laboratory testing, on site monitoring and geotechnical and geo-environmental reporting.

1.3 SCOPE OF WORKS (CONTINUED)

The desk study comprised a review of:

- An Envirocheck Report obtained for the site;
- Old Ordnance Survey maps covering the site, included within the Envirocheck Report;
- A Radon Report obtained from the British Geological Survey;
- Geological maps of the area provided by the British Geological Survey;
- the Environment Agency groundwater vulnerability map and aquifer database for the area; and
- Existing site investigation data.

The desk study information was used to make an initial assessment of the site and to design an investigation to be carried out by Intégral Géotechnique. The site investigation was designed in accordance with BS5930+A2:2010, the Code of Practice for Site Investigations, BS10175:2011, 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 (WLGA)/Environment Agency Wales (EAW) Land Contamination Working Group, 2012.

The site investigation included:

- An intrusive investigation carried out during March 2012 comprising machine excavated trial pits and shell and auger boreholes;
- Sampling of soil/fill for laboratory chemical and geotechnical testing;
- Sampling of groundwater for laboratory chemical testing (one round only); and
- Monitoring for concentrations of methane, carbon dioxide, oxygen, hydrocarbon vapours and gas flow (two rounds of monitoring only).

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 the Environment Agency 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 a number of live buried services that cross the site and some areas of hardstanding that could not be disturbed.

It should also be noted that the area proposed for a public car park in the north of the site was outside of the previous site boundary and hence no site investigation data relevant to this specific area is available.

This report has been prepared for the use of the Vale of Glamorgan Council and their advisors and should not be passed to others without the express consent of Intégral Géotechnique (Wales) Limited.

2.0 THE SITE

2.1 SITE LOCATION AND DESCRIPTION

The site is located to the west of Barry No. 1 Dock, approximately 1.4km southwest of Barry Town Centre, at a National Grid Reference of 311090, 167390, see Figure 1.

The site is roughly triangular in shape and occupies an area of approximately 1.9 hectares. The boundaries of the site are defined by a railway line and existing building to the north, Powell Duffryn Way and a roundabout to the east and the site access road and undeveloped land to the south and west. The area proposed for a public car park is located beyond the railway line to the north. A site plan is presented in Figure 2 which shows each of the proposed development land parcels.

The site is situated on typically level ground at an approximate elevation of 9m AOD. Access to the site is from the south via the site access road, which runs approximately north to south and splits the main site into two halves. The eastern half of the site is mostly covered by grass. A hardcore road runs along the northern boundary of this part of the site. The western part of the site comprises a hardcore car parking area. A concrete footpath flanked by trees and bushes is present in the centre of the western part of the site. The area proposed for a public car park in the north of the site is covered by hard standing.

Active services are present on site, including gas, water and electric. A number of drains are also present on site. Site drainage may act as a preferential pathway for any mobile contaminants. It is our understanding that a culvert is present beneath part of the site. Anecdotal evidence indicates that the culvert enters beneath the northeast corner of the site, passes beneath the northern central part of the site and exits in the southwest corner. The culvert is believed to be at a depth of approximately 4m.

Japanese knotweed was not observed on site at the time of the site investigation.

2.2 SITE OPERATIONS

There were no site operations on site at the time of the investigation. The site was disused.

2.3 SURROUNDING LAND USE

The surrounding land use is a mixture between residential and commercial uses. The land to the north of the site is occupied by a doctor's surgery and a business centre. The land to the northeast was currently being developed for a residential end use. The land to the south and west was undeveloped.

2.4 AVAILABLE SITE INVESTIGATION DATA

There is no existing site investigation data available relevant to the current site area. However, there are a number of reports available with regard to the land to the south and west of the current site area.

2.5 CONSULTATIONS WITH REGULATORS

The regulators have not been consulted at this stage.

3.0 SITE HISTORY

The recent history of the site has been traced with the aid of an Envirocheck Report, a copy of which is included in Appendix A. The Envirocheck Report includes the following scaled historical maps:

Map Scale	Dates
1:2,500	1879, 1900, 1920, 1936, 1956
1:1,1250	1955, 1971-1972, 1973, 1990, 1993
1:10,560	1885, 1901, 1921, 1885, 1901, 1921, 1936, 1938-1947, 1947
1:10,000	1965, 1975, 1982-1984, 1991-1995, 1999, 2006, 2011

The earliest edition of the historical map, dated 1879, shows that the site and the surrounding area was undeveloped at this time. The Cadoxton River passed through the eastern and southern part of the site, adjacent to the site boundary. A stream also flowed through the northeast part of the site, into the Cadoxton River.

The 1900 edition of the map shows that significant development had taken place in the area of the site. A dock, Barry Number 1 dock, had been constructed to the east of the site whilst another dock, known as the West Pond, was constructed to the south of the site. The northern most part of the West Pond was within the southern/southwest part of the current site boundary. The eastern boundary of the West Pond had a sloping masonry dock wall. The land to the north of the site was occupied by a Locomotive Repairing Works and a goods shed was constructed adjacent to the northern site boundary. A railway line had been constructed to the north of the Locomotive Repairing Works, with a number of additional railway lines running to, and adjacent to, the Barry Number 1 Dock. Several of these railway lines/sidings were present on the current site at this time, entering from the east and stopping short of the West Pond. A number of railway lines in the northern site area stopped at the goods shed. A possible small building was also present on site in the southern part of the site. A road runs approximately southeast to northwest through the western part of the site, adjacent to the West Pond. The land beyond the railway lines to the northwest had been developed for residential end use.

By 1920 there had been very little change to the site and the surrounding area. Additional railway lines/sidings had been constructed on site, entering from the east. The sloping masonry dock wall was shown as a slope by this time.

3.0 SITE HISTORY

The 1936 edition of the map showed very little change to the site and the surrounding area. A number of tanks were present in the southern part of the site.

By 1955 there had been no significant changes to the site. The West Pond had been infilled by this time.

The 1971-1972 historical map shows that a number of railway sidings had been removed from the site. The tanks previously identified in the southern part of the site had also been removed. The northern part of the site was now shown to be a coal yard. A laboratory was present in the central part of the site. An oil storage terminal had been constructed to the southeast of the site, adjacent to the Barry Number 1 Dock, with a number of large oil tanks being present. An additional road, now labelled Powell Duffryn Way, had been constructed in the southwest part of the site, which linked to the Oil Storage Terminal. The goods shed to the north of the site and the Locomotive Repairing Works were now disused and a number of the buildings demolished. A pump house was now present to the north of the site.

By 1990 the remaining railway lines/sidings had been removed from the site. A number of small square and rectangular buildings were present in the southern part of the site. Additionally, two small buildings were also present in the western part of the site. A larger rectangular building now occupied the central/northern part of the site. Powell Duffryn Way was still present running through the southern and western part of the site.

By 1999 additional buildings had been constructed in the eastern part of the site. The Oil Storage Terminal to the southeast of the site had been reduced in size. The large oil storage tanks adjacent to the end of the dock had been removed and the Oil storage Terminal limited to the south of the Barry Number 1 dock.

The 2006 edition of the historical map shows that the former buildings present on site had been demolished. Powell Duffryn Way had also been diverted from crossing the site and now passing to the east. A new roundabout had also been constructed adjacent to the eastern site boundary. The existing site access road was now indicated in the central part of the site and the western part of the site was occupied by a car park. A railway line had been constructed adjacent to the western site boundary, running approximately south-southwest from the former goods shed. This is indicated to be the Vale of Glamorgan Steam Railway.

The site remained in this form until present day.

4.0 SITE ENVIRONMENTAL SETTING

4.1 PHYSICAL SETTING

The site is situated on relatively flat, level ground at an approximate elevation of 9m AOD, adjacent to the Barry Number 1 Dock on the northern banks of the infilled estuary of the Cadoxton River. The land to the north and northwest rises quickly to an elevation of 20m AOD beyond the railway line, approximately 10m from the site boundary.

The coast is located approximately 1.3km to the south of the site.

4.2 GEOLOGY

The 1:50,000 and 1:10,560 scale geological maps of the area indicate that the site is mostly underlain by the rocks of the Penarth Group of Triassic age. These strata typically comprise pyritic shales with thin beds of limestone and sandstone, and/or pale grey to green mudstones and blue-grey calcareous mudstones with subordinate thin limestones and siltstones. The northern part of the site is close to the boundary with the strata of the Mary's Well Bay Member of the Jurassic and Triassic periods. These strata comprise interbedded limestone and mudstone.

The geological map indicates that the rocks of the Penarth Group are overlain by Marine or Estuarine Alluvium, typically comprising soft clays with subordinate silts and pockets of peat.

A variable thickness of made ground is anticipated above the superficial deposits across the site.

A summary of the anticipated geological succession is given below in Table 1.

Table 1 : Summary of Anticipated Site Geology		
Geological unit	Horizon	Description
Recent	Made ground	Various materials
Quaternary	Marine or Estuarine Alluvium	Soft clays with silts and peat pockets
Triassic	Penarth group	Pyritic shales with thin mudstones and sandstone, and/or mudstones with thin limestones and siltstones
Triassic/Jurassic	Mary's Well Bay Member (North of Site)	Interbedded limestone & mudstone.

4.2 GEOLOGY (CONTINUED)

A BGS radon report has been obtained for the site and a copy included in Appendix B. The report indicates that basic radon protective measures are required for the site.

4.3 MINING

The site is not located in an area at risk from mining.

4.4 HYDROLOGY, HYDROGEOLOGY AND FLOOD RISK

The site is located on the northern bank of the now infilled estuary of the Cadoxton River. It is our understanding that a culvert passes beneath the site, from the northeast to southwest. The nearest surface water body is the Barry Number 1 Dock, located some 60m to the east of the site boundary.

The Environment Agency aquifer database classifies the bedrock beneath the site as a Secondary 'B' Aquifer. Secondary 'B' Aquifers are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

The Environment Agency groundwater vulnerability map and aquifer database classifies the superficial deposits beneath the site as Secondary Undifferentiated. Secondary Undifferentiated classifications are where it has not been possible to distinguish between Secondary 'A' and Secondary 'B' aquifers. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Pockets of perched water may be encountered at the base of the made ground, perched on top of depressions within the Marine or Estuarine Alluvium.

It is considered possible that the existing site drainage can act as a pathway for potential surface contaminants.

There are sixteen discharge consents recorded within 500m of the site boundary. Six of these are within 250m of the site and ten are within 251 to 500m. There are no discharge consents on site.

4.4 HYDROLOGY, HYDROGEOLOGY AND FLOOD RISK (CONTINUED)

The Envirocheck Report states that there are no groundwater abstractions within 500m of the site.

Tables 2 and 3 present a summary of the hydrological features and key hydrogeological nature of the site.

Table 2: Summary of Site Hydrology					
Feature	Distance from site	Flow	Classification	Abstraction	Discharge
Barry No. 1 Dock	60m to the east	Not known	Not known	No	Bristol Channel
Surface run-off	On site	Flows into site drainage	N/A	No	Not known
Site Drainage and culvert	On site	Not known	N/A	No	Not known

Table 3: Summary of Site Hydrogeology				
Geological Unit	Aquifer Classification	Aquifer Characteristics	Source Protection Zone	Groundwater Abstractions
Made ground	Not classified	Highly variable permeability and porosity. Perched water may be present with variable flow directions.	No	None
Marine/Estuarine Alluvium	Secondary Undifferentiated Aquifer	Variable permeability and porosity with intergranular flow possible. High clay content likely to restrict flow.	No	None
Penarth Group	Secondary B Aquifer	Low permeability layers which may store or yield limited amounts of water	No	None

The soils have been classified as having a high leachate potential. Since this is an urban area, a worst case classification has been made, based on fewer observations. These are soils with little ability to attenuate diffuse source pollutants and in which liquid discharges have the potential to move rapidly to the underlying strata.

4.4 HYDROLOGY, HYDROGEOLOGY AND FLOOD RISK (CONTINUED)

The Environment Agency Flood Risk Map as presented within the Envirocheck Report in Appendix A indicates that the site is not located within an area at risk from flooding.

4.5 LANDFILL SITES

The Envirocheck Report, presented in Appendix A, indicates that there is one historical landfill site within 500m of the site. The historical landfill site referred to is the former West Pond which was infilled between 1945 and 1955 with waste that included inert, industrial, commercial, household and special waste. At its closest point, this historical landfill site is indicated to be 2m from the southern site boundary.

4.6 POTENTIAL CONTAMINATION

Previous Uses

The various activities in the vicinity of the site which may have resulted in ground or water resource contamination on this site are listed below in Tables 4 and 5. Reference to Department of the Environment Industry Profiles has been made and a summary of the potential contaminants can be found in the tables.

Table 4: Potential Contaminants		
Land Use: Green Field until 1900		
Material/Process	Contamination/Hazard	Evidence
Northern bank of the Cadoxton River Estuary	No potential contaminants	Historical Maps
Land Use: Railway Land from 1900 to 1970's		
Material/Process	Contamination/Hazard	Evidence
Railway sidings, above ground storage tanks	Metals, semi-metals, non-metals, polyaromatic hydrocarbons (PAH), petroleum hydrocarbons (VPH/EPH), volatile/semi-volatile organic contaminants (VOC/SVOC), asbestos	Historical Maps/Current site use

4.6 POTENTIAL CONTAMINATION (CONTINUED)

Land Use: Infilled West Pond from 1945-1955		
Material/Process	Contamination/Hazard	Evidence
Infilling of West Pond	Unknown various materials	Historical Maps

Land Use: Coal Yard 1970's until recent		
Material/Process	Contamination/Hazard	Evidence
Storage and distribution of coal	Metals, Semi-metals, non-metals, polyaromatic hydrocarbons (PAH), petroleum hydrocarbons (VPH/EPH), volatile/semi-volatile organic contaminants (VOC/SVOC), asbestos	Historical Map

Existing Uses

There are no existing site uses. All former buildings have been demolished, and above ground storage tanks removed. The western part of the site comprises a gravel car park and the eastern part of the site is mostly covered by grass.

Adjacent Site Uses

Table 5 : Potential Contaminants : Adjacent Site Uses		
Potential Contamination Source	Boundary	Associated Contaminants and Hazards
Commercial	Northern	No Potential Contaminants
Residential	Eastern/northeast	No Potential Contaminants
Undeveloped land	Southern and western	No Potential Contaminants

4.7 OTHER ENVIRONMENTAL ISSUES

The Envirocheck Report indicates that there have been no pollution incidents to controlled waters recorded on site and there have been no enforcement or prohibition notices on site. However, there have been two pollution incidents to controlled waters within 500m of the site.

4.7 OTHER ENVIRONMENTAL ISSUES (CONTINUED)

In 1993 a minor incident to controlled waters was recorded approximately 341m to the east of the site at Waste Handling Facilities. The cause of the incident was a direct discharge as a result of a deliberate act. The pollutant and the receiving water were not given.

In 1995 a minor incident to controlled waters was recorded 498m to the northwest of the site at JD Cars. The pollutant was petrol but the cause and receiving water were not provided.

There have been no further pollution incidents to controlled waters recorded within 500m of the site boundary.

There has been one registered radioactive substance within 250m of the site. Research Vessel Services located at Barry No. 1 Dock, located approximately 175m to the southeast had authorisation under S13 RSA for the disposal of radioactive waste. The permit was dated from 31st March 1991 but has been either revoked or cancelled.

5.0 PRELIMINARY CONCEPTUAL SITE MODEL

5.1 RISK ASSESSMENT FRAMEWORK

In order to be consistent with current UK government policies and legislation, it is necessary to identify, make decisions on, and take appropriate action to deal with land contamination, in accordance with the procedures specified in the Environment Agency document '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 the CLR-11 framework, risk is defined as:

'a combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequence of the occurrence'.

The three essential elements to any risk are defined by CLR-11 as follows:

- A contaminant, or hazard, which is in, on, or under the land and has the potential to cause harm (Source)
- A means by which a receptor can be exposed to, or affected by a contaminant or hazard (Pathway)
- A receptor, i.e. something which could be adversely affected by a contaminant or hazard, such as human health or groundwater (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.

5.1 RISK ASSESSMENT FRAMEWORK (CONTINUED)

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 to 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.

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.

5.1 RISK ASSESSMENT FRAMEWORK (CONTINUED)

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 C4SL is available, and considered appropriate, this will be used in the first instance.

5.2 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.

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.

5.3 CRITICAL SENSITIVE RECEPTOR – HUMAN HEALTH

The proposed redevelopment of the site is for a mixture of educational/school end use and commercial end use. The proposed public car park in the north of the site has also been considered as commercial end use for the purposes of human health risk assessment. Therefore, the critical sensitive receptors from a human health perspective are a pupil or teacher in the proposed educational land and a worker in the proposed commercial land. Since a school end use is not a standard land use within the C4SL/CLEA model, a residential end use has been used in the first instance as a conservative screen.

In accordance with C4SL and CLEA guidance for a standard residential scenario, the critical sensitive receptor for a residential end use risk assessment is a female child, with exposure from 0 to 6 years. For a commercial end use the critical sensitive receptor is a female adult, with exposure from 16 to 65 years.

The standard residential and commercial end use conceptual models defined by C4SL and CLEA are assumed to be suitable for the purposes of this assessment.

5.4 CRITICAL SENSITIVE RECEPTOR – CONTROLLED WATERS

Based on the proposed redevelopment of the site, and the findings of the desk study, the critical sensitive receptor from a controlled water perspective is groundwater within the Secondary Undifferentiated Aquifer of the Marine/Estuarine Alluvium.

By considering groundwater as the critical sensitive receptor for controlled waters, the groundwater/hydrogeological risk assessment will also be protective of the Barry No. 1 Dock to the east of the site.

5.5 POTENTIAL CONTAMINANT SOURCES

As identified in the desk study, the extensive historical land uses at the site since the 1900's has resulted in a list of potentially contaminative uses that include railway sidings with above ground storage tanks. Part of the former West Pond, which was infilled in the 1940s or 1950s were also within the southern site boundary.

The potential types of contaminants of concern are listed below:

5.5 POTENTIAL CONTAMINANT SOURCES

- Metals, semi-metals, and inorganics within the shallow made ground/shallow groundwater
- Polyaromatic hydrocarbons (PAH) within the shallow made ground/shallow groundwater
- Petroleum Hydrocarbons (VPH/EPH) within the shallow made ground/shallow groundwater
- Volatile and Semi Volatile Organic Compounds (VOC/SVOC) within the shallow made ground/shallow groundwater
- Asbestos within the shallow made ground.

5.6 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
- Transportation of contaminants within groundwater.

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

- Ground gas generation and migration
- Building materials durability.

5.7 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.

5.7 SUMMARY OF CONCEPTUAL EXPOSURE MODEL (CONTINUED)

The preliminary conceptual exposure model is presented below in Table 6.

Table 6: Preliminary Conceptual Exposure Model				
Source		Receptor	Pathway	Potentially Active Pathway?
Origin	Contaminant			
Made Ground of unknown origin and historical land use - 1940'2/1950's fill in West Pond - Made ground associated with past development - Railway Sidings - Former above ground storage tanks	Metals, semi-metals, non-metals, PAH, petroleum hydrocarbons, VOC/SVOC, Asbestos	School user (pupil/teacher) and/or Commercial site 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	School user (pupil/teacher) – human health	Ingestion of home-grown produce and/or soil attached to home-grown produce	✓
			Leaching from made ground	✓
Underground Storage Tank	Metals, semi-metals, inorganics, PAH, petroleum hydrocarbons, VOC/SVOC	Groundwater quality	Transportation within groundwater	✓
	Petroleum hydrocarbons	School user (pupil/teacher) and/or Commercial site user– human health	Inhalation of Vapours – indoor/outdoor	X No evidence of any underground storage tanks on site
	Petroleum hydrocarbons	Groundwater quality	Localised spillage	
	Petroleum hydrocarbons	Surface water quality	Transportation within groundwater	
Made Ground of unknown origin and natural ground	pH, sulphates	Building Materials Durability	Direct contact	✓
Ground Gas – organic, gas producing materials, and/or made ground	Methane, carbon dioxide	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion	✓

6.0 THE SITE INVESTIGATION

6.1 FIELDWORKS

A site investigation was designed in accordance with BS5930+A2:2010, the Code of Practice for Site Investigations, BS10175:2011, 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 (WLGA)/Environment Agency Wales (EAW) Land Contamination Working Group, 2012.

The site investigation was also designed to provide information to support and refine the preliminary conceptual site model/conceptual exposure model.

An investigation, comprising ten machine excavated trial pits and three shell and auger boreholes, was carried out during March 2012.

The trial pits were excavated across the site by using a 13T tracked excavator to a maximum depth of 3.8m below existing ground level. The purpose of the trial pits was to investigate the shallow ground conditions and take representative samples for laboratory testing.

The boreholes were located across the site and drilled to a maximum depth of 13.0m below existing ground level. The purpose of the boreholes was to prove the deeper ground conditions and allow an assessment of the most appropriate foundation type for the proposed development. In-situ strength testing (SPT/CPTs) was carried out in the boreholes. Shallow ground gas and deeper groundwater monitoring standpipes were installed within the boreholes to allow both ground gas and groundwater to be monitored, sampled and tested. Details of the installations are provided on the logs.

Representative soil samples were taken from the trial pits and boreholes for laboratory chemical and geotechnical 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.

Following the installation of the standpipes, groundwater was sampled for laboratory chemical testing.

A programme of gas monitoring was commenced as soon as the site works were complete.

6.1 FIELDWORKS (CONTINUED)

The fieldworks were supervised by a qualified Geotechnical Engineer from Intégral Géotechnique (Wales) Limited who also logged the trial pits and shell and auger boreholes and prepared their detailed engineering logs in accordance with the requirements of BS5930: 1999.

The approximate locations of the trial pits and shell and auger boreholes are shown on Figure 2, while their logs are presented in Appendices C and D respectively.

6.2 FIELD OBSERVATIONS

Visual or olfactory evidence of contamination was typically not observed during the excavation of the trial pits and drilling of the shell and auger boreholes. However, a slight hydrocarbon odour was observed in trial pit TP6 below 3m depth only. A slight oily sheen was also observed on the surface of perched water within trial pits TP6 and TP7 only.

6.3 LABORATORY CHEMICAL TESTING

Representative soil samples were taken from the trial pits and shell and auger boreholes from across the site, stored at the appropriate temperature and dispatched to the laboratories of STS 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:

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)	Petroleum Hydrocarbons (VPH/EPH)
Semi Volatile Organic Compounds (SVOC)	Volatile Organic Compounds (VOC)
Asbestos	

6.3 LABORATORY CHEMICAL TESTING (CONTINUED)

The potential for leachate generation and migration to groundwater was identified as being active in the preliminary conceptual site model. Therefore, selected samples were also tested for their leachability characteristics.

Upon completion of the drilling works, groundwater was sampled from each of the boreholes. The samples were also dispatched to the laboratories of STS and tested for the same elements/compounds as the soils.

The results of the soil, soil leachate and groundwater testing are presented in Appendices E, F and G respectively.

6.4 LABORATORY GEOTECHNICAL TESTING

Representative soil samples were taken from the trial pits and shell and auger boreholes from across the site and sent to the laboratories of Geo Site and Testing Services Limited for geotechnical testing.

The testing included the following:

- Particle Size Distribution (Granular Made Ground)
- Atterberg Limits and Moisture Content (Cohesive Alluvium)
- One Dimensional Consolidation (Alluvium)
- Triaxial Testing (Alluvium)
- pH and Sulphate (Alluvium and Weathered Bedrock)

A copy of the geotechnical test results is presented in Appendix H.

6.5 GROUNDWATER MONITORING

During groundwater monitoring and sampling, the groundwater levels were checked and recorded. The boreholes were then purged of approximately three times the well volume using a pump. Each well was monitored in situ during purging for groundwater parameters pH, temperature, conductivity, total dissolved solids, salinity, oxidation reduction potential and dissolved oxygen using a Hanna Multi Parameter Water Quality Meter. Representative samples of ground water were then collected and stored in the correct sample bottles during transportation to the laboratory.

6.5 GROUNDWATER MONITORING (CONTINUED)

The sampling equipment was cleaned between boreholes to prevent cross contamination between boreholes. Care was also taken to ensure the sampling equipment did not become contaminated at the ground surface.

Upon completion of the sampling, the rate of recovery of the groundwater level in the borehole was observed.

A copy of the groundwater monitoring results is presented in Appendix I.

6.6 IN-SITU GAS MONITORING

Gas monitoring standpipes were installed in the three shell and auger boreholes and these have been monitored at fortnightly intervals following completion of the fieldworks.

The gas monitoring programme commenced on 19 March 2012.

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.

Gas monitoring was carried out on two occasions at this stage. Further rounds of gas monitoring may be required in order to satisfy the requirements of the regulators.

The results of the field gas monitoring are presented in Appendix J.

7.0 GROUND CONDITIONS

The ground conditions underlying the site generally comprise a layer of made ground of various origins over superficial alluvial deposits over weathered mudstone bedrock. The made ground encountered represents a number of generations of infilling at the site, including infilling of the Cadovton River estuary, infilling of the West Pond during the 1940' and 1950's and subsequent redevelopment works.

A summary of the ground conditions encountered across the site is presented below in Table 7.

TABLE 7 : SUMMARY OF GROUND CONDITIONS		
Depth (m)		Stratum
From	To	
G.L.	2.6/4.0	MADE GROUND: Grass and silty sandy clay topsoil or gravel over firm brown, yellow brown, red brown and grey silty sandy gravelly CLAY and/or medium dense grey and red brown clayey sandy GRAVEL and/or medium dense gravelly SAND, with some ash, frequent cobbles of brick, gravel sized fragments of concrete, metal, glass, tile, slag, plastic pipe, timber, wire and rare coal.
2.6/4.0	11.0/11.8	Firm to stiff, occasionally soft to firm, yellow grey silty CLAY with occasional shelly fragments. And/or Very soft grey sandy gravelly SILT. Gravel is fine to coarse sub rounded sandstone. With occasional pockets of loose sandy gravel.
11.0/11.8	11.4/12.4	Medium dense grey gravelly SAND with occasional cobbles of sandstone and mudstone.
11.4/12.4	>12.9/>13.0	Weak to very weak yellow and grey weathered MUDSTONE.

The sides of excavations were typically stable in the short term.

7.1 MADE GROUND

Made ground was encountered beneath the entire site, typically to a depth of 2.6/4.0m below existing ground level, but deeper in the western part of the site where the former West Pond was located. The base of the made ground was not proved in the trial pits excavated in the western part of the site. Borehole BH3, located in the western part of the site, terminated on limestone at 6.5m depth, which is considered likely to be the former sloping masonry wall/revetment to the West Pond, as shown in the overlay in Figure 3.

The made ground was found to be highly variable in composition with many gravels and cobbles of brick, gravel sized fragments of concrete, metal, glass, tile, slag, plastic pipe, timber/railway sleepers, wire and rare coal.

A concrete obstruction (a possible concrete slab) was encountered at 2.4m depth in trial pit TP1. The trial pit was terminated at this depth since the slab could not be penetrated.

Possible re-worked alluvium was also encountered beneath the made ground, comprising firm to stiff blue grey silty clay with occasional pockets of yellow sand.

It should be noted that deeper made ground than encountered in this investigation may be anticipated along the southern site boundary where the former Cadoxton River used to flow and similarly, in the eastern part of the site where the former tributary to the Cadoxton River used to run.

Particle size distribution testing carried out on six samples of made ground taken from the trial pits indicates that the majority of near-surface made ground materials comprise sandy gravels, with occasional gravelly silt and clay.

7.2 MARINE/ESTUARINE ALLUVIUM

The made ground was found to be underlain by alluvial deposits, typically comprising firm to stiff, occasionally soft to firm, yellow grey silty clay with occasional shelly fragments. Very soft sandy gravelly silt overlying loose sandy gravel was encountered in borehole BH1 from 3.0m depth to 8.8m depth.

A layer, typically 0.4m/0.6m in thickness, of medium dense sand was encountered at the base of the alluvial deposits, overlying the weathered bedrock.

7.2 MARINE/ESTUARINE ALLUVIUM (CONTINUED)

The results of Atterberg Limit testing on samples of alluvium indicated that the materials were of high to very high plasticity, with plasticity indices of 38-40%. Moisture contents ranged from 36-49%.

The modified plasticity index has been calculated, in accordance with Chapter 4.2 Building near Trees (NHBC Standards 2008), using the relationship below:

$$\text{Modified Plasticity Index (I'p)} = \text{Plasticity Index ((Ip) x (\% less than 425\mu\text{m}) / 100\%)}$$

The results indicate a modified plasticity index of 38% for both samples tested. In accordance with the NHBC, this modified plasticity index indicates that the materials are of medium volume change potential.

One-dimensional consolidation testing and consolidated-undrained triaxial testing was carried out U100 samples, taken within the alluvium deposits. Volume compressibility (m_v) values ranged from 0.0115m²/MN to 0.494m²/MN at low stress levels and from 0.034m²/MN to 0.239m²/MN at high stress levels. Coefficient of compressibility values ranged from 0.9m²/yr to 10.8m²/yr at low stress levels and from 0.75m²/yr to 17.3m²/yr at high stress levels. Effective shear resistance angle values (Φ') values ranged from 28-32°, and effective cohesion values (c') ranged from 8-9kPa.

7.3 WEATHERED BEDROCK

Weak to very weak weathered mudstone bedrock was encountered below typically 11.4/12.4m depth.

7.4 GROUNDWATER

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.

Groundwater was struck at between 3.72m and 4.32m below existing ground level within the alluvial deposits in the eastern part of the site. Groundwater was also struck at 2.86m below existing ground level in the western part of the site.

7.4 GROUNDWATER (CONTINUED)

The trial pits excavated in the eastern part of the site were mostly dry, with only a minor inflow observed in trial pit TP3 from the base of the made ground/top of the alluvium. Moderate to strong groundwater inflows were observed in made ground encountered in the trial pits excavated in the western part of the site from depths of typically 3.0m to 3.7m depth.

It is therefore considered that groundwater is shallower in the western part of the site than in the eastern part of the site, with probably groundwater flow towards the Barry No.1 Dock towards the east.

8.0 CONTAMINATION

8.1 AVERAGING AREAS

In order to assess the laboratory test results reliably and in context, the data have been grouped into averaging areas. 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 areas have been determined according to the proposed end uses, education (residential as worst case) and commercial.

8.2 SOIL CONTAMINATION

The Category 4 Screening Levels (C4SLs) published by DEFRA for arsenic, cadmium, chromium (VI), lead, benzo(a)pyrene and benzene have been adopted as critical concentrations against which soil contaminant concentrations can be compared. In the absence of additional published C4SLs, the Suitable 4 Use Levels (S4ULs) derived by LQM, Soil Guideline Values (SGVs) and Soil Screening Values (SSVs) derived by Atkins ATRISK^{soil} have been adopted, where considered appropriate.

Since the results of the testing indicate total organic carbon content (TOC) in the range of 1.4% to 26%, the results have been compared to the respective guidelines, where applicable, for 1% soil organic matter content for the commercial land and 6% soil organic matter content for the proposed school end use.

The soil test results have been summarised for both an educational end use (residential as the worst case) and commercial end use, and are shown in Appendix K.

8.2.1 *Proposed Educational Site*

The results of the laboratory testing in this part of the site indicate elevated concentrations within the made ground of beryllium, lead, mercury, and two polycyclic aromatic hydrocarbon (PAH) compounds. Asbestos was also detected in one sample of made ground.

Beryllium has been detected at a concentration of 1.9mg/kg, which marginally exceeds the guideline concentration of 1.7mg/kg.

Lead has been detected at an elevated concentration of 390mg/kg, exceeding the guideline value of 200mg/kg.

8.2 SOIL CONTAMINATION (CONTINUED)

Mercury has been identified at an elevated concentration of 2.0mg/kg, which exceeds the guideline value for elemental mercury, but not that of inorganic mercury.

The PAH compounds benzo(b)fluoranthene, and dibenzo(a,h)anthracene, have been detected at elevated concentrations.

Asbestos was identified in a sample of made ground. Amosite fibres were identified in the made ground from trial pit TP8. The amount of asbestos within the sample was not quantified at the time of the previous investigation works.

Elevated concentrations of petroleum hydrocarbons (VPH/EPH), volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were not encountered.

8.2.2 Proposed Commercial Site

The results of the laboratory testing in this part of the site indicate elevated concentrations within the made ground of two polyaromatic hydrocarbon (PAH) compounds only. Asbestos was also detected in one sample of made ground.

Elevated concentrations of the PAH compounds benzo(b)fluoranthene, and dibenzo(a,h)anthracene have been identified at one location only (TP5). The PAH results from the made ground encountered in trial pit TP5 were an order of magnitude higher than the rest of the results, suggesting a potential hotspot.

Asbestos has been identified in one sample of made ground. Chrysotile fibres in soil were identified in the made ground from trial pit TP2. The amount of asbestos within the sample was not quantified at the time of the previous investigation works.

Elevated concentrations of petroleum hydrocarbons (VPH/EPH), volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were not encountered.

8.2.3 In-situ Natural Ground

No visual or olfactory evidence of contamination of the in-situ natural ground was identified during the excavation of the trial pits or drilling of the boreholes.

8.3 SOIL LEACHATE

A number of soil samples taken from the site were tested for their leachable concentrations. A copy of the leachate test results is presented in Appendix F.

The results have been screened against both UK Drinking Water Standards and Estuarine/Marine Environmental Quality Standards (EQS).

A summary of the results and comparison against the screening criteria are presented in Appendix L.

The results of the leachate testing show elevated concentrations of copper, pH, arsenic and petroleum hydrocarbons.

Copper has been detected at elevated leachable concentrations in four out of five samples of made ground. The elevated concentrations exceed the estuarine/coastal EQS value but not the UK Drinking Water Standard. Therefore, copper is considered to pose a potential risk to surface water quality via the migration of leachate derived from the made ground. Copper is considered to be a contaminant of concern.

A single elevated level of pH has been identified out of five samples. The elevated value exceeds the upper estuarine/marine EQS limit of nine, indicating that the soil leachate derived from the made ground is slightly alkaline.

Arsenic has been identified at an elevated leachable concentration in one out of five samples of made ground. The elevated concentration exceeds the UK Drinking Water Standard and marginally exceeds the estuarine/marine EQS value. Therefore, arsenic is considered to pose a potential risk to groundwater quality and is considered to be a contaminant of concern.

Petroleum hydrocarbons have been identified at concentrations that exceed both the estuarine/marine EQS value and the UK Drinking Water standard value in all five samples of made ground. However, although petroleum hydrocarbons are considered a potential leachable contaminant of concern at this stage, the concentrations are not considered to represent significant hydrocarbon contamination.

8.4 GROUNDWATER CONTAMINATION

Groundwater samples were taken from the boreholes across the site and analysed at the laboratories of STS for the same suite of elements and compounds as the soils. At this stage, one round of groundwater samples has been taken and tested for appraisal purposes.

The results have been screened against both UK Drinking Water Standards and Estuarine/Marine Environmental Quality Standards (EQS).

A summary of the results and comparison against the screening criteria are presented in Appendix M.

The results of the groundwater testing from the boreholes across the site indicate elevated concentrations of boron, calcium, magnesium and sulphate. None of the organic contaminants were identified at elevated concentrations.

Boron has been detected at elevated concentrations in two out of three samples of groundwater at concentrations that exceeded the UK Drinking Water Standard only. The guideline value of 1mg/l was only marginally exceeded in the two samples, with concentrations of 1.01 and 1.02mg/l being detected. Therefore, boron is not present at significantly elevated concentrations and is not considered to be a contaminant of concern for further assessment.

Calcium has been detected at elevated concentrations above the UK Drinking Water Standard in two out of three samples of groundwater. However, since calcium affects the relative hardness of water, calcium is not considered to represent a significant risk to groundwater quality/controlled waters and hence is not considered to be a contaminant of concern in this instance.

Magnesium has been identified at elevated concentrations in two out of three samples of groundwater. All elevated concentrations exceed the UK Drinking Water Standards. Magnesium is similar to calcium in that it has an affect on the relative hardness of water. Therefore, magnesium is not considered to represent a significant risk to groundwater quality/controlled waters and hence is not considered to be a contaminant of concern in this instance.

Sulphate has been detected at an elevated concentration above both the estuarine/marine EQS and the UK Drinking Water standard in one out of three samples of groundwater. Sulphate is therefore not considered to be a significant contaminant of concern.

8.5 GROUND GASES

Ground gas was monitored on an approximately fortnightly basis using a GA 5000 Gas Analyser. The results of the gas monitoring programme are included in Appendix J. A summary of the results is given in the following Table 8.

Table 8: Summary of Ground Gas Results				
Borehole	Maximum Methane Concentration (%)	Maximum Carbon Dioxide Concentration (%)	Minimum Oxygen Concentration (%)	Gas Flow Rate (l/hr)
BH1	0.1	0.2	20.1	<0.3
BH2	0.1	0.4	18.6	0.1
BH3	0.1	0.6	19.2	<0.3

Note: Results based on two rounds of monitoring.

The results show a maximum methane concentration of 0.1% and a maximum carbon dioxide concentration of 0.6%. A maximum gas flow rate of 0.1l/hr was measured during the gas monitoring programme.

9.0 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, soil leachate, groundwater and gas monitoring. Pathways identified as a relevant pollutant linkage require appropriate risk assessment or mitigation measures (see Section 10).

Table 9: Revised Conceptual Exposure Model						
Source		Receptor	Pathway	Preliminary Active Pathway? (see Sect. 5.8)	Relevant Pollutant Linkage	Justification/ Mitigation
Origin	Contaminant					
Made Ground of unknown origin and historical land use - 1940'2/1950's fill in West Pond - Made ground associated with past development - Railway Sidings - Former above ground storage tanks	Metals, semi-metals, non-metals, PAH, petroleum hydrocarbons, VOC/SVOC, Asbestos	School user (pupil/teacher) and/or Commercial site user – human health	Dermal Contact with made ground/dust	✓	✓	Elevated concentrations of beryllium, lead, mercury, PAH and asbestos identified within the made ground – risk assess.
			Ingestion of soil	✓	✓	
			Inhalation of dust	✓	✓	
			Inhalation of vapours – indoor/outdoor	✓	X	
	Metals, semi-metals, inorganics, PAH	School user (pupil/teacher) – human health	Ingestion of home-grown produce and/or soil attached to home-grown produce	✓	✓	Elevated concentrations of beryllium, lead, mercury, PAH and asbestos identified within the made ground – risk assess.
	Metals, semi-metals, inorganics, PAH, petroleum hydrocarbons, VOC/SVOC	Groundwater quality	Leaching from made ground	✓	✓	Leachable concentrations of copper, arsenic and TPH. - risk assess
			Transportation within groundwater	✓	✓	

9.0 REVISED CONCEPTUAL EXPOSURE MODEL (CONTINUED)

Source		Receptor	Pathway	Preliminary Active Pathway?	Relevant Pollutant Linkage	Justification/ Mitigation
Origin	Contaminant					
Made Ground of unknown origin and natural ground	pH, sulphates	Building Materials Durability	Direct contact	✓	✓	Building materials will be in contact with made ground and natural ground – risk assess
Ground Gas – organic, gas producing materials, and/or made ground	Methane, carbon dioxide	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion	✓	✓	Potential gas producing materials present. Gas monitoring programme ongoing – risk assess

10.0 RISK ASSESSMENT

10.1 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.

10.2 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 9.0 above have been assessed below.

10.3 HUMAN HEALTH RISK ASSESSMENT

10.3.1 *Site in its Present Condition*

The site does not pose any risks to casual visitors or trespassers. The site is covered by either, hard standing, hardcore, or grass. There are no open excavations and the site is protected by fencing.

10.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

Since made ground is not exposed at the site surface, and there was not any evidence of any gross contamination at the site, there is not considered to be a potential risk to human health in the short term.

10.3.2 Future Site Users

Proposed School Site

The contamination test results and investigation observations show elevated concentration levels in the made ground (at shallow depth) of beryllium, lead, mercury, two polyaromatic hydrocarbon compounds and asbestos.

Although the proposed development is for a school/education purposes, the results have been screened against residential end use criteria values. This is considered the most conservative approach. Whilst a commercial end use would be considered an appropriate screen for adult workers, this would not be protective of child students. Therefore residential end use criteria have been applied at this stage.

The contaminants of concern (beryllium, lead, mercury, polyaromatic hydrocarbon compounds and asbestos) identified in the made ground may present a potential risk to end users by the following pathways:

- Dermal contact with soil and/or soil derived dust,
- Ingestion of soil,
- Inhalation of soil derived dust.

The inhalation of vapours pathways (indoor and outdoor air) are not considered to be active since the contaminants of concern identified are not sufficiently volatile.

It is therefore considered necessary to protect end users from the elevated concentrations of the contaminants of concern in the shallow made ground. It is considered necessary to break the above listed relevant pollutant linkages in order to remove the potential risk.

The proposed development includes part of a school building and areas of car parking, bus and car drop off areas. There is likely to be only minimal areas of soft landscaping. Also, site levels need to be raised by typically up to 0.5m in the eastern part of the site and up to 1m in the western part of the site to meet the required minimum development flood level.

10.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

Therefore, remediation requirements can be integrated with the necessary rise of ground level and hence, the existing made ground materials will be capped by a combination of clean imported fill materials to raise site levels, access roads and car parking hard standing and the proposed building.

Any soft landscaped areas will need to be capped by a minimal thickness of 600mm of clean imported subsoil/topsoil.

It is considered that these necessary requirements and planned changes to site level will provide the necessary pathway breakages required to provide protection to end users from the existing made ground. In the final development, none of the existing made ground will be exposed at the ground surface, and will be at a minimum depth of 600mm below finished levels in all landscaped areas. Therefore, exposure to these materials by future site end users would not be possible.

Allowances should be made for further sampling and testing once development layouts and finished levels are confirmed. Further sampling and testing for asbestos, to include quantification analysis in areas where asbestos has previously been detected and any occurrences of suspected asbestos contamination upon clearance of the site, should also be carried out.

Proposed Commercial Site

The contamination test results and investigation observations show elevated concentration levels in the made ground (at shallow depth) of two polyaromatic hydrocarbon compounds and asbestos.

The contaminants of concern (polyaromatic hydrocarbon compounds and asbestos) identified in the made ground may present a potential risk to end users by the following pathways:

- Dermal contact with soil and/or soil derived dust,
- Ingestion of soil,
- Inhalation of soil derived dust.

The inhalation of vapours pathways (indoor and outdoor air) are not considered to be active since the contaminants of concern identified are not sufficiently volatile.

For a proposed commercial development, comprising a building and car parking and a public car park, there is unlikely to be any significant areas of soft landscaping.

10.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

Any areas of soft landscaping should be capped by a minimum of 600mm of clean imported subsoil and topsoil. As discussed above, final development levels may need to be raised in order to meet minimum flood requirements and hence these works would effectively cap the existing made ground.

Allowances should be made for further sampling and testing once development layouts and finished levels are confirmed. Further sampling and testing for asbestos, to include quantification analysis in areas where asbestos has previously been detected and any occurrences of suspected asbestos contamination upon clearance of the site, should also be carried out.

Similarly, allowances should also be made for sampling and testing within the proposed public car park in the north of the site since this was not part of the original scope of works.

With future site development works involving the excavation and processing of the made ground, there would be a risk to workers from contaminants in the soils and also the groundwater if it is encountered. Appropriate measures are therefore recommended for works involving the made ground materials which are known to be present beneath the site.

All excavations should be regularly checked for safe atmospheres.

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

- 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.

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

Dust suppression is particularly important with regard to the presence of asbestos fibres. Allowances should be made for air monitoring during the site works.

10.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

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. An 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.

10.4 RISKS TO VEGETATION

The concentrations of several metal elements and polycyclic aromatic hydrocarbon compounds in the shallow made ground materials indicate the potential for adverse effects to vegetation. Similarly, the physical nature of the existing made ground does not provide a suitable growing medium for vegetation. To ensure viable landscape areas by preventing upward migration of contaminants into the overlying soils, and in order to promote plant growth, any landscaped areas will require the provision of a minimum 600mm thick capping layer of clean, inert subsoil and topsoil materials.

10.5 GROUNDWATER RISK ASSESSMENT

The results of the leachate testing of made ground and the testing of the underlying groundwater indicate elevated concentrations of a number of contaminants of concern.

The results of leachate testing carried out on samples of made ground identified elevated concentrations of copper, arsenic and minor concentrations of petroleum hydrocarbons. The results of groundwater testing indicated elevated concentrations of calcium, magnesium and sulphate. However, calcium, magnesium and sulphate are not considered to pose a significant risk to groundwater and/or surface water quality.

The elevated leachable concentrations identified were not reflected in the groundwater. Copper, arsenic and petroleum hydrocarbons identified within the made ground leachate were not identified at elevated concentrations within the groundwater. This indicates that the underlying groundwater is not being impacted by the leachate from the made ground.

Similarly, groundwater was not found to be significantly contaminated.

It is therefore considered that the potential risk to groundwater quality beneath the site and subsequently, the nearby surface water, is low.

10.6 GROUND GAS RISK ASSESSMENT

The results of the gas monitoring programme show a maximum methane concentration of 0.1% and a maximum carbon dioxide concentration of 0.6%. A maximum gas flow rate of 0.1l/hr was measured during the gas monitoring programme.

In accordance with CIRIA Report C665 a Gas Screening Value (GSV) of 0.0006l/hour has been calculated. This GSV corresponds to gas characteristic situation 1/green which does not require any special gas protective measures.

It should be noted that this classification is based on two rounds of gas monitoring. It is likely that further rounds of gas monitoring will be required in order to satisfy the requirements of the regulators. This should include at least one round of monitoring at low and/or falling atmospheric pressure, below 1000mb.

The radon report obtained from the British Geological Survey indicates that Basic Radon protective measures are required at the site.

10.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY

10.7.1 Concrete Classification

A summary of the laboratory chemical test results for the chemicals monohydric phenol, sulphur, total sulphate, water soluble sulphate, sulphide and pH, which may adversely affect the durability of building materials is presented in Appendix K. Additional pH and sulphate testing on samples of natural ground are presented in Appendix H.

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 have been used to derive a characteristic value for water soluble sulphate (taking the mean of the highest two test results), and pH value (adopting the mean of the lowest two test results) for each of the stratigraphic horizons identified beneath the site.

Using Table C2 of BRE Digest SD1:2005, the characteristic value for water soluble sulphate has been used to define a corresponding Design Sulphate Class.

10.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY (CONTINUED)

The groundwater regime of the site has been assessed as 'mobile' and the characteristic pH value has been used to modify the Design Sulphate Class to give an ACEC class for each stratigraphic unit.

A summary is provided below in Table 10.

Table 10: Concrete Classification Summary				
Stratigraphic Unit	Characteristic Water Soluble Sulphate Value (mg/l)	Design Sulphate Class	Characteristic pH Value (Unitless)	ACEC Class
Made Ground	695	DS-2	7.9	AC-2
Alluvium	20	DS-1	6.9	AC-1
Weathered Bedrock	10	DS-1	7.4	AC-1

Based on the results above, for concrete structures that would be in contact with all stratigraphic units (e.g. piled foundations), a worst case concrete classification of AC-2 would be applicable.

For shallow structures within the made ground, a concrete classification of AC-2 would be required.

10.7.2 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) should be addressed when selecting pipe materials. Measures to protect the pipes will include clean backfill to trenches and possibly alternative material selection.

Based on the elevated concentrations of PAH in the existing made ground, it is considered that alternative pipe materials, such as twin walled protecta-pipe, or similar, may be required. However, the pipe materials used will depend on the materials that the pipes are constructed in. Hence, this assessment could be reviewed, depending on the route of the proposed pipes and the amount of fill material placed to raise site levels.

It is recommended that the advice of a specialist drainage engineer is sought prior to installation. Similarly, 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.

10.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY (CONTINUED)

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.

10.8 SPOIL DISPOSAL

Under the Landfill Regulations (2002) all spoil materials should be classified if they require disposal to a landfill facility. To determine the appropriate type of landfill site, there will need to be a characterisation of the materials in relation to the Waste regulations.

The made ground materials are tentatively classified as stable non reactive hazardous waste but specialised testing will be required once earthworks design and volumes are known.

Basic Characterisation

For each waste intended to be landfilled, the following information will be required, either separately or as part of the Duty of Care waste transfer note, or Special Waste consignment note:

- Source and origin
- Standard Industry Code (SIC), process producing waste
- Treatment applied or reason not considered necessary
- Composition (including Waste Acceptability Criteria (WAC) leaching tests hazardous and inert waste where necessary)
- Appearance
- European Waste Catalogue (EWC) Code
- Hazardous properties (if hazardous waste and applicable)
- Not a waste prohibited from landfill (i.e. not corrosive, flammable etc)
- The class of landfill that waste is suitable for (i.e. hazardous)
- Likely behaviour of the waste in the landfill
- Whether waste can be recycled

The basic characterisation is the responsibility of the waste producer. The waste contractor may undertake all or part of the process of basic characterisation – including the WAC analysis. It will still be the responsibility of the waste producer to ensure that the information is correct.

10.8 SPOIL DISPOSAL (CONTINUED)

In the absence of any detailed assessment of the likely areas and types of soils that may be generated for disposal (based on the ground conditions, remediation proposals and soil materials encountered at the site) the following tentative classification is proposed, based on the made ground materials.

Table 11: Summary of Preliminary Waste Classification		
Source and origin	Hood Road, Barry	
Standard Industry Code (SIC), process producing waste	45.11	
Stratigraphic horizon	Made Ground	Natural Ground
Treatment applied or reason not considered necessary	Segregation applied at point of excavation	Segregation applied at point of excavation
Composition (including WAC leaching tests for hazardous and inert waste where necessary)	Refer to Section 7.0	Refer to Section 7.0
Appearance (smell, colour, consistency and physical form)	Non odorous Grey, brown, yellow brown, red brown Reasonably heterogeneous Granular/cohesive	Non odorous Yellow brown grey Reasonably homogenous Cohesive
European Waste Catalogue (EWC) Code	17.05 Soil (including excavated soil from contaminated sites), stones and dredging spoil	17.05 Soil (including excavated soil from contaminated sites), stones and dredging spoil
Not a waste prohibited from landfill (i.e. corrosive, flammable etc)	No	No
The class of landfill that waste is suitable for (i.e. hazardous)	Stable Non-reactive Hazardous Waste in Non-hazardous Landfill	Inert
Likely behaviour of the waste in the Landfill	Stable	Stable
Whether waste can be recycled	Yes	Yes

This preliminary classification will require more definitive assessment and confirmation when detailed designs are produced detailing the likely areas of waste disposal if required. Alternatively, at construction stage any materials identified by the developer as waste will require Waste Acceptance Criteria (WAC) testing and characterisation prior to pre-approval from the landfill operator and ahead of export to tip.

10.8 SPOIL DISPOSAL (CONTINUED)

It is recommended that a sustainable development strategy is adopted which reduces to a practicable minimum the need for export of waste to a licensed tip.

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.

Any asbestos containing materials are likely to be classified as hazardous waste.

10.9 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 near-surface drainage patterns have not been fully established.

The proposed public car park in the north of the site was not part of the original scope of works. Allowances should be made for investigation works, including sampling and testing of the made ground once development proposals are confirmed.

Allowances should also be made for additional sampling and testing within both the proposed school and commercial sites once development layouts and final ground levels are confirmed. Further rounds of groundwater and ground gas monitoring are also recommended, together with the required risk assessments.

11.0 ENGINEERING CONSIDERATIONS AND RECOMMENDATIONS

11.1 DETAILS OF PROPOSED DEVELOPMENT

The proposed development is split into three areas comprising educational end use in the southwest, commercial in the centre/east and public car parking in the north. The proposed educational land parcel will adjoin onto a proposed school to the south. The development is likely to comprise a school building together with car parking areas and drop off facilities. The central and eastern parts of the site are proposed for commercial end use. A new building is proposed adjacent to the eastern boundary, with areas of car parking. A public car park is also proposed in the northern part of the site.

11.2 SITE PREPARATION

At the time of writing it was our understanding that site levels would probably need to be raised to 9.3m AOD in order to accommodate future minimum flood design levels. This would mean a typical raise in ground level of up to 0.5m in the eastern part of the site and up to 1.0m in the western part of the site. Since the site is underlain by a layer of potentially compressible alluvial deposits, allowances should be made for up to 200mm of consolidation settlement over a period of 12 to 18 months. Up to 50mm of long term creep may also be anticipated.

Depending on the build programme, consolidation settlement could be accelerated by the use of band drains and surcharging. The scale, extent and design of the ground treatment should be reviewed once the development programme is known. Allowances should also be made for the effect of consolidation settlement on piled foundations, services and road construction.

Prior to works commencing on site, all existing buried services should be identified and either protected or diverted from beneath working areas.

A Materials Management Plan should be produced, in accordance with the CL:AIRE Code of Practice and approved by a Qualified Person. The Materials Management Plan is required to detail how the excavated site materials are handled, stockpiled, re-used, and if required, disposed of site. All site works should be carried out in accordance with an approved Materials Management Plan.

All scrub and vegetation should be grubbed up from beneath the underside of the proposed building, access roads and car parking areas.

11.2 SITE PREPARATION (CONTINUED)

In order to provide a suitable engineered plateau for the proposed development, it is recommended that the top 1m of existing made ground is excavated. This also provides the opportunity to identify any potential contaminant hotspots that might be present in the shallow made ground. Any obstructions should be broken out and removed to a depth of 2m below proposed finished ground levels. Residual structures should be surveyed and recorded. Consideration should be given to crushing any granular/demolition materials to a suitable grade and stockpiling on site for re-use as granular fill. The excavated materials should be sorted and processed, and any unacceptable materials (such as timber and metal etc), removed and disposed off site at a suitable licensed facility.

The exposed formations should be checked and any soft spots/areas should be removed and replaced with well compacted site won or imported granular fill material.

Any soft spots identified during preparation works should be removed and backfilled with clean granular material in accordance with the DTp Specification for Highway Works.

Site levels should then be brought up to the required level with the acceptable excavated materials, and supplemented with clean imported structural fill as required, placed in well compacted layers, in accordance with Department of Transport (DTp) Specification for Highway Works.

Allowances should be made for air monitoring during the site works.

11.3 FOUNDATIONS AND FLOOR SLABS

The site is underlain by a variable thickness of made ground, which varies in composition and density, over soft to firm compressible alluvial deposits. It is considered that conventional shallow foundations or raft type foundations would not be appropriate for the proposed development, due to potentially unacceptable total and differential settlements.

The made ground and alluvium should be fully penetrated by the chosen foundation solution.

Therefore, it is considered that piled foundations would be the most appropriate solution for the proposed development, founded within the underlying weathered bedrock encountered below typically 11.4m/12.4m depth. Driven pre-cast concrete piles could be used, subject to vibration issues.

11.3 FOUNDATIONS AND FLOOR SLABS

Piles will need to be designed to ignore load contribution from any made ground and weaker clay strata (alluvium). The design should also allow for negative skin friction effects generated by down drag on the pile from consolidating soil which will significantly increase pile loadings.

Pile diameters of 250mm to 350mm diameter could be adopted with varying sockets into the mudstone strata depending on the pile capacity required. The services of a specialist piling sub-contractor should be consulted to provide specific pile design proposals.

Allowances should be made by the piling contractor for the avoidance and/or removal of any buried structures and the ease of piling through the made ground, alluvium, sand and gravel and natural solid strata that may be encountered during the piling works.

Allowances should also be made for a suitable period of pile testing. It is recommended that trial piles are constructed and tested ahead of the main piling works in order to confirm pile design parameters.

Allowances should also be made for monitoring and dealing with ground induced vibrations from the piling works.

Ground slabs should be of suspended construction and incorporate basic radon gas protection measures and detailed in Section 10.6.

11.4 EXCAVATIONS AND FORMATIONS

Excavations should be possible with normal soil excavating machinery. Allowances should be made for the use of a pneumatic breaker attachments, or similar tools, should any remnant buried obstructions be encountered in the made ground. It should be noted that trial pit TP1 was abandoned due to the presence of a concrete slab at 2.4m depth.

The sides of excavations deeper than 1m should be supported by planking and strutting, or temporarily battered at gradients of typically 30°.

Deep excavations will require sheet piled supports driven to such depth as to limit water pressure hazards on the stability of the excavations and structures.

Shallow excavations within the made ground will encounter variable and sometimes significant groundwater inflows. However, any groundwater seepages/inflows or rainfall infiltrations should be dealt with by conventional pumping techniques.

11.4 EXCAVATIONS AND FORMATIONS (CONTINUED)

Exposed formations within the in-situ materials will be susceptible to damage, softening and deterioration by wet weather and site traffic. They should therefore be protected by blinding concrete or a 200mm thick layer of hardcore immediately after exposure.

11.5 ACCESS ROADS AND CAR PARKING AREAS

There are likely to be variations in the strength and nature of the materials at formation levels, with such materials ranging from generally compacted made ground, to soft and loose made ground, to natural soft alluvial clays. For access roads and car parking formations within existing made ground, a California Bearing Ratio (CBR) value of 2% should be achievable. The made ground materials after an appropriate level of ground improvement should enable a CBR of 5% to be achievable. Where site levels are to be raised, a CBR value within engineered fill material of 5% should be achievable.

Exposed formations should be well proof rolled and any encountered 'soft spot/areas' should be removed and replaced with well compacted granular materials. Any obstructions that may form hard spots should also be removed.

In-situ CBR tests should be carried out in order to validate these initial design assumptions.

The soils are considered frost susceptible.

Given that the site is underlain by a significant thickness of compressible alluvial deposits, consideration should be given to surcharging the proposed road surfaces prior to constructing roads. A flexible pavement design should be utilised during the works in order to accommodate differential settlements.

The above measures will not prevent long term total and differential settlements occurring, however, they should make the future maintenance of these underground services more tolerable.

11.6 DRAINAGE AND SERVICE DUCTS

All the drainage runs are likely to be within the fill materials or the alluvial clays, which can be soft or very soft near surface. Due to the potential total and differential settlement within the compressible underlying alluvial clays, we recommend that the drainage be designed using steep gradients and flexible joints to prevent backfalls occurring and possible misalignment and breakage of the drainage system.

11.6 DRAINAGE AND SERVICE DUCTS (CONTINUED)

It is recommended that a drainage engineer is consulted for the detailed design with regard to actual falls adopted and provision of adequate rocker details to drainage runs and at the junction with piled structures, in order to accommodate the predicted differential settlements and meet the technical requirements for sewers for adoption.

Permanent infrastructure construction should not commence until settlements are complete.

Additionally the drainage engineer should make an assessment of the minimum cut down levels for obstructions underlying the primary drainage runs or any drainage runs with invert levels less than 0.5m above obstruction cut off levels.

Special care should also be taken at the entry of the services into the proposed structures, where a considerable degree of flexibility should also be allowed to deal with likely differential movements.

The above measures will not prevent long term total and differential settlements occurring, however, they should make the future maintenance of these underground services more tolerable.

The mains water supply provider should be consulted with regard to suitable pipe selection.

11.7 RECOMMENDED FURTHER WORKS

Once development layouts and finished ground levels are confirmed, it is recommended that additional sampling and testing is carried out to better characterise each proposed development area. This should include further testing for asbestos.

It is likely that additional groundwater sampling and testing will be required in order to establish baseline conditions. It is typical that a minimum of three rounds of groundwater sampling and testing are required to satisfy the requirements of the regulator.

Groundwater monitoring and testing is also likely to be required pre, during and post piling operations.

It is also likely that additional rounds of gas monitoring will be required in order to satisfy the requirements of the regulators. This should include at least one round of monitoring at low and/or falling atmospheric pressure, below 1000mb.

APPENDIX A

ENVIROCHECK REPORT

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

37932784_1_1

Customer Reference:

10973

National Grid Reference:

311090, 167390

Slice:

A

Site Area (Ha):

1.69

Search Buffer (m):

1000

Site Details:

Gwalia Buildings, Powell Duffryn Way
Docks
Barry
CF62 5QR

Client Details:

MR H Pritchard
Integral Geotechnique
Integral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v47.0

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Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		6	10	47
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Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
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Local Authority Pollution Prevention and Control Enforcements					
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Prosecutions Relating to Controlled Waters					
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River Quality Chemistry Sampling Points					
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Groundwater Vulnerability	pg 23	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 23	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 23	Yes	n/a	n/a	n/a
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Flooding from Rivers or Sea without Defences	pg 23		Yes	n/a	n/a
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Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Waste					
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Historical Landfill Sites	pg 24		1		1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 24				2
Licensed Waste Management Facilities (Locations)					
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Registered Landfill Sites					
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Registered Waste Treatment or Disposal Sites					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
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Control of Major Accident Hazards Sites (COMAH)	pg 25			1	
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents	pg 25		2	1	
Planning Hazardous Substance Enforcements					
Geological					
BGS Recorded Mineral Sites	pg 26				3
BGS 1:625,000 Solid Geology	pg 26	Yes	n/a	n/a	n/a
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities	pg 26			1	
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 26	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 26	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 27	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 27	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 27	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 27	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 27	Yes	n/a	n/a	n/a
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Contemporary Trade Directory Entries	pg 28		17	18	23
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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
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Areas of Unadopted Green Belt					
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National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
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Special Areas of Conservation					
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: Powell Duffryn Terminals Ltd Property Type: Undefined Or Other Location: No 1 Dock A Site Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033221 Permit Version: 2 Effective Date: 10th October 1992 Issued Date: 10th October 1992 Revocation Date: 6th May 1994 Discharge Type: Saline Water - Estuarine Sites - Non Bathing/Shellfish Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A13SE (E)	198	1	311370 167310
1	Discharge Consents Operator: Powell Duffryn Terminals Ltd Property Type: Undefined Or Other Location: No 1 Dock A Site Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033221 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A13SE (E)	198	1	311370 167310
2	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Broad Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0104401 Permit Version: 4 Effective Date: 31st March 2010 Issued Date: 28th February 2009 Revocation Date: 10th June 2009 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Old Harbour Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12SE (W)	229	1	310740 167370
2	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Broad Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0104401 Permit Version: 3 Effective Date: 29th March 2007 Issued Date: 29th March 2007 Revocation Date: 30th March 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Old Harbour Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12SE (W)	229	1	310740 167370

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Broad Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0104401 Permit Version: 2 Effective Date: 27th March 2007 Issued Date: 18th March 2005 Revocation Date: 28th March 2007 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Old Harbour Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12SE (W)	229	1	310740 167370
2	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Broad Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0104401 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2007 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Old Harbour Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A12SE (W)	229	1	310740 167370
3	Discharge Consents Operator: Associated British Ports Property Type: Manufacture Of Cement, Lime Plaster Location: No 1 Dock 'B' West Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0033222 Permit Version: 2 Effective Date: 10th October 1992 Issued Date: 10th July 1992 Revocation Date: 6th May 2003 Discharge Type: Trade Effluent Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	299	1	311400 167180
3	Discharge Consents Operator: Van Ommeren Tank Terminals Barry Ltd Property Type: Manufacture Of Cement, Lime Plaster Location: No 1 Dock 'B' West Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033222 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	299	1	311400 167180

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	Discharge Consents Operator: Powell Duffryn Terminals Ltd Property Type: Undefined Or Other Location: No 1 Dock B E Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033223 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 31st March 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	314	1	311420 167180
4	Discharge Consents Operator: Powell Duffryn Terminals Ltd Property Type: Undefined Or Other Location: No 1 Dock B E Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033224 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 31st March 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14SW (SE)	358	1	311490 167200
4	Discharge Consents Operator: Powell Duffryn Terminals Ltd Property Type: Undefined Or Other Location: No 1 Dock B E Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033225 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 31st March 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14SW (E)	386	1	311530 167210
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Holton Road Cso Holton Road, Barry, Vale Of Glamorgan Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0392601 Permit Version: 1 Effective Date: 31st December 2005 Issued Date: 20th December 2005 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Estuary Environment: Receiving Water: Barry Dock No 1 Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A14NW (E)	399	1	311586 167541

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: Barry Docks Northside No 1 Dock Road . . Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033220 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NW (E)	402	1	311590 167540
6	Discharge Consents Operator: Powell Duffryn Terminals Ltd Property Type: Undefined Or Other Location: No 1 Dock B E Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033226 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 31st March 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14SW (E)	448	1	311600 167210
7	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Support Services - Sea Transport Location: Overflow At Holton Road Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033219 Permit Version: 2 Effective Date: 22nd December 1993 Issued Date: 22nd December 1993 Revocation Date: 18th February 1994 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NW (E)	483	1	311670 167550
7	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Support Services - Sea Transport Location: Overflow At Holton Road Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033219 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 21st March 1994 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A14NW (E)	483	1	311670 167550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: Barry Docks Northside No 1 Drainage, Northside No 1 Drainage Outfall, Drainage Outfall 18 . . Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033218 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NW (E)	522	1	311710 167550
8	Discharge Consents Operator: Captain Philip Holiday Property Type: Manufacture Of Cement, Lime Plaster Location: No 1 Dock 'B' Central Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0033227 Permit Version: 2 Effective Date: 10th October 1992 Issued Date: 10th July 1992 Revocation Date: 25th July 2007 Discharge Type: Trade Effluent Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A14SW (E)	536	1	311700 167220
8	Discharge Consents Operator: Van Ommeren Tank Terminals Barry Ltd Property Type: Manufacture Of Cement, Lime Plaster Location: No 1 Dock 'B' Central Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033227 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A14SW (E)	536	1	311700 167220
8	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: No 1 Dock 'B' East Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0033228 Permit Version: 2 Effective Date: 10th October 1992 Issued Date: 10th July 1992 Revocation Date: 6th May 2003 Discharge Type: Trade Effluent Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A14SW (E)	577	1	311740 167210

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	Discharge Consents Operator: Van Ommeren Tank Terminals Barry Ltd Property Type: Support Services - Sea Transport Location: No 1 Dock 'B' East Area Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033228 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A14SW (E)	577	1	311740 167210
9	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Town Ps (Emer) Island Car Pk, Islalnd Car Park, Barry Island Barry, South Wales Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0060501 Permit Version: 3 Effective Date: 12th March 2008 Issued Date: 12th March 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Controlled Sea Environment: Receiving Water: Barry Harbour Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	570	1	310705 166861
9	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Town Ps (Emer) Island Car Pk, Islalnd Car Park, Barry Island Barry, South Wales Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0060501 Permit Version: 2 Effective Date: 28th March 2000 Issued Date: 27th March 2000 Revocation Date: 11th March 2008 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Controlled Sea Environment: Receiving Water: Bristol Channel Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	573	1	310700 166860
9	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Town Ps (Emer) Island Car Pk, Barry Town Ps (Emergency), Island Car Park, Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0060501 Permit Version: 1 Effective Date: 18th November 1988 Issued Date: 18th November 1988 Revocation Date: 27th June 2000 Discharge Type: Unspecified Discharge: Controlled Sea Environment: Receiving Water: Barry Old Harbour Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	573	1	310700 166860

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Island Ps Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0060601 Permit Version: 3 Effective Date: 12th March 2008 Issued Date: 12th March 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Controlled Sea Environment: Receiving Water: Barry Old Harbour Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A8NW (S)	574	1	311082 166741
11	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Island Ps Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0060601 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 24th March 2005 Revocation Date: 11th March 2008 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Controlled Sea Environment: Receiving Water: Barry Old Harbour Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A8NE (S)	585	1	311150 166730
11	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Island Ps Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0060601 Permit Version: 1 Effective Date: 18th November 1988 Issued Date: 18th November 1988 Revocation Date: 10th May 2007 Discharge Type: Unspecified Discharge: Coastal Environment: Receiving Water: Barry Old Harbour Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A8NE (S)	585	1	311150 166730
11	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Barry Island Ps Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0048401 Permit Version: 1 Effective Date: 30th October 1987 Issued Date: 30th October 1987 Revocation Date: 13th November 1987 Discharge Type: Unspecified Discharge: Controlled Sea Environment: Receiving Water: Bristol Channel Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A8NE (S)	585	1	311150 166730

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry Old Harbour N/W Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0048402 Permit Version: 1 Effective Date: 30th October 1987 Issued Date: 30th October 1987 Revocation Date: 16th November 1987 Discharge Type: Unspecified Discharge: Controlled Sea Environment: Receiving Water: Bristol Channel Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	635	1	310680 166800
13	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Gladstone Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0103801 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 18th March 2005 Revocation Date: 31st March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Dock No.1 Via Unnamed Watercou Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	695	1	311440 168110
13	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Gladstone Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0103801 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2007 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No.1 Via Unnamed Watercou Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	695	1	311440 168110
14	Discharge Consents Operator: Associated British Ports Property Type: Undefined Or Other Location: Barry Docks . . Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033216 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NE (E)	695	1	311890 167530

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
14	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: Barry Docks Northside No 1 Dock Roa, Northside No 1 Dock Road Drainag, Road Drainage O/Fall 15 . . Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033215 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NE (E)	745	1	311940 167530
15	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: A Combined Sewer Overflow Pontypridd, A Cso, Pontypridd Road Cso, Barry, Vale Of Glamorgan Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0373501 Permit Version: 1 Effective Date: 19th November 2004 Issued Date: 19th November 2004 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	745	1	310426 167876
16	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Dock View Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0104301 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 31st March 2006 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No. 1 Via Barry Dock Stor Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	768	1	311850 167860
17	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Colcot Road/Claude Road Assest No, Asset No 32641, Claude Road, Barry Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0356801 Permit Version: 1 Effective Date: 25th August 2004 Issued Date: 25th August 2004 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	804	1	310633 168110

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
18	Discharge Consents Operator: Natural Environmental Research Council Property Type: Undefined Or Other Location: Nerc Premises Barry Dock Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033229 Permit Version: 2 Effective Date: 10th October 1992 Issued Date: 10th July 1992 Revocation Date: 12th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14SE (E)	815	1	311980 167180
18	Discharge Consents Operator: Natural Environmental Research Council Property Type: Undefined Or Other Location: Nerc Premises Barry Dock Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033229 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry No.1 Dock Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A14SE (E)	815	1	311980 167180
19	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: Barry Docks North Side No 1 Dock Dr, North Side No 1 Dock Drainage No, No 1 Dock Drainage No 14 . . Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033214 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NE (E)	823	1	312020 167520
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Ps Barry Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: AE2019303 Permit Version: 1 Effective Date: 25th November 1963 Issued Date: 25th November 1963 Revocation Date: 6th January 2005 Discharge Type: Unspecified Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A12NW (W)	829	1	310160 167550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Sps Porthkerry Park, Porthkerry Country Park, Barry, Vale Of Glam Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: Ae2019303 Permit Version: 4 Effective Date: 17th October 2006 Issued Date: 17th October 2006 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NW (W)	855	1	310135 167557
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Sps Porthkerry Park, Porthkerry Country Park, Barry, Vale Of Glam Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: Ae2019303 Permit Version: 4 Effective Date: 17th October 2006 Issued Date: 17th October 2006 Revocation Date: Not Supplied Discharge Type: Sewage And Trade Combined - Unspecified Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NW (W)	855	1	310135 167557
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Sps Porthkerry Park, Porthkerry Country Park, Barry, Vale Of Glam Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: Ae2019303 Permit Version: 3 Effective Date: 31st March 2005 Issued Date: 31st March 2005 Revocation Date: 16th October 2006 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NW (W)	855	1	310135 167557
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Sps Porthkerry Park, Porthkerry Country Park, Barry, Vale Of Glam Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: Ae2019303 Permit Version: 3 Effective Date: 31st March 2005 Issued Date: 31st March 2005 Revocation Date: 16th October 2006 Discharge Type: Sewage And Trade Combined - Unspecified Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NW (W)	855	1	310135 167557

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Ps Barry Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: Ae2019303 Permit Version: 2 Effective Date: 7th January 2005 Issued Date: 7th January 2005 Revocation Date: 30th March 2007 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NW (W)	855	1	310135 167557
20	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Cwm Barry Ps Barry Authority: Environment Agency, Welsh Region Catchment Area: Nant Talwg Reference: Ae2019303 Permit Version: 2 Effective Date: 7th January 2005 Issued Date: 7th January 2005 Revocation Date: 30th March 2007 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Brook Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NW (W)	855	1	310135 167557
21	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Rear Of Flats Lombard Stree, Lombard Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0102901 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 18th March 2005 Revocation Date: 31st March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Dock No. 1 Via Unnamed Waterco Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	844	1	311560 168220
21	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Rear Of Flats Lombard Stree, Lombard Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0102901 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2007 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No. 1 Via Unnamed Waterco Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	844	1	311560 168220

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Lane Rear Gladstone Ro Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0103501 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 18th March 2005 Revocation Date: 31st March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Dock No.1 Via Unnamed Water Co Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	868	1	311530 168260
22	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Lane Rear Gladstone Ro Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0103501 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2007 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No.1 Via Unnamed Water Co Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	868	1	311530 168260
22	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Woodlands Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0103401 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 18th March 2005 Revocation Date: 31st March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Dock No. 1 Via Unnamed Waterco Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	880	1	311580 168250
22	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Woodlands Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0103401 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2007 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No. 1 Via Unnamed Waterco Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	880	1	311580 168250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Lane Rear Gladstone Ro Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0103601 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 31st March 2006 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No.1 Via Unnamed Watercou Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	898	1	311560 168280
23	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: Barry Docks North Side No 1 Dock Ro, North Side No 1 Dock Road Draina, Road Drainage O/Fall 1 . . Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033213 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NE (E)	882	1	312080 167510
24	Discharge Consents Operator: Natural Environmental Research Council Property Type: Undefined Or Other Location: Nerc Premises Barry Dock Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033230 Permit Version: 2 Effective Date: 10th October 1992 Issued Date: 10th July 1992 Revocation Date: 12th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry Docks Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14SE (E)	912	1	312060 167110
24	Discharge Consents Operator: Natural Environmental Research Council Property Type: Undefined Or Other Location: Nerc Premises Barry Dock Barry Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033230 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 9th October 1992 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry Docks Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A14SE (E)	912	1	312060 167110

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: A Combined Sewer Overflow Dyfrig St, Dyfrig Street Cso, Barry Island, Barry Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0382401 Permit Version: 1 Effective Date: 31st March 2005 Issued Date: 30th March 2005 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Saline Estuary Environment: Receiving Water: Barry Dock No1 Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A14SE (E)	921	1	312068 167105
25	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry Island - Dyfrig Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0107401 Permit Version: 2 Effective Date: 31st March 2006 Issued Date: 18th March 2005 Revocation Date: 31st December 2005 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Barry Docks Via Unnamed Waterc Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	915	1	311990 166950
25	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry Island - Dyfrig Street Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0107401 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2006 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Barry Docks Via Unnamed Waterc Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	915	1	311990 166950
26	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Woodlands Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0103301 Permit Version: 2 Effective Date: 31st March 2007 Issued Date: 18th March 2005 Revocation Date: 31st March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Dock No.1 Via Unnamed Watercou Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	929	1	311630 168280

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry - Woodlands Road Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: AN0103301 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2007 Discharge Type: Unspecified Discharge: Tidal Waters Environment: Receiving Water: Dock No.1 Via Unnamed Watercou Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	929	1	311630 168280
27	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Barry Old Harbour S/E Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0048403 Permit Version: 1 Effective Date: 30th October 1987 Issued Date: 30th October 1987 Revocation Date: 13th November 1987 Discharge Type: Unspecified Discharge: Controlled Sea Environment: Receiving Water: Bristol Channel Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A8SW (S)	940	1	310750 166450
28	Discharge Consents Operator: Associated British Ports Property Type: Support Services - Sea Transport Location: Barry Docks Subway Road Outfall 12, Subway Road Outfall 12 ... Authority: Environment Agency, Welsh Region Catchment Area: Boundary Of HA 58 & HA 59 Reference: An0033212 Permit Version: 1 Effective Date: 10th September 1987 Issued Date: 10th September 1987 Revocation Date: 16th January 1995 Discharge Type: Unspecified Discharge: Saline Estuary Environment: Receiving Water: Severn Estuary Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A15NW (E)	942	1	312140 167510
29	Local Authority Pollution Prevention and Controls Name: Coppins Motors Ltd Location: Broad Street, BARRY, South Glamorgan, CF62 7AE Authority: Vale Of Glamorgan County Borough Council, Environmental Health Department Permit Reference: VOG/32 Dated: 18th May 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station Status: Authorised Positional Accuracy: Automatically positioned to the address	A13SW (W)	188	2	310781 167376
30	Local Authority Pollution Prevention and Controls Name: Wm Morrison Supermarkets Plc Location: Penny Way, BARRY, CF63 4BA Authority: Vale Of Glamorgan County Borough Council, Environmental Health Department Permit Reference: Vog/39 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station Status: Authorised Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	558	2	311669 167754

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	Local Authority Pollution Prevention and Controls Name: Freye Dry Cleaning Location: 13 The Parade, Broad Street, Barry, CF62 7AN Authority: Vale Of Glamorgan County Borough Council, Environmental Health Department Permit Reference: VOG/45/FDC Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning Status: Permitted Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	701	2	310536 166814
32	Local Authority Pollution Prevention and Controls Name: Lafarge Redland Aggregates Ltd Location: Hudd Road, No 1 Dock, BARRY, South Glamorgan, CF63 4AB Authority: Vale Of Glamorgan County Borough Council, Environmental Health Department Permit Reference: Vog/9 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement Status: Authorisation revokedRevoked Positional Accuracy: Manually positioned to the address or location	A14NE (E)	741	2	311926 167591
	Nearest Surface Water Feature	A13SE (E)	37	-	311216 167356
33	Pollution Incidents to Controlled Waters Property Type: Waste Handling Facilities Location: BARRY Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Deliberate Act Incident Date: 9th September 1993 Incident Reference: 21048 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	341	1	311500 167250
34	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Jdcars Jenner, Gaen Road, BARRY Authority: Environment Agency, Welsh Region Pollutant: Oils - Petrol Note: Not Supplied Incident Date: 13th February 1995 Incident Reference: 22498 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	498	1	310600 167700
35	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Old Harbour, BARRY Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Not Supplied Incident Date: 28th June 1992 Incident Reference: 4415 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	590	1	310800 166800
36	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: BARRY Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: Mechanical Failure Incident Date: 31st July 1991 Incident Reference: 1116 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	626	1	310700 166800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Cold Knap Authority: Environment Agency, Welsh Region Pollutant: Heavy Fuel Oil Note: Not Supplied Incident Date: 26th June 1995 Incident Reference: 24618 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SW (SW)	687	1	310800 166700
38	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Porthkerry Country Park, Cwm Barry End Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 21st July 1995 Incident Reference: 25204 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	780	1	310200 167500
39	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Wimpey, Construction Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Not Supplied Incident Date: 30th January 1996 Incident Reference: 27266 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SE (W)	970	1	310001 167301
40	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewerage Location: BEACH Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Mechanical Failure Incident Date: 3rd August 1991 Incident Reference: 1160 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9SW (S)	988	1	311500 166400
41	Registered Radioactive Substances Name: Research Vessel Services Location: N E R C, No 1 Dock, BARRY, South Glamorgan, CF63 4AB Authority: Environment Agency, Welsh Region Permit Reference: AF0814 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA Status: Authorisation either revoked or cancelledCancelled Positional Accuracy: Unknown	A13SE (SE)	175	1	311314 167270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	Water Abstractions Operator: Hyper Value Holdings Limited Licence Number: 21/58/31/0031 Permit Version: 1 Location: Borehole At Barry Island Pleasure Park Authority: Environment Agency, Welsh Region Abstraction: Holiday Sites; Camp Sites And Tourist Attractions: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Barry Island Pleasure Park Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 21st May 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	853	1	311620 166620
42	Water Abstractions Operator: Hyper Value Holdings Limited Licence Number: 21/58/31/0030 Permit Version: 100 Location: Borehole At Barry Island Pleasure Park Authority: Environment Agency, Welsh Region Abstraction: Holiday Sites; Camp Sites And Tourist Attractions: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Borehole - Max Depth 60 M & Dia. 150 Mm Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 21st March 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	853	1	311620 166620
	Water Abstractions Operator: Hargreaves (Uk) Services Limited Licence Number: 21/58/11/0011 Permit Version: 104 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Coal Depot At Barry Docks Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th August 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1956	1	313150 167250
	Water Abstractions Operator: Hargreaves (Uk) Services Limited Licence Number: 21/58/11/0011 Permit Version: 104 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th August 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1956	1	313150 167250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Hargreaves (Uk) Services Limited Licence Number: 21/58/11/0011 Permit Version: 104 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th August 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1956	1	313150 167250
	Water Abstractions Operator: Evans & Reid Coal Co Ltd Licence Number: 21/58/11/0011 Permit Version: 103 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Coal Depot At Barry Docks Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 15th April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1956	1	313150 167250
	Water Abstractions Operator: Evans & Reid Coal Co Ltd Licence Number: 21/58/11/0011 Permit Version: 103 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 15th April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1956	1	313150 167250
	Water Abstractions Operator: Evans & Reid Coal Co Ltd Licence Number: 21/58/11/0011 Permit Version: 103 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 15th April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1956	1	313150 167250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Evans & Reid Coal Co Ltd Licence Number: 21/58/11/0011 Permit Version: 102 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Coal Depot At Barry Docks Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st October 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1973	1	313164 167218
	Water Abstractions Operator: Evans & Reid Coal Co Ltd Licence Number: 21/58/11/0011 Permit Version: 102 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st October 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1973	1	313164 167218
	Water Abstractions Operator: Evans & Reid Coal Co Ltd Licence Number: 21/58/11/0011 Permit Version: 102 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st October 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1973	1	313164 167218
	Water Abstractions Operator: Apex Coal Ltd Licence Number: 21/58/11/0011 Permit Version: 101 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Coal Depot At Barry Docks Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th June 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1973	1	313164 167218

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Apex Coal Ltd Licence Number: 21/58/11/0011 Permit Version: 101 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th June 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1973	1	313164 167218
	Water Abstractions Operator: Apex Coal Ltd Licence Number: 21/58/11/0011 Permit Version: 101 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th June 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1973	1	313164 167218
	Water Abstractions Operator: Partners For The Time Being Of W Baker & Sons (Barry) Ltd Licence Number: 21/58/11/0011 Permit Version: 100 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Make-Up Or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: River Cadoxton Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 24th April 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(E)	1973	1	313164 167218
	Water Abstractions Operator: Partners For The Time Being Of W Baker & Sons (Barry) Ltd Licence Number: 21/58/11/0011 Permit Version: 100 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Licenced from 01-Jan to 31-Dec Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 24th April 1996 Permit End Date: Not Supplied Positional Accuracy: Approximate location provided by supplier	(E)	1974	1	313164 167213

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Partners For The Time Being Of W Baker & Sons (Barry) Ltd Licence Number: 21/58/11/0011 Permit Version: 100 Location: Cadoxton River At Barry Authority: Environment Agency, Welsh Region Abstraction: Other Industrial/Commercial/Public Services: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Tidal Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Licenced from 01-Jan to 31-Dec Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 24th April 1996 Permit End Date: Not Supplied Positional Accuracy: Approximate location provided by supplier	(E)	1979	1	313169 167213
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 36 Mid Glamorgan Scale: 1:100,000	A13NE (SW)	0	1	311094 167389
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Secondary Aquifer - A	A13NW (N)	0	3	311081 167441
	Bedrock Aquifer Designations Aquifer Desination: Secondary Aquifer - B	A13NE (SW)	0	3	311094 167389
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NE (SW)	0	3	311094 167389
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	38	1	311239 167413
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	52	1	311254 167410
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	Historical Landfill Sites Licence Holder: Not Supplied Location: Barry, South Glamorgan Name: West Pond Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14508 First Input Date: 31st December 1945 Last Input Date: 31st December 1955 Specified Waste: Deposited Waste included Inert, Industrial, Commercial, Household and Type: Special Waste EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 6950/0061 BGS Ref: Not Supplied Other Ref: Not Supplied	A13SE (S)	2	1	311126 167313
44	Historical Landfill Sites Licence Holder: Associated British Ports Location: Off Cory Way, Barry, Vale Of Glamorgan Name: Barry Graving Dock Operator Location: 150 Holborn, London Boundary Accuracy: As Supplied Provider Reference: EAHLD14914 First Input Date: 1st January 1996 Last Input Date: 30th November 1996 Specified Waste: Deposited Waste included Industrial, Household and Special Waste Type: EA Waste Ref: 30147 Regis Ref: WU1/L/ASS001 WRC Ref: 6950/0012 BGS Ref: Not Supplied Other Ref: 61	A15NW (E)	978	1	312176 167503
45	Licensed Waste Management Facilities (Landfill Boundaries) Name: Graving Dock Licence Number: 30147 Location: Graving Docks Landfill, 1 & 2 Dock, Off Cory Way, Barry Docks, Barry, Vale Of Glam, CF1 7QB Licence Holder: Associated British Ports Authority: Environment Agency Wales, South East Area Site Category: Other Landfill Sites Taking Special Waste Max Input Rate: Large (Equal to or greater than 75,000 tonnes per year) Licence Status: Inactive Issued: 11th October 1994 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A15NW (E)	984	1	312183 167499
46	Licensed Waste Management Facilities (Landfill Boundaries) Name: Not Supplied Licence Number: 30147 Location: Not Supplied Licence Holder: Not Supplied Authority: Environment Agency Wales, North Area Site Category: Not Supplied Max Input Rate: Not Supplied Licence Status: Inactive Issued: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A15NW (E)	984	1	312183 167499
	Local Authority Landfill Coverage Name: Vale Of Glamorgan County Borough Council - Has supplied landfill data		0	7	311094 167389

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	Control of Major Accident Hazards Sites (COMAH) Name: Vopak Terminal Barry Ltd Location: No 1 Dock, Hayes Road, BARRY, South Glamorgan, CF62 5XX Reference: Not Supplied Type: Upper Tier Status: Record Ceased To Be Supplied Under COMAH Regulations Positional Accuracy: Manually positioned to the road within the address or location	A14SW (SE)	368	4	311491 167182
48	Planning Hazardous Substance Consents Name: Powell Duffryn Terminals Ltd Location: Powell Duffryn House, Number 1 Dock, Barry, South Glamorgan, CF63 4ab Authority: Vale Of Glamorgan County Borough Council, Planning Department Application Ref: 1992/01106/HAZ Hazardous Substance: Ammonium nitrate based fertilisers which conform to the Fertilisers Regulations 1991(a) and composite fertilisers containing phosphate and/or potash (where nitrogen content is more than 28% by weight) Maximum Quantity: 34011 Application date: 5th November 1992 Decision: Deemed Consent Granted Positional Accuracy: Manually positioned within the geographical locality	A13SE (SE)	181	5	311332 167282
49	Planning Hazardous Substance Consents Name: Van Ommeren Tank Terminal Location: Barry Authority: Vale Of Glamorgan County Borough Council, Planning Department Application Ref: 97/0115/HAZ Hazardous Substance: Methanol Maximum Quantity: 0 Application date: Not Supplied Decision: Unknown at time of report Positional Accuracy: Manually positioned within the geographical locality	A13NE (E)	201	5	311401 167456
50	Planning Hazardous Substance Consents Name: Powell Duffryn Terminals Ltd Location: Powell Duffryn House, Dock No 1, BARRY, South Glamorgan, CF62 5XX Authority: Vale Of Glamorgan County Borough Council, Planning Department Application Ref: 1999/01002/HAZ Hazardous Substance: Unknown at time of report Maximum Quantity: 0 Application date: 2nd September 1999 Decision: Deemed Consent Granted Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	282	5	311381 167186

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	BGS Recorded Mineral Sites Site Name: Barry Harbour Location: Barry Harbour, Barry, South Glamorgan Source: British Geological Survey, National Geoscience Information Service Reference: 66911 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Triassic Geology: St Mary'S Well Bay Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	677	3	310620 166785
52	BGS Recorded Mineral Sites Site Name: Peter'S Well Location: Pontypridd Road, Barry, South Glamorgan Source: British Geological Survey, National Geoscience Information Service Reference: 66909 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Jurassic Geology: Porthkerry Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	718	3	310425 167835
53	BGS Recorded Mineral Sites Site Name: Holton Farm Location: Barry, South Glamorgan Source: British Geological Survey, National Geoscience Information Service Reference: 66908 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Jurassic Geology: Porthkerry Member Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A18NW (N)	864	3	310975 168295
	BGS 1:625,000 Solid Geology Description: Lower Lias	A13NE (SW)	0	3	311094 167389
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Man-Made Mining Cavities Easting: 311500 Northing: 167000 Distance: 490 Quadrant Reference: A9 Quadrant Reference: NW Bearing Ref: SE Cavity Type: Possible Metaliferrous Mining-Details Unknown Commodity: Not Supplied Solid Geology Detail: No Details Superficial Geology: No Details Detail:	A9NW (SE)	490	6	311500 167000
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NW)	0	3	311087 167397
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	96	3	311297 167409
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	96	3	311297 167409

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	97	3	310969 167523
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	12	3	311068 167441
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	96	3	311297 167409
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	96	3	311297 167409
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	97	3	310969 167523
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	311081 167441
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	3	311014 167354
	Radon Potential - Radon Affected Areas Affected Area: The property is in a radon affected area, as between 1 and 3% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Radon Potential - Radon Affected Areas Affected Area: The property is in a radon affected area, as between 5 and 10% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	3	311094 167375
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	311124 167350
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	3	311094 167389
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	3	311094 167375
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	311124 167350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
54	Contemporary Trade Directory Entries Name: Howe Motors Location: Powell Duffryn Way, Docks, Barry, South Glamorgan, CF62 5QR Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (W)	62	-	310907 167355
55	Contemporary Trade Directory Entries Name: Arrow Cleaning Services Location: Business Service Centre, Hood Road, Docks, Barry, South Glamorgan, CF62 5QN Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (N)	83	-	311105 167517
55	Contemporary Trade Directory Entries Name: Signet International Ltd Location: Innovation Quarter, Hood Road, Docks, Barry, South Glamorgan, CF62 5QN Classification: Freight Forwarders Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (N)	83	-	311105 167517
56	Contemporary Trade Directory Entries Name: The White Wash Location: 14, Broad Street Parade, Barry, South Glamorgan, CF62 7AN Classification: Laundries & Launderettes Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (W)	154	-	310827 167428
57	Contemporary Trade Directory Entries Name: Your Pictures 2 Canvas Location: 2, Cwrt Edward, BARRY, South Glamorgan, CF62 5AS Classification: Photographic Processors Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (N)	174	-	311174 167632
58	Contemporary Trade Directory Entries Name: South Wales Service Stations Ltd Location: Broad Street, Barry, South Glamorgan, CF62 7AE Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (W)	188	-	310781 167376
58	Contemporary Trade Directory Entries Name: Gary Watson Location: Barry Station, Broad Street, Barry, South Glamorgan, CF62 7AE Classification: Car Dealers - Used Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (W)	188	-	310781 167376
59	Contemporary Trade Directory Entries Name: Jaycee Designs Location: 9, Broad Street, Barry, South Glamorgan, CF62 7AA Classification: Soft Furnishings - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (W)	199	-	310801 167472
60	Contemporary Trade Directory Entries Name: Ceg (Uk) Location: 5, Island Road, Barry, South Glamorgan, CF62 7AR Classification: Digital Printing Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (NW)	206	-	310842 167529
60	Contemporary Trade Directory Entries Name: Illuminaires Location: 86, High Street, Barry, South Glamorgan, CF62 7DX Classification: Electrical Goods Sales, Manufacturers & Wholesalers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (NW)	225	-	310821 167535
60	Contemporary Trade Directory Entries Name: D J P Autos Location: 85, High Street, Barry, South Glamorgan, CF62 7DX Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (NW)	226	-	310815 167531

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	Contemporary Trade Directory Entries Name: Griffs Garage Ltd Location: Broad Street, Barry, South Glamorgan, CF62 7AD Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned in the proximity of the address	A13NW (NW)	215	-	310950 167604
62	Contemporary Trade Directory Entries Name: O'Donovans Location: 76, High Street, Barry, South Glamorgan, CF62 7DW Classification: Hardware Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (W)	232	-	310774 167493
62	Contemporary Trade Directory Entries Name: La Qualita Location: 11, High Street, Barry, South Glamorgan, CF62 7DZ Classification: Leather Garments & Products Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (W)	267	-	310755 167526
63	Contemporary Trade Directory Entries Name: Firenfireplaces Location: 99-100, High Street, Barry, South Glamorgan, CF62 7DS Classification: Gas Appliances - Sales & Service Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (NW)	237	-	310888 167603
64	Contemporary Trade Directory Entries Name: Allsta Motors Location: Market Street, Barry, South Glamorgan, CF62 7AS Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (W)	237	-	310751 167459
65	Contemporary Trade Directory Entries Name: 21st Century Marketing Location: 70, High Street, Barry, South Glamorgan, CF62 7DW Classification: Copying & Duplicating Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NE (W)	244	-	310746 167466
65	Contemporary Trade Directory Entries Name: The Classic Iron Trading Co Location: 70, High Street, Barry, South Glamorgan, CF62 7DW Classification: Wrought Ironwork Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NE (W)	244	-	310746 167466
66	Contemporary Trade Directory Entries Name: Electro Mend Location: 109, High Street, Barry, South Glamorgan, CF62 7DT Classification: Domestic Appliances - Servicing, Repairs & Parts Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (NW)	260	-	310948 167652
66	Contemporary Trade Directory Entries Name: Section-59 Ltd Location: 111, High Street, Barry, South Glamorgan, CF62 7DT Classification: Car Customisation & Conversion Specialists Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (NW)	264	-	310958 167659
67	Contemporary Trade Directory Entries Name: Vale Letterbox Location: Rhodfa Sweldon, Barry, South Glamorgan, CF62 5AD Classification: Distribution Services Status: Active Positional Accuracy: Manually positioned within the geographical locality	A13NE (NE)	262	-	311402 167620
68	Contemporary Trade Directory Entries Name: Sims Location: Trinity Street, BARRY, South Glamorgan, CF62 7EU Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A18SW (N)	293	-	311073 167728
69	Contemporary Trade Directory Entries Name: King Tree Haulage Co Ltd Location: 30, Queen Street, Barry, South Glamorgan, CF62 7EF Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (NW)	303	-	310812 167633

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	Contemporary Trade Directory Entries Name: New Broad Street Motors Location: Broad Street, Barry, South Glamorgan, CF62 7AJ Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	321	-	311281 167769
70	Contemporary Trade Directory Entries Name: New Broad Street Motors Ltd Location: Broad Street, Barry, South Glamorgan, CF62 7AJ Classification: Car Dealers - Used Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	321	-	311281 167769
70	Contemporary Trade Directory Entries Name: New Broad Street Motors Location: Broad Street, Barry, South Glamorgan, CF62 7AJ Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	321	-	311281 167769
70	Contemporary Trade Directory Entries Name: Selclene Cardiff Central Location: 96, Broad Street, Barry, South Glamorgan, CF62 7AG Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	369	-	311288 167816
70	Contemporary Trade Directory Entries Name: Maid In Wales Location: 96, Broad Street, Barry, South Glamorgan, CF62 7AG Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	369	-	311288 167816
71	Contemporary Trade Directory Entries Name: First Choice (South Wales) Ltd Location: 23, Windsor Road, Barry, South Glamorgan, CF62 7AW Classification: Greeting Card Publishers & Wholesalers Status: Active Positional Accuracy: Automatically positioned to the address	A12NE (W)	358	-	310613 167413
72	Contemporary Trade Directory Entries Name: House Beautiful Cleaning Services Location: St. Pauls Av, Barry, South Glamorgan, CF62 8HT Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A18SE (N)	386	-	311166 167844
73	Contemporary Trade Directory Entries Name: Central Garage Location: Broad Street, Barry, South Glamorgan, CF62 7AH Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	423	-	311403 167828
74	Contemporary Trade Directory Entries Name: The Launderette Location: Harbour Road, Barry, South Glamorgan, CF62 5SA Classification: Laundries & Launderettes Status: Active Positional Accuracy: Automatically positioned to the address	A12SE (W)	442	-	310527 167341
75	Contemporary Trade Directory Entries Name: F J Tyres Location: College Road, Barry, South Glamorgan, CF62 8BE Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	444	-	311363 167870
75	Contemporary Trade Directory Entries Name: Burch Location: Broad Street, Barry, South Glamorgan, CF62 7AJ Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	466	-	311383 167886
76	Contemporary Trade Directory Entries Name: Vale Rubbish Removal Location: 38, Romilly Road, Barry, South Glamorgan, CF62 6LF Classification: Waste Disposal Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NE (W)	499	-	310514 167571

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
77	Contemporary Trade Directory Entries Name: Bell Painting & Decorating Services Location: 57, Bell Street, Barry, South Glamorgan, CF62 6JU Classification: Plastic Products - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NW (W)	688	-	310320 167595
78	Contemporary Trade Directory Entries Name: Total Culvert Solutions Ltd Location: The Grove, Barry, South Glamorgan, CF62 6RD Classification: Drain & Sewer Clearance - Equipment Status: Active Positional Accuracy: Manually positioned within the geographical locality	A7NW (SW)	701	-	310389 166972
79	Contemporary Trade Directory Entries Name: The Dry Cleaning Centre Location: 13, The Parade, Barry, South Glamorgan, CF62 6SD Classification: Dry Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A7NE (SW)	702	-	310536 166814
80	Contemporary Trade Directory Entries Name: Assaultsystems Location: Station Approach Road, Barry, South Glamorgan, CF62 5TH Classification: Gunsmiths Status: Active Positional Accuracy: Automatically positioned to the address	A9SW (SE)	716	-	311477 166692
81	Contemporary Trade Directory Entries Name: Sunshine Cleaning Services Location: 2, Paget Road, Barry, South Glamorgan, CF62 5TQ Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A8SE (S)	745	-	311304 166591
82	Contemporary Trade Directory Entries Name: Caerphilly Cleaning Location: Flat 9, Glan y Mor, Y Rhodfa, Barry, South Glamorgan, CF63 4BB Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NE (E)	748	-	311938 167561
83	Contemporary Trade Directory Entries Name: Ultraclean Uk Ltd Location: 37-39 Holton Rd, Barry, South Glamorgan, CF63 4HB Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	815	-	311714 168088
84	Contemporary Trade Directory Entries Name: Frame Factory Ltd Location: 17, Thompson Street, Barry, South Glamorgan, CF63 4JL Classification: Picture & Picture Frame Renovating & Restoring Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SE (NE)	856	-	311831 168032
85	Contemporary Trade Directory Entries Name: Photoden Ltd Location: 50a, Holton Road, Barry, South Glamorgan, CF63 4HE Classification: Photographic Processors Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NE (NE)	863	-	311772 168102
86	Contemporary Trade Directory Entries Name: Vale Clean Location: 5, Redbrink Crescent, Barry, South Glamorgan, CF62 5TT Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	884	-	311950 166942
86	Contemporary Trade Directory Entries Name: Marine Garage Location: Rear Of Redbrink Cres, Barry Island, Barry, South Glamorgan, CF62 5TT Classification: Garage Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A9NE (SE)	912	-	311970 166922
87	Contemporary Trade Directory Entries Name: Hillary'S Blinds Ltd Location: Telephone Exchange, Dock View Road, Barry, South Glamorgan, CF63 4UF Classification: Blinds, Awnings & Canopies Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SE (NE)	889	-	311985 167867

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	Contemporary Trade Directory Entries Name: G M Plumbing & Heating Location: 28, Romanza, Cei Dafydd, Barry, South Glamorgan, CF63 4BH Classification: Boilers - Servicing, Replacements & Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A14NE (E)	901	-	312095 167546
89	Contemporary Trade Directory Entries Name: S J B Complete Cleaning Location: 9, Fryatt Street, Barry, South Glamorgan, CF63 4JU Classification: Carpet, Curtain & Upholstery Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A19SE (NE)	940	-	312030 167890
90	Contemporary Trade Directory Entries Name: W F Holmes & Sons Ltd Location: Evans Street, Barry, South Glamorgan, CF62 8DU Classification: Mot Testing Centres Status: Active Positional Accuracy: Automatically positioned to the address	A19NW (NE)	958	-	311686 168282
91	Contemporary Trade Directory Entries Name: A Cut Above The Rest Location: 1, Southey Street, Barry, South Glamorgan, CF62 8EY Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NW (N)	959	-	311464 168380
92	Contemporary Trade Directory Entries Name: Caterite Ltd Location: 3, Subway Road, Barry, South Glamorgan, CF63 4QT Classification: Catering Equipment Status: Inactive Positional Accuracy: Manually positioned to the address or location	A15NW (E)	964	-	312132 167689
93	Contemporary Trade Directory Entries Name: Mace Aviation Ltd Location: 164, Gladstone Road, Barry, South Glamorgan, CF62 8ND Classification: Aviation Engineers Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NW (NE)	971	-	311606 168339
94	Contemporary Trade Directory Entries Name: Side By Side Salvage Location: The Island Garage, Redbrink Cr, Barry, South Glamorgan, CF62 5TT Classification: Salvage Dealers Status: Active Positional Accuracy: Manually positioned within the geographical locality	A9NE (SE)	975	-	312021 166885
95	Contemporary Trade Directory Entries Name: G M Plumbing And Heating Location: 56, Coronation Street, Barry, South Glamorgan, CF63 4JX Classification: Boilers - Servicing, Replacements & Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SE (NE)	980	-	312024 167980
96	Contemporary Trade Directory Entries Name: S & G Air Conditioning Contracts Ltd Location: The Loft, 29, Park Road, Barry, South Glamorgan, CF62 6NX Classification: Air Conditioning & Refrigeration Contractors Status: Active Positional Accuracy: Automatically positioned to the address	A11SE (W)	981	-	310003 167191
97	Contemporary Trade Directory Entries Name: Hinds Garages Ltd Location: Dock View Road, Barry, South Glamorgan, CF63 4JP Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A20SW (E)	984	-	312121 167790
98	Contemporary Trade Directory Entries Name: Apc (Wales) Location: 35, Coronation Street, Barry, South Glamorgan, CF63 4JW Classification: Concrete Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A20SW (NE)	996	-	312106 167862

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	Fuel Station Entries Name: Gary Watson Motors Location: Broad Street, BARRY, South Glamorgan, CF62 7AA Brand: Unbranded Premises Type: Petrol Station Status: Closed Positional Accuracy: Automatically positioned to the address	A13SW (W)	189	-	310780 167376
100	Fuel Station Entries Name: Central Garage Location: Broad Street, BARRY, South Glamorgan, CF62 7AH Brand: Obsolete Premises Type: Not Applicable Status: Obsolete Positional Accuracy: Manually positioned to the address or location	A18SE (NE)	423	-	311403 167828
101	Fuel Station Entries Name: Morrisons Barry Location: Ffordd Y Mileniwm, Waterfront, Barry, South Glamorgan, CF63 1BA Brand: Morrisons Premises Type: Hypermarket Status: Open Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	560	-	311671 167754

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
102	Local Nature Reserves Name: Cwm Talwg Woodlands Multiple Area: Y Area (m2): 6958.62 Source: Vale Of Glamorgan County Borough Council Designation Date: 31st December 1997	A17NE (NW)	979	7	310605 168289
103	Sites of Special Scientific Interest Name: Barry Island Multiple Areas: Y Total Area (m2): 150715.1 Source: Countryside Council for Wales Reference: 68033wva Designation Details: Geological Designation Date: 1st January 1958 Date Type: Renotified	A8SE (S)	857	8	311121 166457

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Vale Of Glamorgan County Borough Council - Environmental Health Department	September 2011	Annual Rolling Update
Discharge Consents Environment Agency - Welsh Region	January 2012	Quarterly
Enforcement and Prohibition Notices Environment Agency - Welsh Region	January 2012	Quarterly
Integrated Pollution Controls Environment Agency - Welsh Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - Welsh Region	January 2012	Quarterly
Local Authority Integrated Pollution Prevention And Control Vale Of Glamorgan County Borough Council - Environmental Health Department	November 2011	Annual Rolling Update
Local Authority Pollution Prevention and Controls Vale Of Glamorgan County Borough Council - Environmental Health Department	November 2011	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Vale Of Glamorgan County Borough Council - Environmental Health Department	November 2011	Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	September 2011	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Welsh Region	January 2012	Monthly
Prosecutions Relating to Controlled Waters Environment Agency - Welsh Region	January 2012	Monthly
Registered Radioactive Substances Environment Agency - Welsh Region	January 2012	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	January 2011	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	January 2011	Annually
Substantiated Pollution Incident Register Environment Agency Wales - South East Area	January 2012	Quarterly
Water Abstractions Environment Agency - Welsh Region	January 2012	Quarterly
Water Industry Act Referrals Environment Agency - Welsh Region	January 2012	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Source Protection Zones Environment Agency - Head Office	July 2011	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2012	Quarterly

Agency & Hydrological	Version	Update Cycle
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2012	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2012	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	February 2012	Quarterly
Flood Defences Environment Agency - Head Office	February 2012	Quarterly
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency Wales - South East Area	January 2012	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency Wales - North Area Environment Agency Wales - South East Area	January 2012 January 2012	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency Wales - South East Area	October 2011	Quarterly
Local Authority Landfill Coverage Vale Of Glamorgan County Borough Council	May 2000	Not Applicable
Local Authority Recorded Landfill Sites Vale Of Glamorgan County Borough Council	May 2000	Not Applicable
Registered Landfill Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	December 2011	Bi-Annually
Explosive Sites Health and Safety Executive	December 2011	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Vale Of Glamorgan County Borough Council - Planning Department	January 2012	Annual Rolling Update
Planning Hazardous Substance Consents Vale Of Glamorgan County Borough Council - Planning Department	January 2012	Annual Rolling Update

Geological	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	October 2011	Bi-Annually
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	August 2011	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	February 2012	Quarterly
Fuel Station Entries Catalist Ltd - Experian	November 2011	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Outstanding Natural Beauty Countryside Council for Wales	October 2011	Bi-Annually
Environmentally Sensitive Areas The National Assembly for Wales - GI Services (Department of Planning & Countryside)	August 2008	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Vale Of Glamorgan County Borough Council	October 2011	Bi-Annually
Marine Nature Reserves Countryside Council for Wales	October 2011	Bi-Annually
National Nature Reserves Countryside Council for Wales	October 2011	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones The National Assembly for Wales - GI Services (Department of Planning & Countryside)	October 2005	Annually
Ramsar Sites Countryside Council for Wales	October 2011	Bi-Annually
Sites of Special Scientific Interest Countryside Council for Wales	October 2011	Bi-Annually
Special Areas of Conservation Countryside Council for Wales	October 2011	Bi-Annually
Special Protection Areas Countryside Council for Wales	October 2011	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	Vale Of Glamorgan County Borough Council - Environmental Health Department Civic Offices, Holton Road, Barry, CF63 4RU	Telephone: 01446 700111 Fax: 01446 745566 Website: www.valeofglamorgan.gov.uk
3	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
4	Health and Safety Executive Explosives Inspectorate, 1.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Telephone: 0151 951 3092 Fax: 0151 951 3891 Email: victoria.holloway@hse.gsi.gov.uk Website: www.hse.gov.uk
5	Vale Of Glamorgan County Borough Council - Planning Department Dock Offices, Barry Docks, Barry, South Glamorgan, CF63 4RT	Telephone: 01446 700111 Fax: 01446 745566 Website: www.valeofglamorgan.gov.uk
6	Peter Brett Associates Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
7	Vale Of Glamorgan County Borough Council Civic Offices, Holton Road, Barry, South Glamorgan, CF63 4RU	Telephone: 01446 700111 Fax: 01446 745566 Website: www.valeofglamorgan.gov.uk
8	Countryside Council for Wales Plas Penrhose, Fford Penrhos, Bangor, Gwynedd, LL57 2LQ	Telephone: 01248 385500 Fax: 01248 355782
-	Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	Landmark Information Group Limited The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.

Groundwater Vulnerability

General
Specified Site Specified Buffer(s) Bearing Reference Point
Map ID

Agency and Hydrological

Geological Classes

Major Aquifer
(Highly Permeable)

Minor Aquifer
(Variably Permeable)

Non Aquifer
(Negligibly Permeable)

Water or Sea

Drift Deposit

Soil Classes

High (H) 1, 2, 3, U

Intermediate (I) 1, 2

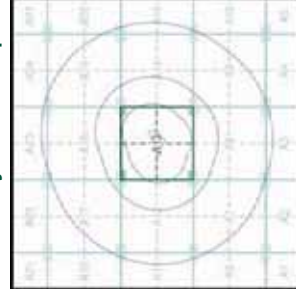
Low

High (H) 1, 2, 3, U

Intermediate (I) 1, 2

Low

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Bedrock Aquifer Designation

General
Specified Site Specified Buffer(s) Bearing Reference Point
Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A




Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details






Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Superficial Aquifer Designation

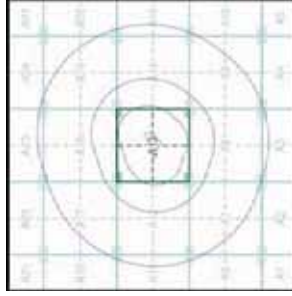
General
Specified Site  Specified Buffer(s)  Bearing Reference Point 
Map ID 

Agency and Hydrological

Geological Classes

- Principal Aquifer 
- Secondary A Aquifer 
- Secondary B Aquifer 
- Secondary Undifferentiated 
- Unproductive Strata 
- Unknown 

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details






Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Source Protection Zones

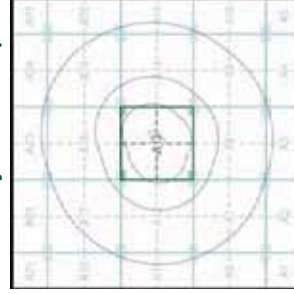
General

-  Specified Site
-  Specified Buffer(s)
-  Map ID
-  Bearing Reference Point

Agency and Hydrological

-  Source Protection Zone I
-  Source Protection Zone II
-  Source Protection Zone III
-  Zone of Special Interest
-  Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 37932784_1_1
 Customer Ref: 10973
 National Grid Reference: 311090, 167390
 Slice: A
 Site Area (Ha): 1.69
 Search Buffer (m): 1000

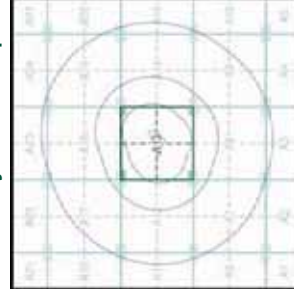
Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Sensitive Land Uses

- General**
- Specified Site
 - Specified Buffer(s)
 - Map ID
 - Bearing Reference Point
- Sensitive Land Uses**
- Area of Adopted Green Belt
 - Area of Unadopted Green Belt
 - Area of Outstanding Natural Beauty
 - Environmentally Sensitive Area
 - Forest Park
 - Local Nature Reserve
 - Marine Nature Reserve
 - National Nature Reserve
 - National Park
 - Nitrate Sensitive Area
 - Nitrate Vulnerable Zone
 - Ramsar Site
 - Site of Special Scientific Interest
 - Special Area of Conservation
 - Special Protection Area

Site Sensitivity Context Map - Slice A



Order Details

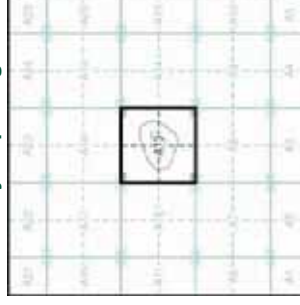
Order Number: 37932784_1_1
 Customer Ref: 10973
 National Grid Reference: 311090, 167390
 Slice: A
 Site Area (Ha): 1.69
 Search Buffer (m): 1000

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

- General**
- Specified Site
 - Several of Type at Location
 - Bearing Reference Point
 - Overhead Transmission Line
 - Map ID
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Waste**
- BOS Recorded Landfill Site (Location)
 - BOS Recorded Landfill Site
 - EA Historic Landfill (Refused Road)
 - EA Historic Landfill (Refuse)
 - Integrated Pollution Control Registered Landfill Boundary
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Registered Landfill Site
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Near Refused to 10m)
 - Registered Landfill Site (Near Refused to 20m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BOS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
 - Fuel Station Entry

Site Sensitivity Map - Segment A13



Order Details

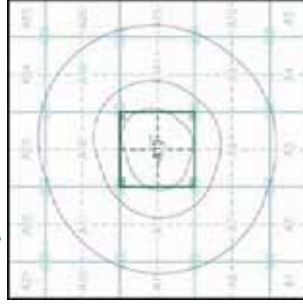
Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Plot Buffer (m): 100

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR



Flood Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location

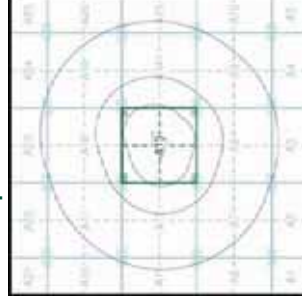
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Integral
Géotechnique

Mapping Type	Scale	Date
Glamor ganshire	1:2,500	1879
Glamor ganshire	1:2,500	1900
Glamor ganshire	1:2,500	1920
Glamor ganshire	1:2,500	1936
Ordinance Survey Plan	1:1,250	1955
Ordinance Survey Plan	1:2,500	1956
Additional SIMs		
Ordinance Survey Plan	1:2,500	1956
Supply of Unpublished Survey Information	1:1,250	1971 - 1972
Additional SIMs	1:1,250	1973
Large-Scale National Grid Data	1:1,250	1990
Large-Scale National Grid Data	1:1,250	1993

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Topographic Features		Man-made Features		Vegetation		Water Features		Infrastructure		Boundaries		Other	
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (surveyed)		Coniferous Tree (surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Glazed roof Building		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway		Coniferous Tree (surveyed)
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (not surveyed)		Coniferous Trees (not surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (surveyed)		Coniferous Tree (surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (not surveyed)		Coniferous Trees (not surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (surveyed)		Coniferous Tree (surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (not surveyed)		Coniferous Trees (not surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (surveyed)		Coniferous Tree (surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (not surveyed)		Coniferous Trees (not surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (surveyed)		Coniferous Tree (surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (not surveyed)		Coniferous Trees (not surveyed)		Orchard Tree		Coppice, Osier		Rough Grassland
	Active Quarry, Chalk Pit or Clay Pit		Boulders		Slopes		Roofed Building		Cliff		Shaping Masonry		Archway
	Inactive Quarry, Gravel Pit or Clay Pit		Rock		Non-Coniferous Tree (surveyed)		Coniferous Tree (surveyed)		Orchard				

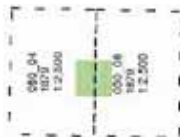
Slopes		Top	
	Rock		Boulders (scattered)
	Boulders		Positioned Boulder
	Non-Coniferous Tree (surveyed)		Non-Coniferous Tree (not surveyed)
	Orchard Tree		Coppice/Osier
	Rough Grassland		Direction of water flow
	Electricity Transmission Line		Electricity Pylon
	Buildings with Building Seed		Triangulation Station
	Glazed Roof Building		Bench Mark
	Civil parish/community boundary		District boundary
	County boundary		Boundary post/stone
	Boundary marking symbol (note, these always appear in opposed pairs or groups of three)		Barracks
	Battery		Cemetery
	Chimney		Cistern
	Disused Railway Station		Electricity Generating Station
	Electricity Pole, Pillar		Electricity Sub Station
	Filter Bed		Fountain / Drinking Fm.
	Gas Valve Compound		Gas Governor
	Gas Post		Gully
	Manhole		Mile Post or Mile Stone
	Pillar Pole or Post		Post Office
	Public Convenience		Pump
	Pumping Station		Photo of Workshop
	Sewage Pyls Sta.		Sewage Pumping Station
	Signal Box or Bridge		Signal Post or Light
	Tank or Trench		Trough
	Wind Pump		Water Pipe
	Water Pipe		Well

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

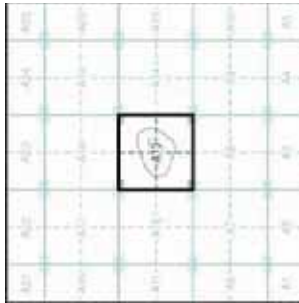
Gwallia Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

The historical maps shown were reproduced from maps predominantly held at the Ordnance Survey, which were adopted for England, Wales and Scotland in the 1840s. In 1864, the 2500 scale maps were applied for mapping to be the standard for Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

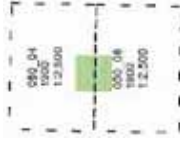
Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

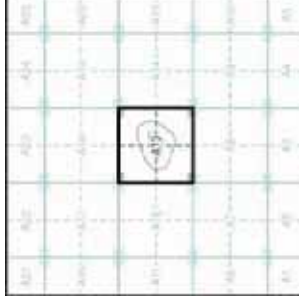
Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

The historical maps shown were reproduced from maps predominantly held at the time adopted for England, Wales and Scotland in the 1840s. In 1854 the 2,500 scale maps were adopted for mapping to be the standard parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938 all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

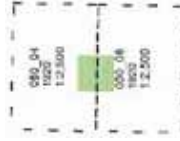
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Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

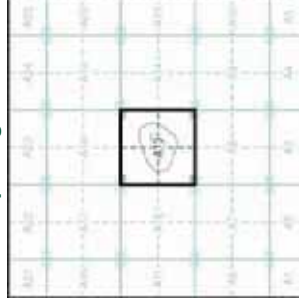
Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

The historical maps shown were reproduced from maps predominantly held at the Ordnance Survey, which were adopted for England, Wales and Scotland in the 1840s. In 1864, the Ordnance Survey was created by an Act of Parliament, and it was then that the 1:2,500 scale maps were first published. The maps were created by the Ordnance Survey, which was the first to create a national map of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

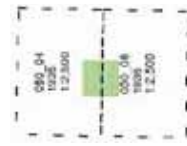
Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

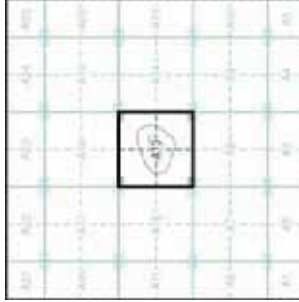
Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

The historical maps shown were reproduced from maps predominantly held at the Ordnance Survey, which were adopted for England, Wales and Scotland in the 1840s. In 1864, the Ordnance Survey was created by an Act of Parliament, and the maps were re-surveyed and re-published. The maps were then re-surveyed and re-published in 1886. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

STim:14E	1955	11,250
STim:14W	1955	11,250
STim:15E	1955	11,250
STim:15W	1955	11,250

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details
Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62
5QR

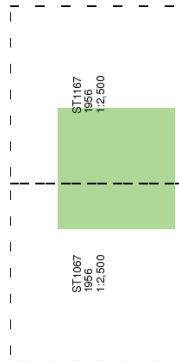
Ordnance Survey Plan

Published 1956

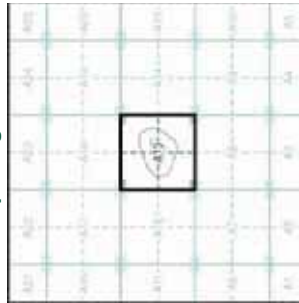
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the time adopted for England, Wales and Scotland in the 1840s, 1864 at 1:2,500 scale. The maps were then reprojected to the current datum, the 1936 datum, and the scale of the maps was increased to 1:2,500. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

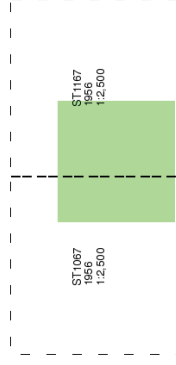
Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

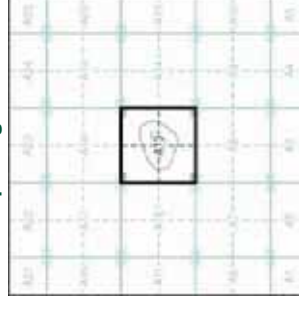
Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further minor editions of mapping which were produced and published in 1956. The main editions on area were produced from 1947 to 1954, and contain details of roads, railways, buildings, and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

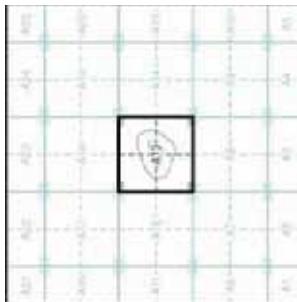
Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

Site Details
Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62
5QR



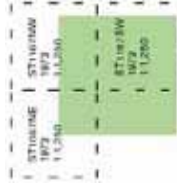
Supply of Unpublished Survey Information

Published 1973

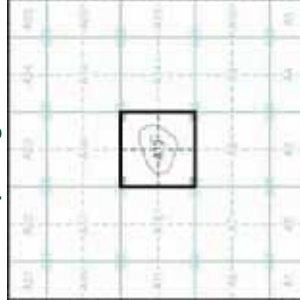
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordinance Survey. These were more of a 'work-in-progress' plan as they showed updates of individual single points on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

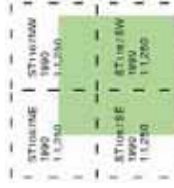
Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR



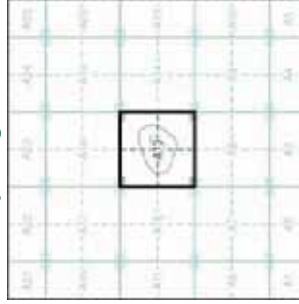
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further minor editions of mapping which were produced and published in 1987. The main editions are on area maps, which are produced from 1947 to 1994, and contain details of buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 100

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

STIM:AE	STIM:SW
1993	1993
13,250	13,250
STIM:AE	STIM:SW
1992	1992
13,250	13,250

Order Number:	37932784_1_1
Customer Ref:	10973
National Grid Reference:	311090, 167390
Slice:	A
Site Area (Ha):	1.69
Search Buffer (m):	100

Site Details
Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62
5QR

Integral
Géotechnique

Mapping Type	Scale	Date	Pg
Glamorganshire	1:10,560	1885	2
Glamorganshire	1:10,560	1901	3
Glamorganshire	1:10,560	1921	4
Glamorganshire	1:10,560	1936	5
Glamorganshire	1:10,560	1938 - 1947	6
Historical Aerial Photography	1:10,560	1947	7
Historical Aerial Photography	1:10,560	1947	8
Ordinance Survey Plan	1:10,000	1965	9
Ordinance Survey Plan	1:10,000	1975	10
Ordinance Survey Plan	1:10,000	1982 - 1984	11
Ordinance Survey Plan	1:10,000	1991 - 1995	12
10K Raster Mapping	1:10,000	1999	13
10K Raster Mapping	1:10,000	2006	14
10K Raster Mapping	1:10,000	2017	15

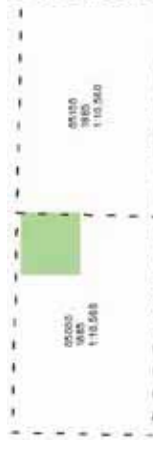
Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
A
Slice: 169
Site Area (Ha): 1000
Search Buffer (m):

Site Details
Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62
5QR

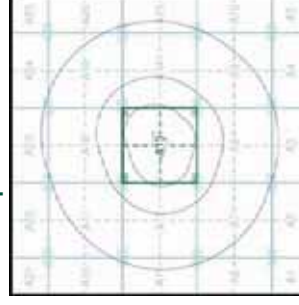
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the time adopted for England, Wales and Scotland in the 1940's. In 1954 there were 2,500 maps of England, Wales and Scotland, in 1960, 3,000 and in 1970, 3,500. The published date of a map therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished – with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Details

Order Number:	37932784_1_1
Customer Ref:	10973
National Grid Reference:	311090, 167390
Slice:	A
Site Area (Ha):	1.69
Search Buffer (m):	1000

Site Details

Site Details
Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62
5QR

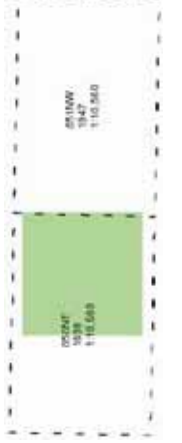
Glamorganshire

Published 1938 - 1947

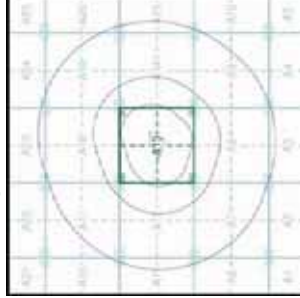
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the time adopted for England, Wales and Scotland in the 1840's. In 1864 the 1:2,500 scale maps were produced, then the 1:10,560 scale maps were produced in 1901. The maps were often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Historical Aerial Photography

Published 1947

Source map scale - 1:10,560

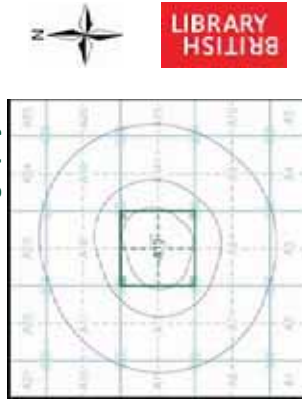
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending the completion of the aerial photography programme. The photos were checked for potentially unsafe information with security sites replaced by fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

Historical Aerial Photography

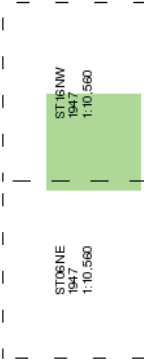
Published 1947

Source map scale - 1:10,560

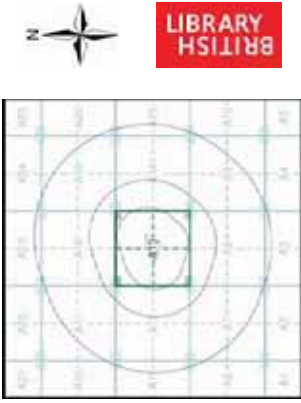
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending the completion of the new aerial photography. The original editions were checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)



Historical Aerial Photography - Slice A

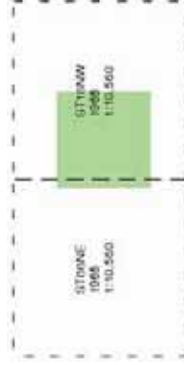


Ordnance Survey Plan Published 1965

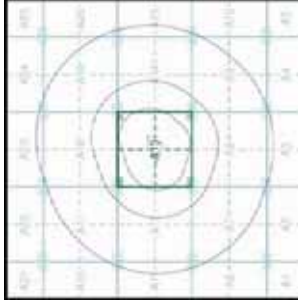
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the time adopted for England, Wales and Scotland in the 1840's. In 1864 the 1:2,500 scale maps were produced, then in 1889 the 1:10,000 scale maps were produced. The maps published after the 1900s were often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,000 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

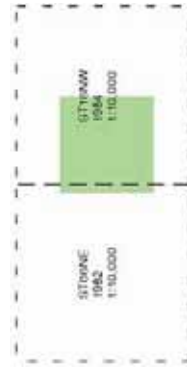
Ordnance Survey Plan

Published 1982 - 1984

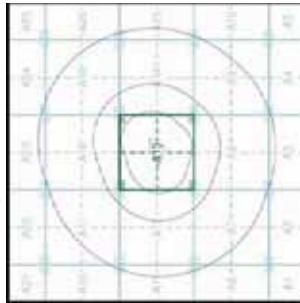
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the time adopted for England, Wales and Scotland in the 1840's. In 1864 the 1:2,500 scale maps were replaced by the 1:10,000 scale maps. The 1:10,000 scale maps were often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties giving rise to significant inaccuracies in cutting areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,000 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

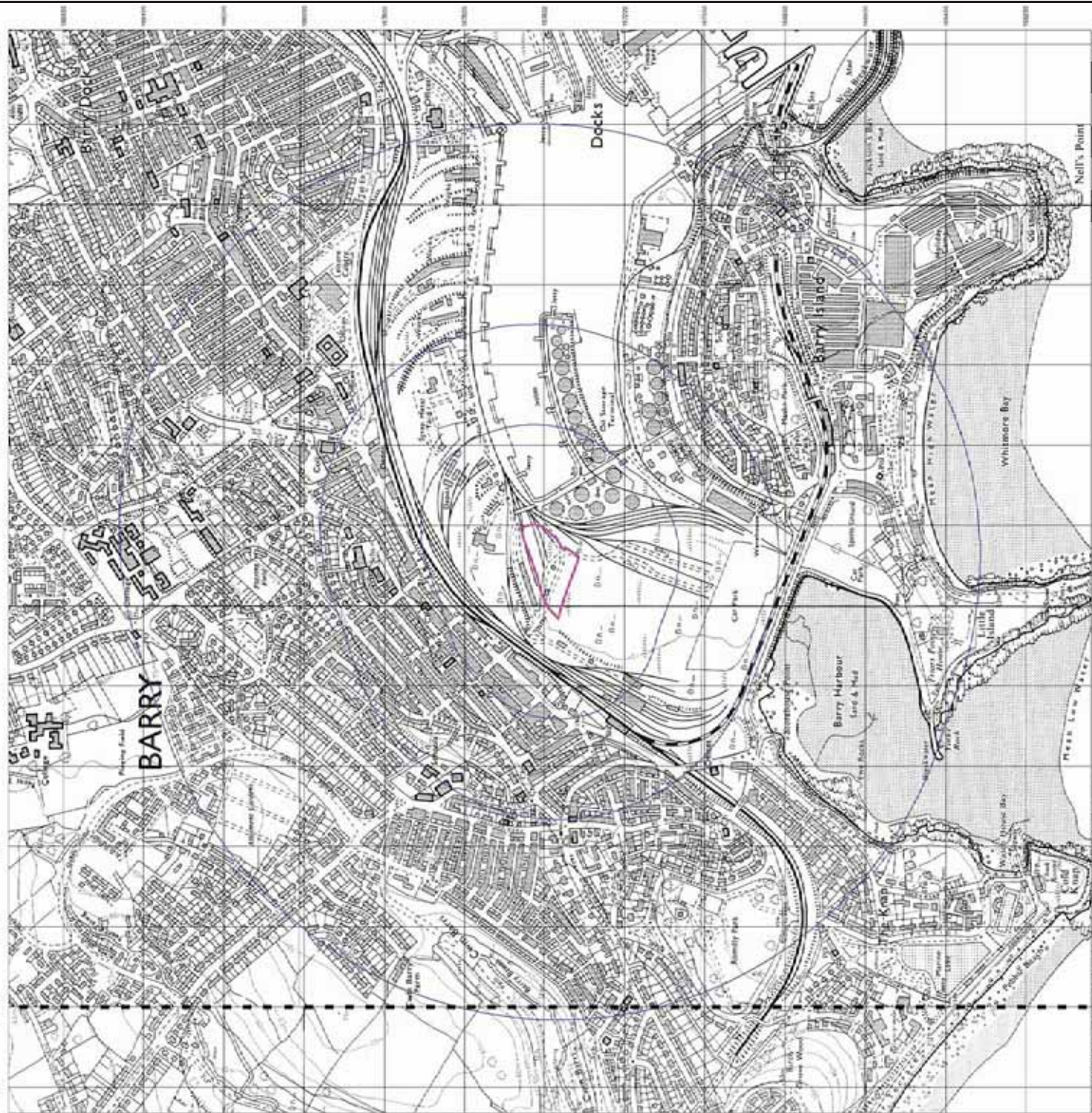


Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR



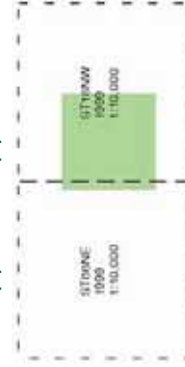
10k Raster Mapping

Published 1999

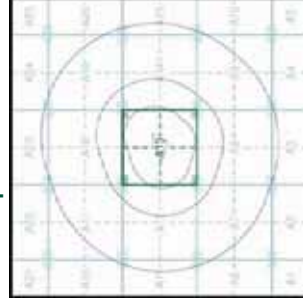
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are updated from planar data which is highly detailed, showing buildings, roads, tracks and paths, as well as all relevant road number and classification. Boundary information includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.89
Search Buffer (m): 1000

Site Details

Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR

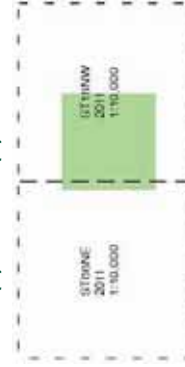
10k Raster Mapping

Published 2011

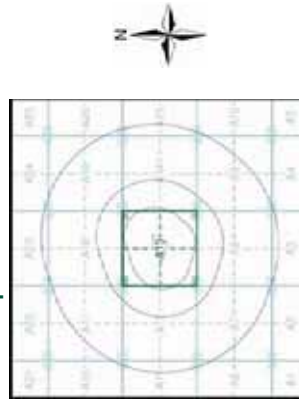
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are updated from planar data which is highly detailed, showing buildings, roads, tracks and paths as well as all relevant road number and classification. Boundary information depicted includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A

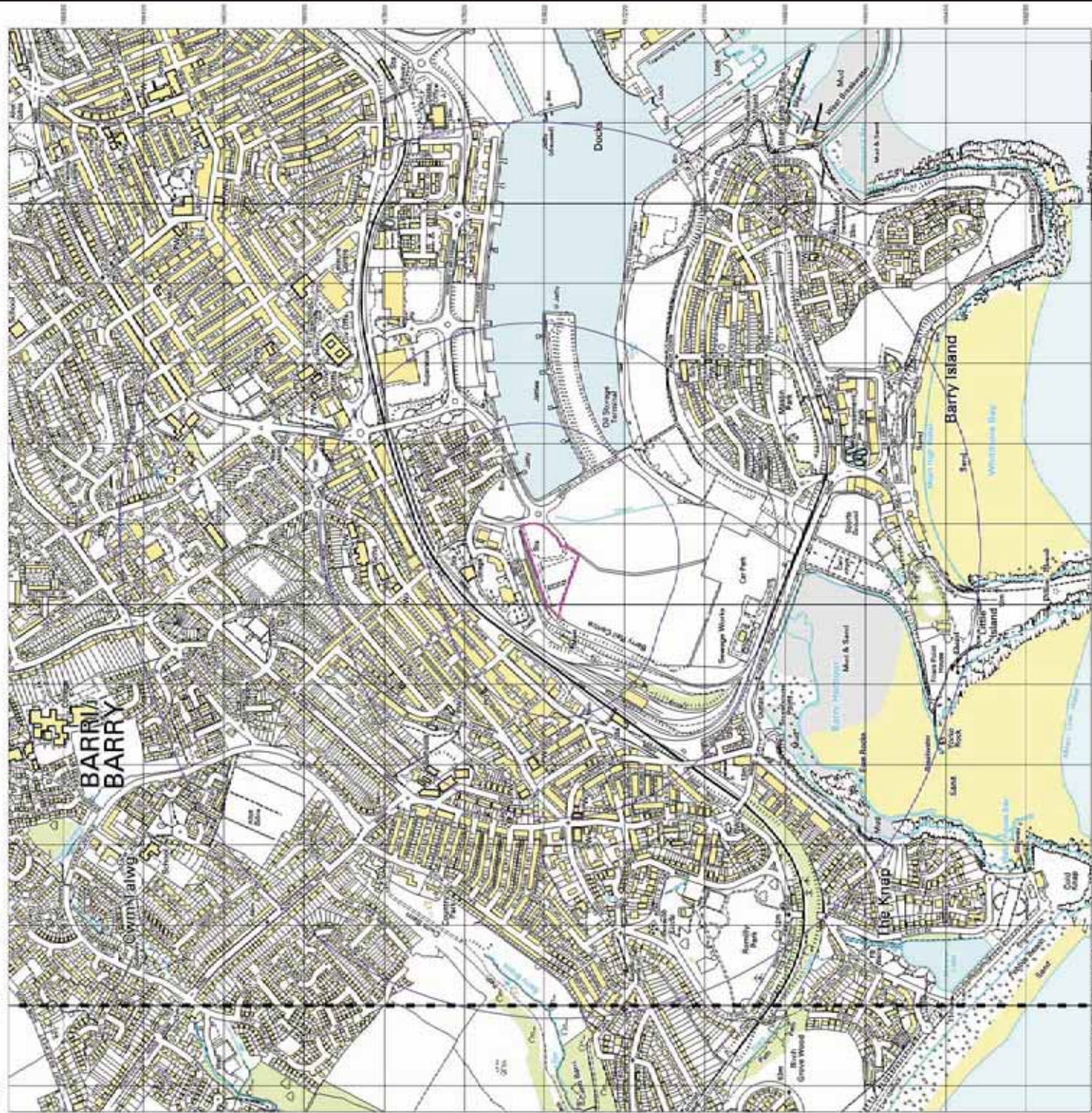


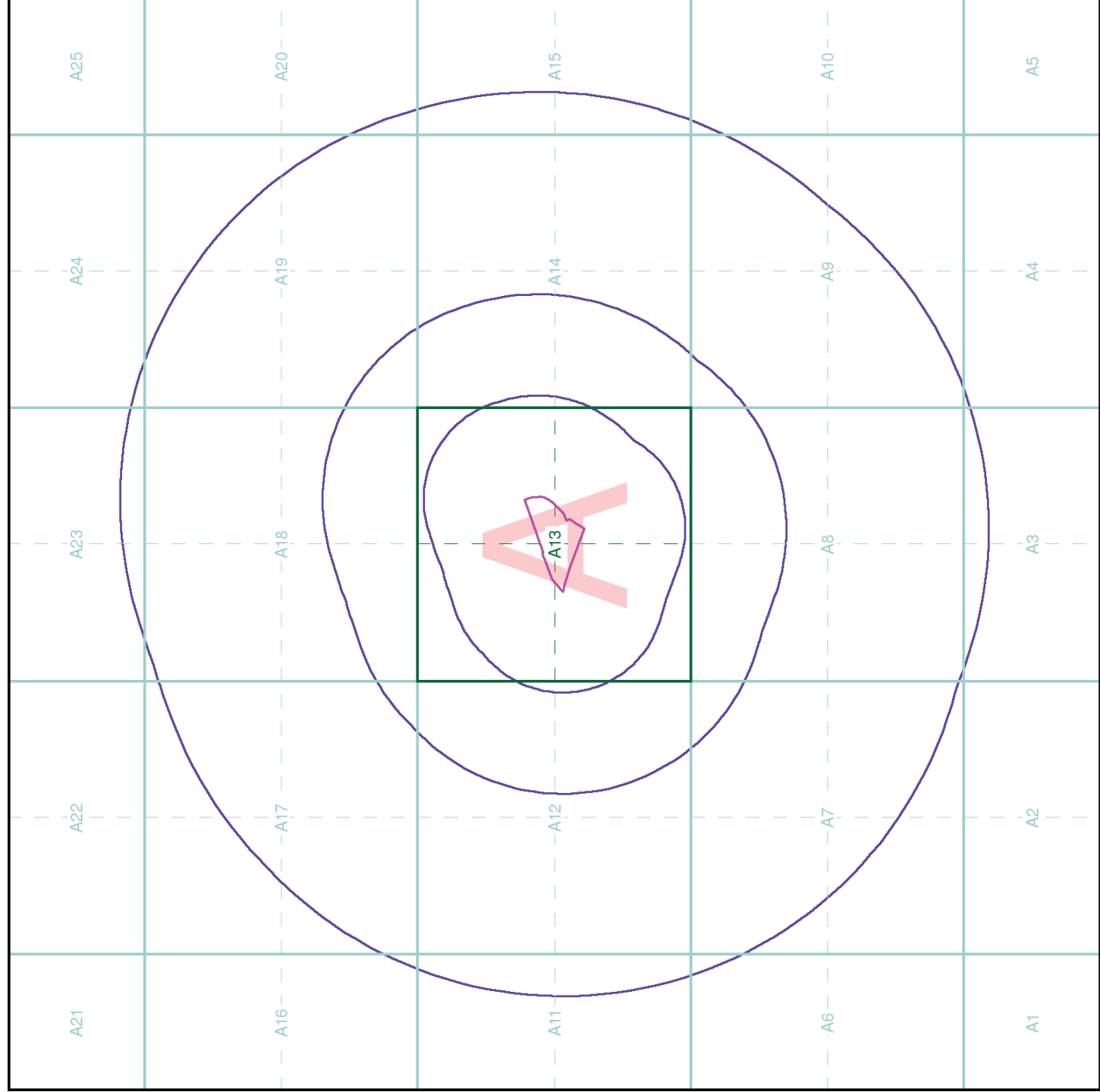
Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311090, 167390
Slice: A
Site Area (Ha): 1.89
Search Buffer (m): 1000

Site Details

Gwalia Buildings, Powell Duffryn Way, Docks, Barry, CF62 5QR





Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice

Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline) that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment

A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant

A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report



Envirocheck reports are compiled from 136 different sources of data.

Client Details

MIR H Pritchard, Integral Geotechnique, Integral House, 7
Beddau Way, Castlegate Business Park, Caerphilly, CF83
2XX

Order Details

Order Number: 37932784_1_1
Customer Ref: 10973
National Grid Reference: 311100, 167390
Site Area (Ha): 1.69
Search Buffer (m): 1000

Site Details

Gwalla Buildings, Powell Duffryn Way, Docks, Barry, CF62
5QR



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

LANDMARK STANDARD TERMS AND CONDITIONS

Version 6.05 5 Nov 2011

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refer to the contracting party who accesses the Website or places an Order with Us.

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a. These Terms govern the relationship between Us and You where You purchase Services from Us. Where these Terms are not expressly accepted by You, they will be deemed to have been accepted by You, and You agree to be bound by these Terms, when You place any Order, or pay for any Services provided to You by Us.

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c. We may modify these Terms, and may discontinue or revise any or all other aspects of the Services at Our sole discretion, with immediate effect and without prior notice, including without limitation changing the Services available at any given time. Any amendment or variation to these Terms shall be posted on Our Websites. You acknowledge that it shall remain Your responsibility to check Our Website from time to time for any such amendments or variation to these Terms.

d. Continued Orders of the Services by You shall be deemed an acceptance by You to be bound by any such amendments to the Terms.

e. These Terms together with Your Order, the Fees and delivery details in relation to Your Order and Our privacy policy, which is available on the Website, constitute the entire agreement between the parties relating to the supply of Services to You by Us ("Agreement"). You acknowledge that You have not relied on any statement, promise or representation made or given by or on behalf of Us which is not set out in the Agreement or delivery details. Nothing in this clause 1.d shall limit or exclude any liability for fraud.

f. These Terms shall prevail at all times to the exclusion of all other terms and conditions including any terms and conditions which You may purport to apply even if such other provisions are submitted in a later document or purport to exclude or override these Terms and neither the course of conduct between parties nor trade practice shall act to modify these Terms.

g. The exclusion of all other terms and conditions which You may purport to apply even if such other provisions are submitted in a later document or purport to exclude or override these Terms and neither the course of conduct between parties nor trade practice shall act to modify these Terms.

h. Subject to clauses 6.d, 6.k and 6.l, We shall use all reasonable skill, care and diligence in the performance of the Services.

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iii. any person who provides funding secured on the whole or part of the Property Site;

iv. any person for whom You act in a professional or commercial capacity in relation to the Property Site;

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g. You shall not reverse engineer, separate or otherwise tamper with the Content so that Content can be extracted and used for any purpose outside the scope of the Agreement.

h. If You are a Company or public body, You agree that the licensed use of Content pursuant to the Agreement always excludes its use by any of Your subsidiaries, holding companies or such terms are defined in section 1159 of the Companies Act 2006) or by any government entity associated with You (in each case as applicable). You agree, and shall procure, that any such company or entity shall enter into a separate agreement with Us.

i. All other uses of the Content are prohibited. If You wish to use the Content in a manner which is not authorised by the Terms, then You must contact Us to seek the necessary consents or licences (which may include further licences from the Suppliers), for which there may be additional Fees.

j. You agree to notify Us as soon as You suspect any infringement of Our or any of

Our Supplier's intellectual property rights and You agree to give Us all reasonably required assistance in pursuing any potential infringement.

3. Intellectual Property and Confidentiality

a. You acknowledge and agree that all Intellectual Property Rights in Content are and shall continue to be owned by Us or Our Suppliers and nothing in the Agreement shall transfer, assign or grant any rights to You (save for the licence as set out above).

b. Subject to any use of the Content in accordance with these Terms, You acknowledge and agree that You shall, shall procure that any person to whom You provide access to the Content shall, treat as strictly private and confidential the Services, the Content and all information which they obtain from the Services and Content. You agree to indemnify Us against all liabilities, damages, penalties, costs, expenses (including legal expenses on an indemnity basis) or other loss suffered or incurred by Us in relation to any breach or alleged breach of this clause 3.b.

c. At any time, we may terminate the Agreement with immediate effect by giving You written notice:

i. if You are in breach of the Terms and, if such breach is capable of remedy, You fail to remedy the breach within 30 days of written notice from Us specifying the breach and requiring it to be remedied; and

ii. if You have a receiver or administrator appointed over You or any part of Your undertaking or assets or shall pass a resolution for winding up (otherwise than for the purpose of a bona fide scheme of solvent amalgamation or reconstruction) or a court of competent jurisdiction shall make an order to that effect or if You order or enter into a voluntary arrangement with Your creditors or shall cease or threaten to cease to carry on business or if You are presented with a bankruptcy petition.

5. Payments

a. An individual or a monthly invoice showing all Orders created by You will be generated subject to these Terms. You will pay the Fees at the rates set out in Our or Our Authorised Reseller's invoice within 30 days of the date of each invoice without deduction, counterclaim or set off. Where Your order comprises a number of Services or severable elements within any one or more Services, any failure by Us or its Authorised Reseller to provide an element or elements of the Services shall not prejudice Our or Our Authorised Reseller's ability to require payment in respect of the Services delivered to You.

b. You acknowledge that time is of the essence with respect to the payment of such invoices.

c. VAT shall be due in addition to any Fees. You shall pay any other applicable indirect taxes related to Your use of the Services.

d. Neither We nor any Authorised Reseller shall be required to notify You in advance of any amendment to the Fees and the placing of any further Order for Services shall be deemed acceptance of any revisions to the Fees.

e. If you fail to pay by the due date any amount due and payable by You under the Agreement, We shall be entitled, but not obliged to, charge You interest on the overdue amount, payable by You immediately on demand, accruing from the date up to the date of actual payment, after as well as before judgment, at the rate set out in the Late Payment of Commercial Debts (Interest) Act 1998 from time to time and fixed sum compensation

the archive rights do not apply to Content that include third party Intellectual Property Rights (other than Content provided by Ordnance Survey to the extent that the Intellectual Property Rights in such Content are owned by Ordnance Survey); (b) You shall not disclose Content retained under this clause 4.b.iii to any regulator or other third party except strictly to the extent necessary for the relevant purpose of addressing a complaint or challenge from a regulator or other third party and in paper or read-only electronic format only; (c) You must store such Content separately from any other data which You hold; and (d) subject to clause 6.a, We shall have no liability for Your use of it following termination or expiry of the Agreement; and

iv. the parties shall have no further obligations or rights under the Agreement, without prejudice to those which have accrued to either party prior to termination or expiry save that the "Definitions", clauses 2.c to 2.j (inclusive), this clause 4.b, clauses 5.d, 6, 7, 10 and 11 together with those other clauses the survival of which is necessary for the interpretation or enforcement of the Agreement or which by their nature can be reasonably interpreted as surviving the expiry or termination of the Agreement, shall continue to have effect after such expiry or termination.

6. Termination

a. At any time, we may terminate the Agreement with immediate effect by giving You written notice:

i. if You are in breach of the Terms and, if such breach is capable of remedy, You fail to remedy the breach within 30 days of written notice from Us specifying the breach and requiring it to be remedied; and

ii. if You have a receiver or administrator appointed over You or any part of Your undertaking or assets or shall pass a resolution for winding up (otherwise than for the purpose of a bona fide scheme of solvent amalgamation or reconstruction) or a court of competent jurisdiction shall make an order to that effect or if You order or enter into a voluntary arrangement with Your creditors or shall cease or threaten to cease to carry on business or if You are presented with a bankruptcy petition.

5. Payments

a. An individual or a monthly invoice showing all Orders created by You will be generated subject to these Terms. You will pay the Fees at the rates set out in Our or Our Authorised Reseller's invoice within 30 days of the date of each invoice without deduction, counterclaim or set off. Where Your order comprises a number of Services or severable elements within any one or more Services, any failure by Us or its Authorised Reseller to provide an element or elements of the Services shall not prejudice Our or Our Authorised Reseller's ability to require payment in respect of the Services delivered to You.

b. You acknowledge that time is of the essence with respect to the payment of such invoices.

c. VAT shall be due in addition to any Fees. You shall pay any other applicable indirect taxes related to Your use of the Services.

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under the Late Payment of Commercial Debts Regulations 2002. Such interest shall accrue on a daily basis.

6. Liability

a. Nothing in these Terms excludes or limits either party's liability for death or personal injury caused by that party's negligence or wilful default or for fraud, and the remainder of this clause 6 is subject to this provision. If You are a Consumer, Your statutory rights (which include, for example, that We will provide the Services to a reasonable standard and within a reasonable time) are not affected by anything in these Terms.

b. Save as set out in clause 6.a, We shall not be liable to You or to any End User in contract, tort (including negligence) or for breach of statutory duty or in any other way for:

i. any indirect or consequential losses (which includes any loss that could not have been reasonably expected by You and Us at the time of entering into these Terms);

ii. loss arising from or in connection with loss of revenues, profits, contracts or business or failure to realise anticipated savings; or

iii. loss of goodwill or reputation. Save as set out in clause 6.a, Our total liability to You and/or any End User in contract or tort (including negligence) or for breach of statutory duty shall not exceed an amount of ten million pounds (£10,000,000) per claim or series of connected claims.

5. Payments

a. An individual or a monthly invoice showing all Orders created by You will be generated subject to these Terms. You will pay the Fees at the rates set out in Our or Our Authorised Reseller's invoice within 30 days of the date of each invoice without deduction, counterclaim or set off. Where Your order comprises a number of Services or severable elements within any one or more Services, any failure by Us or its Authorised Reseller to provide an element or elements of the Services shall not prejudice Our or Our Authorised Reseller's ability to require payment in respect of the Services delivered to You.

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i. any indirect or consequential losses (which includes any loss that could not have been reasonably expected by You and Us at the time of entering into these Terms);

ii. loss arising from or in connection with loss of revenues, profits, contracts or business or failure to realise anticipated savings; or

iii. loss of goodwill or reputation. Save as set out in clause 6.a, Our total liability to You and/or any End User in contract or tort (including negligence) or for breach of statutory duty shall not exceed an amount of ten million pounds (£10,000,000) per claim or series of connected claims.

<p>reported on is carried out as part of any Services offered by Us and we do not warrant that all land uses or features whether past or current will be identified in the Services. The Services do not include any information relating to the actual state or condition of any Property Site nor should they be used or taken to indicate or exclude actual fitness or unfitness of a Property Site for any particular purpose nor should it be relied upon for determining suitability or value or used as a substitute for any physical investigation or inspection.</p> <p>h. You acknowledge and agree that We will not be held liable in any way if a Report is used otherwise than as provided for in these Terms and/or in the Report.</p> <p>i. You acknowledge and agree that the Services have not been prepared to meet Your or anyone else's individual requirements and it is Your responsibility to ensure that the Services ordered are suitable for Your (or the End Users) intended purpose.</p> <p>j. You acknowledge and agree that You shall, on receipt of a Report carry out a reasonable inspection to satisfy Yourself that there are no apparent defects or failures with respect to the description and location of the Property Site and shall promptly inform Us if there are any such defects or failures.</p> <p>k. All liability for any insurance products purchased by You rests solely with the insurer. We do not endorse any particular product or insurer and no information contained within the Services should be deemed to imply otherwise. You acknowledge that if You Order any such insurance We will deem such as Your consent to forward a copy of the Report to the insurers. Where such policy is purchased, You acknowledge and agree that all liability shall remain with the insurers and that You are entirely responsible for ensuring that the insurance policy offered is suitable for Your needs and should seek independent advice. We do not guarantee that an insurance policy will be available on a Property Site. You acknowledge and agree that all decisions with regard to the offer of insurance policies for any premises will be made solely at the discretion of the insurers and We accept no liability in this regard. The provision of a Report does not constitute any indication by Us that insurance will be available on the Property Site.</p> <p>l. We may provide You with professional opinions or a risk assessment in a Report. You acknowledge and agree that We shall carry out (or procure that third parties carry out) such assessment with reasonable skill and care and that We shall be liable where any such risk assessment is carried out negligently. Notwithstanding the foregoing We shall not be liable for any inaccurate statement, opinion or risk rating in a Report which resulted from a reasonable interpretation of the Content.</p> <p>m. Neither You, nor any End User or any other person may rely on a Service more than 12 months after it was originally provided.</p> <p>n. You shall use all reasonable endeavours to ensure that End Users acknowledge and</p>	<p>agree to the limitations and exclusions of liability set out in this clause 6.</p> <p>7. Contribution</p> <p>a. Save where expressly provided, this clause 7 shall apply solely to Envirosearch Residential Reports (regardless of the result of such Report). Nothing in this clause 7 shall operate to override or vary the provisions of Clause 6.</p> <p>b. We are prepared to offer, without any admission or inference of liability, a contribution towards the costs of any remediation works required under a Notice (as defined below) on the terms of this clause 7 ("the Contribution").</p> <p>c. In the event that a Remediation Notice is served on the First Purchaser or First Purchaser's Lender of a Property Site under Part IIA of the Environmental Protection Act 1990 ("the Notice") We shall contribute to the cost of such works as either the First Purchaser or First Purchaser's Lender (but not both) are required to carry out under the Notice subject to the provisions of this clause 7 and on the following terms:</p> <p>i. the Contribution shall only apply to contamination or a pollution incident present or having occurred prior to the date of the Report;</p> <p>ii. the Contribution shall only apply where the Property Site is a single residential dwelling house or a single residential flat within a block of flats. For the avoidance of doubt, this obligation does not apply to any Property Site property, nor to any Commercial being developed or redeveloped whether for residential purposes or otherwise;</p> <p>iii. the Contribution is strictly limited to the cost of works at the Property Site and at no other site; and</p> <p>iv. the Contribution will not be paid in respect of any of the following: (1) radioactive contamination of whatsoever nature, directly or indirectly caused by, or contributed to or arising from ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel or the radioactive toxic explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof; (2) asbestos arising out of or related in any way to asbestos or asbestos-containing materials on or in structures or services serving the structures; (3) naturally occurring materials arising from the presence or required removal of naturally occurring materials except in circumstances where such materials are present in concentrations which are in excess of their natural concentration; (4) intentional non-compliance arising from the intentional disregard of or knowing wilful or deliberate non-compliance by any owner or occupier of the Property Site with any statute, regulation, administrative complaint, notice of violation, or notice letter of any Regulatory Authority; (5) any condition which is known or ought</p>	<p>reasonably to have been known to the First Purchaser or the First Purchaser's Lender prior to the purchase of the Report; (6) any condition which is caused by acts of war or an act of terrorism; (7) any property belonging to or in the custody or control of the First Purchaser which does not form a fixed part of the Property Site or the structure; (8) any fines liquidated damages punitive or exemplary damages; (9) any bodily injury including without limitation, death, illness or disease, mental injury, anguish or nervous shock; (10) any financial loss in respect of any savings or business or any consequential indirect or economic loss damage or expense including the cost of rent of temporary premises or business interruption; and/or (11) any losses incurred following a material change in use of, alteration or development of the Property Site.</p> <p>d. Without prejudice to Your other rights and remedies under the Agreement, the maximum sum that shall be contributed by Us in respect of any Contribution shall be limited to £60,000. In the event that more than one Report is purchased on the Property Site the Contribution will only be payable under the first Report purchased by or on behalf of any First Purchaser or First Purchaser's Lender and no Contribution will be made in respect of subsequent Reports purchased by or on behalf of such First Purchaser, First Purchaser's Lender or any person connected to them.</p> <p>e. We shall only pay a Contribution where the Notice is served within 36 months of the issue date of the Report.</p> <p>f. Any rights to a Contribution under this clause 7 are not assignable in the event of a sale of the Property Site and We shall not make any Contribution after the date of completion of such sale.</p> <p>g. In the event the First Purchaser or First Purchaser's Lender wishes to claim any Contribution, it shall notify Us in writing within 3 months of the date of the Notice. The First Purchaser or First Purchaser's Lender (as applicable) shall comply with all Our reasonable requirements with regard to the commission and conduct of the remediation works to be carried out under the Notice, and in the event the First Purchaser or First Purchaser's Lender (as applicable) does not do so, including without limitation, obtaining Our prior written consent to any estimates for such works or complying with any other reasonable request by Us, We shall not be required to pay any Contribution. Notwithstanding the payment of the Contribution by Us the First Purchaser or First Purchaser's Lender as applicable shall take all reasonable steps to mitigate any costs incurred in connection with the conduct of works required under the terms of any Notice.</p> <p>h. In the event that the First Purchaser or First Purchaser's Lender receives any communication from a statutory authority to the effect that there is an intent to serve a notice received under Part IIA of the</p>	<p>Environmental Protection Act 1990 You shall ensure that they advise Us within a maximum period of two months from receipt of such communication. This clause 7.h and the service of any notice under it shall not affect the provisions of clauses 7.e and 7.g. and any such communications, even if advised to Us will not operate as notice under clause 7.e.</p> <p>i. We reserve the right at any time prior to a claim for Contribution being made in accordance with clause 7.g above, to withdraw the offer of payment of Contributions without further notice.</p> <p>8. Assignment and Sub-contracting</p> <p>a. We shall be entitled to assign or transfer the Agreement as We reasonably see fit.</p> <p>b. The Agreement is personal to You. You shall not assign, transfer, sub-licence or otherwise deal with any of Your rights and obligations under the Agreement without Our prior written consent.</p> <p>c. We may authorise or allow Our contractors and other third parties to provide to Us and/or to You services necessary or related to the Services and to perform Our obligations and exercise Our rights under these Terms, which may include collecting payment on Our behalf.</p> <p>9. Events Beyond Our Control</p> <p>a. Neither party to the Agreement shall be liable for any delay or failure to perform their obligations caused by any circumstance beyond their control, and such party shall be entitled to a reasonable extension of time for the performance of such obligation.</p> <p>10.Complaints and Dispute Resolution</p> <p>a. Any complaints in relation to the Services should, in the first instance, be in writing addressed to the Customer Service Support Manager at Our registered office. We will (or Our agents will) respond to any such complaints in writing as soon as practicable possible.</p> <p>b. If any dispute arises out of or in connection with the Terms of the Agreement or their validity ("Dispute") the parties undertake, subject to clause 10.c, that prior to commencement of court proceedings they will negotiate in good faith to settle such Dispute by mediation in accordance with the Centre for Effective Dispute Resolution Model Mediation Procedure as in force from time to time, which Procedure is deemed to be incorporated by reference into this clause. Unless otherwise agreed between the parties, the mediator will be nominated by the Centre for Effective Dispute Resolution. To initiate the mediation a party shall give notice in writing to the other party to the dispute requesting a mediation. The mediation will start not later than 21 days after the date of service of such notice. If the Dispute has not been resolved to the mutual satisfaction of the parties within 60 days (or such other period as they shall agree) after the date of service of such notice then either party may refer the Dispute to the courts in accordance with clause 11.f.</p> <p>c. Clause 10.b shall be without prejudice to</p>	<p>the rights of termination stated in clause 4.a and in addition shall not prevent Us from:</p> <p>i. applying for injunctive relief in the case of: (1) breach or threatened breach of confidentiality; or (2) infringement or threatened infringement of Our or Our Suppliers' intellectual property rights; or</p> <p>ii. pursuing a debt claim for the payment of the Fees.</p> <p>11.General</p> <p>a. If any provision of the Agreement is found by either a court or other competent authority to be void, invalid, illegal or unenforceable, that provision shall be deemed to be deleted from the Agreement and never to have formed part of the Agreement and the remaining provisions shall continue in full force and effect.</p> <p>b. No delay, failure or omission on Our, or any Supplier's, part in enforcing, exercising or pursuing any right, power, privilege, claim or remedy conferred by or arising under the Agreement or by law shall be deemed to be or construed as a waiver of that or any other right, power, privilege, claim or remedy, nor shall any single or partial exercise of any such right, power, privilege, claim or remedy preclude the exercise of that or any other right, power, privilege, claim or remedy.</p> <p>c. Our privacy policy as displayed on Our Website and updated from time to time governs the use that We shall make of any information provided by You or an End User.</p> <p>d. A person who is not a party to any contract made pursuant to these Terms shall have no right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Agreement and We shall not be liable to any such third party in respect of the Products, save that any Supplier may enforce any of these terms and conditions against You in accordance with the Contracts (Rights of Third Parties) Act 1999. Notwithstanding any other provisions of the Agreement, We may rescind or vary the Agreement in accordance with its terms without the consent of the Suppliers and accordingly section 2(1) of the Contracts (Rights of Third Parties) Act 1999 shall not apply.</p> <p>e. You shall ensure that each End User complies with and is bound by the Terms, and shall procure that We may in Our own right enforce such terms and conditions against the End User pursuant to the Contracts (Rights of Third Parties) Act 1999. You shall be responsible for End User's compliance with the Terms and You shall be liable for all breaches of the Terms by the End Users as if they were breaches by You.</p> <p>f. The Agreement and any non-contractual obligations arising out of or in connection with it shall be governed by and construed in accordance with the laws of England and, subject to clause 10.b, each party irrevocably submits to the exclusive jurisdiction of the courts of England and Wales.</p>
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APPENDIX B

BGS RADON REPORT



**British
Geological Survey**
NATURAL ENVIRONMENT RESEARCH COUNCIL

GeoReports

**Alison Trotman
Integral Geotechnique
Integral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX**

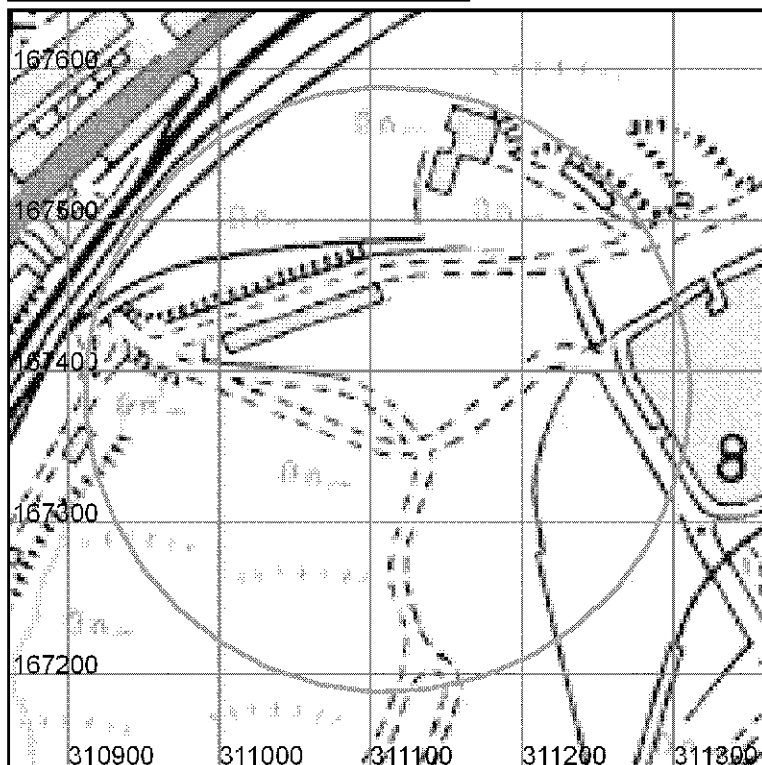
Radon Report: England and Wales

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: GR_204095/1

Client reference: 10973/RB

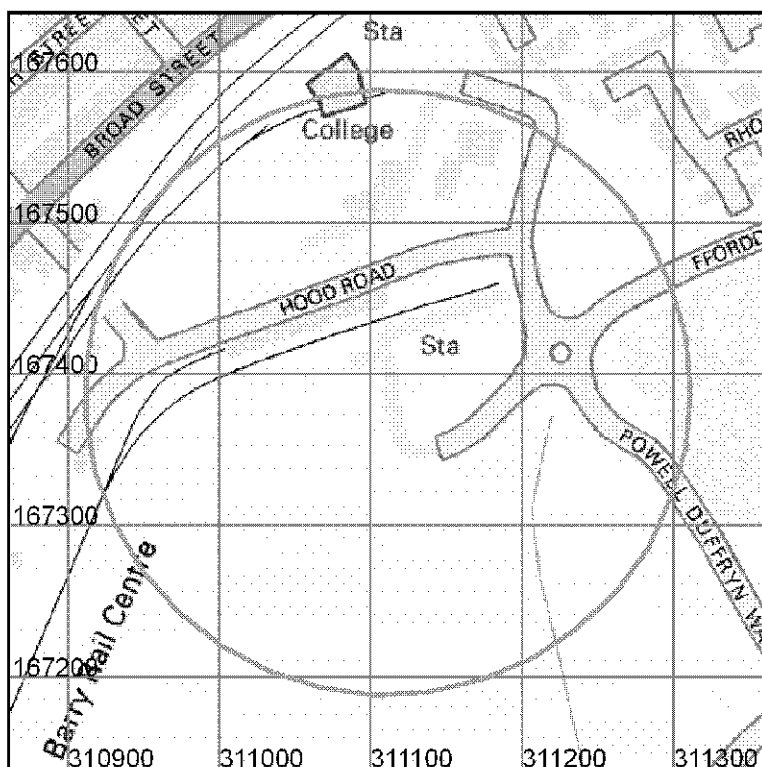
Location and extent of site



This product includes mapping data licensed from Ordnance Survey.
© Crown Copyright and/or database right 2012. Licence number 100037272
Scale: 1:5 000 (1cm = 50 m)

This report describes a site located at National Grid Reference 311112, 167388. Note that for sites of irregular shape, this point may lie outside the site boundary. Where the client has submitted a site plan the assessment will be based on the area given.

Search area indicated in red



Contains Ordnance Survey data © Crown Copyright and database right 2012
OS Street View: Scale: 1:5 000 (1cm = 50 m)



Radon Report: England and Wales

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2007 edition)*, which also provides guidance on what to do if the result indicates that protective measures are required.

<p>BASIC RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.</p>

The BGS is not able to provide advice on the technical specifications of 'basic' and 'full' radon protective measures. This information is detailed in **BRE Report BR211 Radon: guidance on protective measures for new buildings** which may be purchased from brebookshop.com. This report offers guidance on the technical solutions that are required to satisfy Building Regulations requirements.

Technical solutions to radon protection in new build and existing dwellings in radon affected areas are available on the BRE web site at:

<http://www.bre.co.uk/page.jsp?id=1626> and <http://www.bre.co.uk/radon/> and in a range of technical reports available from brebookshop.com; Tel: 01923 664262, email: bookshop@bre.co.uk.

Summary guidance is available on the web at:

<http://www.bre.co.uk/radon/protect.html>.

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.



Radon in existing buildings

Is this property in a radon affected area – YES

The answer to the standard enquiry on house purchase known as **CON29 Standard Enquiry of Local Authority 3.13 Radon Gas: Location of the Property in a radon Affected Area** is **YES** this property is in a Radon Affected Area as defined by the Health Protection Agency (HPA).

The estimated probability of the property being above the Action Level for radon is: 5-10% (INTERMEDIATE PROBABILITY).

The result informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property. The only way to determine whether it is above or below the Action Level is to carry out a radon measurement within the existing property.

Radon Affected Areas are designated by the HPA. They advise that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a Radon Affected Area you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so whether remedial measures were installed, radon levels were retested, and that the results of re-testing confirmed the effectiveness of the measures.

In radon affected homes, the problem of radon can usually be tackled with simple, effective and relatively inexpensive measures. These measures are comparable in cost to work such as damp-proofing and timber treatment. You can get practical advice about construction work to reduce radon levels from the Building Control Officer at your local council.

For further information, advice about radon, its health risks and details of how to order the radon test, please contact the HPA Radon Helpline on 01235 822622 or go online at www.ukradon.org or write to Radon Survey, Health Protection Agency, Centre for Radiation, Chemical and Environmental Hazards, Chilton, Didcot, Oxon, OX11 0RQ, email: radon@hpa.org.uk. You can obtain an information pack from the HPA free Radon answerphone on 0800 614529



What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level exceeds the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations, 1999, require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293): **Radon in the workplace**. BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.uk website: www.brebookshop.com



Contact Details

Keyworth (KW) Office

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Tel: 0115 9363143
Fax: 0115 9363276
Email: enquiries@bgs.ac.uk

Wallingford (WL) Office

British Geological Survey
Maclean Building
Wallingford
Oxford
OX10 8BB
Tel: 01491 838800
Fax: 01491 692345
Email: hydroenq@bgs.ac.uk

Murchison House (MH) Office

British Geological Survey
Murchison House
West Mains Road
Edinburgh
EH9 3LA
Tel: 0131 650 0282
Fax: 0131 650 0252
Email: enquiry@bgs.ac.uk



Terms and Conditions

General Terms & Conditions

This Report is supplied in accordance with the GeoReports Terms & Conditions available on the BGS website at www.bgs.ac.uk/georeports and also available from the BGS Central Enquiries Desk at the above address.

Important notes about this Report

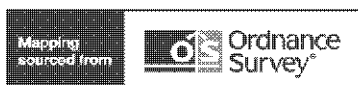
- The data, information and related records supplied in this Report by BGS can only be indicative and should not be taken as a substitute for specialist interpretations, professional advice and/or detailed site investigations. You must seek professional advice before making technical interpretations on the basis of the materials provided.
- Geological observations and interpretations are made according to the prevailing understanding of the subject at the time. The quality of such observations and interpretations may be affected by the availability of new data, by subsequent advances in knowledge, improved methods of interpretation, and better access to sampling locations.
- Raw data may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Although such processes are subjected to quality control to ensure reliability where possible, some raw data may have been processed without human intervention and may in consequence contain undetected errors.
- Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.
- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
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- Note that for some sites, the latest available records may be quite historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

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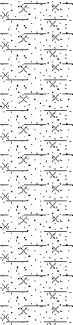

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APPENDIX C



TRIAL PIT LOGS



 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name : Land off Hood Road, Barry			Project No.: 10973		Trial Pit No.: TP2 Sheet 1 of 1	
Location : Barry Waterfront			Client : Vale of Glamorgan Council			Logged By : SI		Scale : 1:25	
Equipment : JCB JS130			Coordinates : -			<div> <div>Dimensions</div> <div> <div>Depth :</div> <div>3.80m</div> </div> <div> <div>2.50m</div> <div>3.00m</div> </div> </div>			
Date Excavated : 09/03/2012			Level : -						
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
2.00 2.00	B ES		0.10		 Grass over soft to firm brown locally grey silty sandy CLAY with occasional roots and rootlets. (TOPSOIL).				0
					 Medium dense grey and brown slightly clayey sandy GRAVEL with occasional cobbles of brick and frequent fragments of glass, plastic pipe, and timber. Gravel is fine to coarse, angular and subangular, of sandstone, slag, clinker, and brick. (MADE GROUND). - Frequent brick and wire fragments below 1.3m depth.				1
					 Medium dense black ashy SAND with frequent cobbles of brick, and occasional pockets of firm to stiff grey and yellow grey silty clay. (MADE GROUND).				2
					 Medium dense yellow medium SAND with frequent lenses of firm to stiff grey silty CLAY.				3
			3.80			Trial Pit Complete at 3.80 m			4
									5
Remarks:			Groundwater : Dry			Key : D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability : Stable						



		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name : Land off Hood Road, Barry		Project No.: 10973		Trial Pit No.: TP3 Sheet 1 of 1	
Location : Barry Waterfront				Client : Vale of Glamorgan Council		Logged By : SI		Scale : 1:25	
Equipment : JCB JS130				Coordinates : -		<div> <div>Dimensions</div> <div> <div>Depth : 3.40m</div> <div>2.50m</div> <div>3.00m</div> </div> </div>			
Date Excavated : 09/03/2012				Level : -					
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
1.60 1.60	B ES		0.10		 Grass over soft to firm brown locally grey silty sandy CLAY with occasional roots and rootlets. (TOPSOIL).				0
					 Soft to firm silty sandy gravelly CLAY with frequent cobbles of subangular sandstone and brick, and frequent fragments of brick, concrete, timber, glass, plastic, metal and wire. Gravel is fine to coarse, angular and subangular, of sandstone, brick, and rarely coal. (MADE GROUND).				1
					 Medium dense black slightly ashy gravelly SAND with frequent cobbles of brick and sandstone, and fragments of timber and glass. Gravel is fine to coarse, angular and subangular, of sandstone, brick, slag and clinker. (MADE GROUND).				2
					 Firm blue grey silty CLAY with frequent lenses of yellow sand. (ALLUVIUM).				3
			3.40			Trial Pit Complete at 3.40 m			4
									5
Remarks:				Groundwater : Minor inflows from pit corners at 2.4m depth.		Key : D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
				Stability : Stable					



 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name : Land off Hood Road, Barry		Project No.: 10973		Trial Pit No.: TP4 Sheet 1 of 1	
Location : Barry Waterfront		Client : Vale of Glamorgan Council		Logged By : SI		Scale : 1:25	
Equipment : JCB JS130		Coordinates : -		<div> <div>Dimensions</div> <div> <div>Depth :</div> <div>3.00m</div> </div> <div> <div>1.50m</div> <div>3.50m</div> </div> </div>			
Date Excavated : 09/03/2012		Level : -					
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50 0.50	B ES		0.10		 Grass over soft to firm brown locally grey silty sandy CLAY with occasional roots and rootlets. (TOPSOIL).		0
					 Medium dense grey locally red brown slightly clayey sandy GRAVEL with frequent cobbles of brick and boulders of mortar-bonded brickwork, up to 0.5m in diameter, and frequent fragments of wire, plastic, timber, and glass. Gravel is fine to coarse, angular and subangular, of sandstone, brick, mudstone, tile, slag, and clinker. (MADE GROUND).		1
			2.00		 Firm to stiff brown and blue grey silty locally sandy CLAY. (ALLUVIUM).		2
			3.00		Trial Pit Complete at 3.00 m		3
							4
							5
Remarks:		Groundwater : Dry		Key :			
		Stability : Stable		D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name : Land off Hood Road, Barry			Project No.: 10973		Trial Pit No.: TP6 Sheet 1 of 1	
Location : Barry Waterfront			Client : Vale of Glamorgan Council			Logged By : SI		Scale : 1:25	
Equipment : JCB JS130			Coordinates : -			<div> <div>Dimensions</div> <div> <div>Depth :</div> <div>3.70m</div> </div> <div> <div>3.00m</div> <div>1.50m</div> </div> </div>			
Date Excavated : 09/03/2012			Level : -						
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
1.50 1.50	B ES		0.60			Medium dense red and grey fine to medium sandy GRAVEL of limestone. (MADE GROUND).		0	
					Medium dense black ashy gravelly SAND with occasional cobbles and boulders of sandstone, up to 0.6m in diameter. Gravel is fine to coarse, angular and subangular of slag, clinker, sandstone, and rarely coal. (MADE GROUND).		1		
					- Becoming increasingly gravelly with depth. Gravel is medium to coarse of railway ballast below 1.2m depth.		2		
			2.70			Firm red brown sandy gravelly CLAY with occasional timber fragments (railway sleepers). Gravel is fine to medium, angular and subangular, of mudstone and sandstone. (MADE GROUND).			
			3.00			Firm blue grey silty CLAY with occasional pockets of yellow sand and frequent timber fragments. (MADE GROUND). - Slight hydrocarbon odours below 3.0m depth.		3	
			3.70			Trial Pit Complete at 3.70 m			
								4	
								5	
Remarks:			Groundwater : Strong inflows from base of pit, with slight oily sheen observed			Key :			
			Stability : Stable			D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name : Land off Hood Road, Barry			Project No.: 10973		Trial Pit No.: TP7 Sheet 1 of 1	
Location : Barry Waterfront			Client : Vale of Glamorgan Council			Logged By : SI		Scale : 1:25	
Equipment : JCB JS130			Coordinates : -			<div> <div>Dimensions</div> <div> <div>3.00m</div> <div> <div>Depth : 3.50m</div> <div>1.50m</div> </div> </div> </div>			
Date Excavated : 09/03/2012			Level : -						
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.40 0.40	B ES		0.20			Medium dense red and grey medium sandy GRAVEL of limestone. (MADE GROUND).			0
						Medium dense black ashy gravelly SAND with frequent cobbles of brick, slag and sandstone, and occasional fragments of timber, glass, slate, and brick. Gravel is fine to coarse, angular and subangular, of slag, clinker, sandstone. (MADE GROUND).			
						- Steeply dipping lens of yellow sand with frequent cobbles of brick, 0.2m thick, encountered from 1.0m depth at centre of pit to 2.2m depth at west end of pit.			1
									2
									3
			3.50			Trial Pit Complete at 3.50 m			4
									5
Remarks:			Groundwater : Moderate inflows from 3.1m depth, with slight oily sheen observed			Key : D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability : Stable						


 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name : Land off Hood Road, Barry			Project No.: 10973		Trial Pit No.: TP8 Sheet 1 of 1	
Location : Barry Waterfront			Client : Vale of Glamorgan Council			Logged By : SI		Scale : 1:25	
Equipment : JCB JS130			Coordinates : -			<div> <div>Dimensions</div> <div> <div>Depth :</div> <div>3.60m</div> </div> <div> <div>3.00m</div> <div>1.00m</div> </div> </div>			
Date Excavated : 09/03/2012			Level : -						
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
2.00 2.00	ES B		0.30			Medium dense red and grey medium sandy GRAVEL of limestone. (MADE GROUND).	0		
					Medium dense black ashy gravelly SAND with occasional cobbles of brick, slag and sandstone, and frequent fragments of timber, wire, plastic, and metal. Gravel is fine to coarse, angular and subangular, of slag, clinker, sandstone. (MADE GROUND).	1			
							2		
							3		
			3.60			Trial Pit Complete at 3.60 m	4		
							5		
Remarks:			Groundwater : Moderate inflows from 3.4m depth			Key :			
			Stability : Stable			D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			

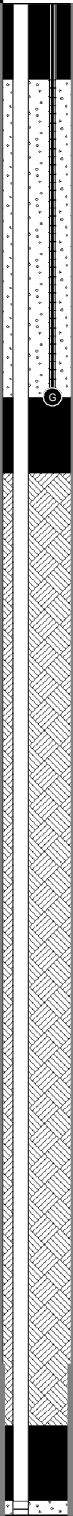
		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name : Land off Hood Road, Barry		Project No.: 10973		Trial Pit No.: TP9 Sheet 1 of 1	
Location : Barry Waterfront				Client : Vale of Glamorgan Council		Logged By : SI		Scale : 1:25	
Equipment : JCB JS130				Coordinates : -		<div> <div>Dimensions</div> <div> <div>Depth : 3.30m</div> <div>1.50m</div> <div>3.00m</div> </div> </div>			
Date Excavated : 09/03/2012				Level : -					
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
1.00 1.00	B ES		0.30			Medium dense red and grey medium sandy GRAVEL of limestone. (MADE GROUND).	0		
						Firm red brown and grey very sandy gravelly CLAY with frequent fragments of glass and brick, frequent cobbles of brick, and frequent boulders of sandstone up to 0.4m in diameter. Gravel is fine to medium, occasionally coarse, of sandstone, mudstone, and brick. (MADE GROUND).	1		
			2.20			Medium dense black ashy gravelly SAND with occasional cobbles of brick, and frequent fragments of timber, glass, plastic, and brick. Gravel is fine to coarse, angular and subangular, of slag, clinker, sandstone. (MADE GROUND). - Occasional boulders of blocky sandstone, up to 0.6m in diameter, below 2.5m depth	2		
			3.30			Trial Pit Complete at 3.30 m	3		
							4		
							5		
Remarks:				Groundwater : Moderate inflows from 3.0m depth		Key : D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
				Stability : Locally unstable below 2.2m depth					

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name : Land off Hood Road, Barry			Project No.: 10973		Trial Pit No.: TP10 Sheet 1 of 1	
Location : Barry Waterfront			Client : Vale of Glamorgan Council			Logged By : SI		Scale : 1:25	
Equipment : JCB JS130			Coordinates : -			<div> <div>Dimensions</div> <div> <div>Depth :</div> <div>3.50m</div> </div> <div> <div>1.50m</div> <div>2.50m</div> </div> </div>			
Date Excavated : 09/03/2012			Level : -						
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
1.00 1.00	B ES		0.30			Medium dense red and grey medium sandy GRAVEL of limestone. (MADE GROUND).	0		
						Stiff yellow brown silty slightly gravelly CLAY with frequent angular cobbles of sandstone and dark grey limestone. Gravel is fine to coarse, angular and subangular, of sandstone, mudstone, brick and tile fragments. Fragments of clay pipe encountered at 2.5m depth. (MADE GROUND).	1		
			2.90			Firm to stiff blue grey silty CLAY with occasional pockets of yellow sand. (MADE GROUND).	3		
			3.50			Trial Pit Complete at 3.50 m			
							4		
							5		
Remarks:			Groundwater : Dry			Key :			
			Stability : Stable			D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			


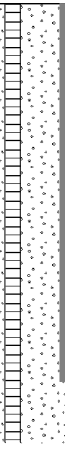
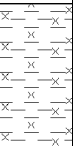

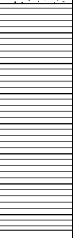
APPENDIX D

SHELL & AUGER BOREHOLE LOGS


 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name : Land off Hood Road, Barry		Project No.: 10973		Borehole No.: BH1 Sheet 1 of 2	
Location : Barry Waterfront		Client: Vale of Glamorgan Council		Coordinates : - -		Hole Type : Cable	
Equipment : Dando 2000		Diameter of Casing : 200 mm		Level : -		Scale : 1:50	
Diameter of Boring : 200mm		Depth of Casing : 9.00 mBGL		Dates 08/03/2012 - 09/03/2012		Logged By : SI	

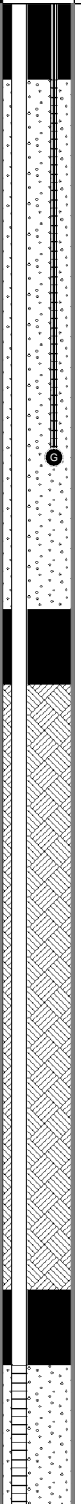
Well	Water Strikes	Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10		Grass over soft to firm silty sandy CLAY with occasional roots and rootlets. (TOPSOIL).	0	
		1.00 1.00	CPT B	N=21 (2,2,6,7,2,6)			Medium dense grey and red brown slightly clayey sandy GRAVEL with frequent cobbles of brick, possible car tyre. Gravel is fine to coarse, angular and subangular, of sandstone and brick fragments. (MADE GROUND).	1	
		2.00 2.00	CPT B	N=12 (1,2,3,2,3,4)				2	
		2.60					Soft to firm grey silty CLAY.		
		3.00 3.00	CPT B	N=3 (0,1,0,1,1,1)	3.00		Very soft grey sandy gravelly SILT. Gravel is fine to coarse sub rounded sandstone.	3	
		4.00 4.00	CPT B	N=3 (1,0,1,0,1,1)				4	
		5.00 5.00-5.45	B U	6				5	
		6.50 6.50-6.95	SPT D	N=3 (0,1,0,1,1,1)	7.10		Loose sandy GRAVEL. Gravel is fine to coarse sub rounded sandstone.	7	
		8.00 8.00-8.45	B U	14				8	
		8.80					Soft grey silty CLAY.	9	
	9.50 9.50-9.95	SPT D	N=4 (1,0,1,1,1,1)				10		

Remarks :				Key : D - Small disturbed sample W - Water sample B - Bulk disturbed sample U - Undisturbed sample ES - Environmental soil sample TCR - Total Core Recovery SPT - Standard Penetration Test (split spoon) SCR - Solid Core Recovery CPT - Standard Penetration Test (solid cone) 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 : Land off Hood Road, Barry			Project No.: 10973		Borehole No.: BH1 Sheet 2 of 2	
Location : Barry Waterfront				Client: Vale of Glamorgan Council			Coordinates : - -		Hole Type : Cable	
Equipment : Dando 2000				Diameter of Casing : 200 mm			Level : -		Scale : 1:50	
Diameter of Boring : 200mm				Depth of Casing : 9.00 mBGL			Dates 08/03/2012 - 09/03/2012		Logged By : SI	
Well	Water Strikes	Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		11.00 11.00	CPT B	N=33 (1,3,3,7,7,16)	11.00		 Soft grey silty CLAY.	10		
								 Medium dense grey SAND.	11	
		12.50 12.50	CPT B	97/150mm (21,32,47,50)	12.90		 Weak and very weak yellow and grey weathered MUDSTONE. - Chiselling from 12.5-12.9m depth for 2 hours	12		
							End of Borehole at 12.90 m	13		
								14		
								15		
								16		
								17		
								18		
								19		
								20		
Remarks :							Key : D - Small disturbed sample W - Water sample B - Bulk disturbed sample U - Undisturbed sample ES - Environmental soil sample TCR - Total Core Recovery SPT - Standard Penetration Test (split spoon) SCR - Solid Core Recovery CPT - Standard Penetration Test (solid cone) RQD - Rock Quality Designation			


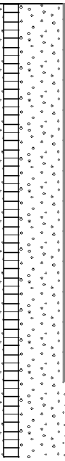
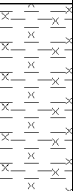






		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name : Land off Hood Road, Barry		Project No.: 10973		Borehole No.: BH2 Sheet 1 of 2	
Location : Barry Waterfront		Client: Vale of Glamorgan Council		Coordinates : - -		Hole Type : Cable			
Equipment : Dando 2000		Diameter of Casing : 200 mm		Level : -		Scale : 1:50			
Diameter of Boring : 200mm		Depth of Casing : 12.50 mBGL		Dates 12/03/2012 - 13/03/2012		Logged By : SI			


Well	Water Strikes	Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20		Grass over soft to firm brown locally grey silty sandy CLAY with occasional roots and rootlets. (TOPSOIL). Firm brown and grey silty CLAY with some ash and frequent cobbles of brick and fragments of concrete. (MADE GROUND).	0	
	1.00 1.00	CPT B	N=14 (2,6,3,4,4,3)					1	
	2.00 2.00	CPT B	50/75mm - Abandoned				- Chiselling from 2.0-2.3m depth for 1.5 hours	2	
	3.00 3.00	CPT B	N=7 (1,1,2,1,2,2)					3	
	4.00 4.00	CPT B	N=15 (2,3,3,3,4,5)	4.00		Firm to stiff yellow grey silty CLAY.	4		
	5.00 5.00	CPT B	N=22 (2,3,4,6,6,6)				5		
	6.50	CPT	N=19 (1,1,3,5,5,6)				6		
	8.00	CPT	N=13 (2,2,2,3,4,4)				7		
	9.50	CPT	N=15 (2,3,3,4,4,4)				8		
								9	
								10	

Remarks :				Key : D - Small disturbed sample W - Water sample B - Bulk disturbed sample U - Undisturbed sample ES - Environmental soil sample TCR - Total Core Recovery SPT - Standard Penetration Test (split spoon) SCR - Solid Core Recovery CPT - Standard Penetration Test (solid cone) 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 : Land off Hood Road, Barry			Project No.: 10973		Borehole No.: BH2 Sheet 2 of 2	
Location : Barry Waterfront				Client: Vale of Glamorgan Council			Coordinates : - -		Hole Type : Cable	
Equipment : Dando 2000				Diameter of Casing : 200 mm			Level : -		Scale : 1:50	
Diameter of Boring : 200mm				Depth of Casing : 12.50 mBGL			Dates 12/03/2012 - 13/03/2012		Logged By : SI	
Well	Water Strikes	Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
								Firm to stiff yellow grey silty CLAY.	10	
		11.00	CPT	N=13 (2,2,3,3,3,4)				Soft to firm grey silty CLAY with occasional shells. (ALLUVIUM).	11	
		11.50	B		11.30			Medium dense grey gravelly SAND with occasional cobbles of sandstone and mudstone.	12	
		12.00	B		11.80			Weak to very weak yellow grey weathered MUDSTONE.	13	
		12.50	CPT	98/150mm (14,25,48,50)	12.40			- Chiselling from 12.7-13.0m depth for 1 hour	13	
					13.00			End of Borehole at 13.00 m	13	
									14	
									15	
									16	
									17	
									18	
									19	
									20	
Remarks :							Key : D - Small disturbed sample W - Water sample B - Bulk disturbed sample U - Undisturbed sample ES - Environmental soil sample TCR - Total Core Recovery SPT - Standard Penetration Test (split spoon) SCR - Solid Core Recovery CPT - Standard Penetration Test (solid cone) RQD - Rock Quality Designation			





Intégral House, 7 Beddau Way
Castlegate Business Park
Caerphilly CF83 2AX
Tel. 029 20807991
Fax. 029 20862176
mail@integralgeotec.com

Project Name :
Land off Hood Road, Barry

Project No.:
10973

Borehole No.:
BH3
Sheet 1 of 1

Location :
Barry Waterfront

Client: Vale of Glamorgan Council

Coordinates :
-
-

Hole Type :
Cable

Equipment : Dando 2000

Diameter of Casing : 200 mm

Level : -


Scale :
1:50

Diameter of Boring : 200mm

Depth of Casing : 6.00 mBGL


Dates
14/03/2012

Logged By :
SI

Well	Water Strikes	Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
 <div> Rising to 3.20m 3.50 m </div>		1.00 1.00	SPT B	N=6 (1,1,2,1,1,2)			Firm grey silty CLAY with frequent cobbles and gravel sized fragments of brick and mudstone. (MADE GROUND). - Chiselling from 0.6-0.8m depth for 15 minutes	0 1	
		2.00 2.00	CPT B	N=17 (2,6,3,3,5,6)				2	
		3.00 3.00	CPT B	50/75mm - Abandoned	3.30		- Chiselling from 3.0-3.3m depth for 30 minutes	3	
		4.00 4.00	CPT B	N=5 (1,1,2,1,1,1)			Soft to firm yellow grey silty gravelly CLAY with occasional cobbles of limestone. (Possible MADE GROUND).	4	
		5.00 5.00	CPT B	N=12 (1,1,4,3,2,3)	5.40		Firm dark grey silty CLAY. (Possible MADE GROUND).	5	
					6.00		Stiff dark grey fissile CLAY. (Possible MADE GROUND).	6	
		6.50 6.50	CPT B	60/150mm - Abandoned	6.50		Moderately strong grey LIMESTONE. (Possible MADE GROUND). - Chiselling from 6.5-6.8m depth for 1 hour	7	
					6.80		End of Borehole at 6.80 m	7	
								8	
								9	
		Depth (m)	Type	Results				10	

Remarks :
Possible former dock wall/revetment encountered below 6.50m.

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



APPENDIX E

LABORATORY CHEMICAL TEST RESULTS (SOILS)

Report Summary



1314
1229
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Mr Stefan Imiolczyk
Integral Geotechnique
Integral House
Beddau Way
Castlegate Business Park
Caerphilly
Caerphilly
CF83 2AX

Date of Issue: **22 March 2012**

Report Number: **COV/845598/2012**

Issue **1**

Job Description: Integral General Project

Job Location: 10973/SI Land off Hood Road Barry

Number of Samples
included in this report: **7**

Job Received: **12 March 2012**

Number of Test Results
included in this report: **1316**

Analysis Commenced: **13 March 2012**

Signed:

Name: **J. Fell**

Date: **22 March 2012**

Title: **Chemistry Operations Manager**

Severn Trent Services was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

MCERTS accreditation refers to analysis carried out at our Coventry site only.

Analysis carried out on air-dried and ground test portion of the sample(s), unless otherwise stated. Air drying is carried out at not greater than 30 degrees C. Samples are not preserved on site, unless otherwise stated.

All results are reported on an air-dried basis following removal of stones.

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Certificate of Analysis



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4409



Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901670**

Sample **1** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Visual Description: **Brown loam with occasional stone and organic matter.**

Sample Date: **12 March 2012**

Sample Time:

940

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	39	%	15/03/2012		N Cov	Stones
Moisture content at 30C	14	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	13	mg/kg	20/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	0.96	mg/kg	20/03/2012		M Cov	30
Boron as B, hot water sol dw	1.6	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	0.86	mg/kg	20/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	27	mg/kg	20/03/2012		M Cov	30
Copper as Cu, dry weight	160	mg/kg	20/03/2012		M Cov	30
Lead as Pb, dry weight	210	mg/kg	20/03/2012		M Cov	30
Mercury as Hg, dry weight	2.4	mg/kg	20/03/2012		M Cov	30C
Nickel as Ni, dry weight	36	mg/kg	20/03/2012		M Cov	30
Selenium as Se, dry weight	0.53	mg/kg	20/03/2012		Y Cov	30C
Vanadium as V, dry weight	30	mg/kg	20/03/2012		M Cov	30
Zinc as Zn, dry weight	780	mg/kg	20/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	0.68	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	8.5	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	520	mg/kg	15/03/2012		N Cov	45
Sulphide	<7.5	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	6.2	%	16/03/2012		N Cov	27
pH	8.0	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	<100	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<0.12	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<0.12	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<0.12	mg/kg	15/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	<1.2	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	4.9	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	62	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	14	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	80	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	<0.012	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C7 - C8	<0.012	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<0.12	mg/kg	15/03/2012		M Cov	304
Aromatic EPH >C10 - C12	<1.2	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	7.7	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	14	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901670**

Sample **1** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Visual Description: **Brown loam with occasional stone and organic matter.**

Sample Date: **12 March 2012**

Sample Time:

940

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	66	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	31	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	120	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	200	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	0.16	mg/kg	19/03/2012		Y Cov	313
Acenaphthylene	0.055	mg/kg	19/03/2012		Y Cov	313
Acenaphthene	0.25	mg/kg	19/03/2012		M Cov	313
Fluorene	0.20	mg/kg	19/03/2012		M Cov	313
Phenanthrene	1.6	mg/kg	19/03/2012		M Cov	313
Anthracene	0.45	mg/kg	19/03/2012		M Cov	313
Fluoranthene	3.9	mg/kg	19/03/2012		M Cov	313
Pyrene	3.1	mg/kg	19/03/2012		M Cov	313
Benzo(a)anthracene	2.2	mg/kg	19/03/2012		M Cov	313
Chrysene	2.1	mg/kg	19/03/2012		M Cov	313
Benzo(b)fluoranthene	3.6	mg/kg	19/03/2012		M Cov	313
Benzo(k)fluoranthene	1.3	mg/kg	19/03/2012		M Cov	313
Benzo(a)pyrene	2.4	mg/kg	19/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	2.2	mg/kg	19/03/2012		M Cov	313
Dibenz(a,h)anthracene	0.49	mg/kg	19/03/2012		M Cov	313
Benzo(g,h,i)perylene	1.9	mg/kg	19/03/2012		Y Cov	313
PAH, Total of 16 EPA	26	mg/kg	19/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<5.8	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<5.8	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<5.8	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<5.8	ug/kg	21/03/2012		M Cov	315
Chloroform	<5.8	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901670**

Sample **1** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Visual Description: **Brown loam with occasional stone and organic matter.**

Sample Date: **12 March 2012**

Sample Time:

940

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<5.8	ug/kg	21/03/2012		M Cov	315
Benzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<5.8	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<5.8	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<5.8	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<5.8	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<5.8	ug/kg	21/03/2012		M Cov	315
Toluene	<5.8	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<5.8	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<5.8	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<5.8	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<5.8	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<5.8	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<5.8	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<5.8	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<5.8	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<5.8	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<12	ug/kg	21/03/2012		M Cov	315
o-Xylene	<5.8	ug/kg	21/03/2012		M Cov	315
Styrene	<5.8	ug/kg	21/03/2012		M Cov	315
Bromoform	<5.8	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<5.8	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<5.8	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<5.8	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<5.8	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<5.8	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<5.8	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<5.8	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901670**

Sample **1** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Visual Description: **Brown loam with occasional stone and organic matter.**

Sample Date: **12 March 2012**

Sample Time:

940

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<5.8	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<5.8	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<5.8	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<5.8	ug/kg	21/03/2012		M Cov	315
Naphthalene	<5.8	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<5.8	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	98	% Recovery	21/03/2012		N Cov	315
Toluene-d8	100	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	97	% Recovery	21/03/2012		N Cov	315
Phenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.2	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.2	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.2	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.2	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901670**

Sample **1** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Visual Description: **Brown loam with occasional stone and organic matter.**

Sample Date: **12 March 2012**

Sample Time:

940

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.2	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.3	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.2	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Phenanthrene	<1.2	mg/kg	16/03/2012		M Cov	316
Anthracene	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Fluoranthene	<1.2	mg/kg	16/03/2012		M Cov	316
Pyrene	<1.2	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	<1.2	mg/kg	16/03/2012		M Cov	316
Chrysene	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	<1.2	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	<1.2	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	<1.2	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	62	% Recovery	16/03/2012		N Cov	316
Phenol-d6	55	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	53	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	63	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	46	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	80	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.2	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901670**

Sample **1** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Visual Description: **Brown loam with occasional stone and organic matter.**

Sample Date: **12 March 2012** Sample Time: **940** Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	<0.060	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901670:

{/*}Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1,1- trichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soi

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901671**

Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP2**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time: **1015**

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	42	%	15/03/2012		N Cov	Stones
Moisture content at 30C	16	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	20	mg/kg	20/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	0.67	mg/kg	20/03/2012		M Cov	30
Boron as B, hot water sol dw	6.8	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	0.65	mg/kg	20/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	28	mg/kg	20/03/2012		M Cov	30
Copper as Cu, dry weight	210	mg/kg	20/03/2012		M Cov	30
Lead as Pb, dry weight	610	mg/kg	20/03/2012		M Cov	30
Mercury as Hg, dry weight	0.49	mg/kg	20/03/2012		M Cov	30C
Nickel as Ni, dry weight	35	mg/kg	20/03/2012		M Cov	30
Selenium as Se, dry weight	0.71	mg/kg	20/03/2012		Y Cov	30C
Vanadium as V, dry weight	27	mg/kg	20/03/2012		M Cov	30
Zinc as Zn, dry weight	420	mg/kg	20/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	27	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	4600	mg/kg	15/03/2012		N Cov	45
Sulphide	<7.5	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	22	%	16/03/2012		N Cov	27
pH	8.1	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	<100	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<3.0	mg/kg	19/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<3.0	mg/kg	19/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<3.0	mg/kg	19/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	<1.2	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	6.5	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	150	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	32	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	200	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	<0.30	mg/kg	19/03/2012		M Cov	304
Aromatic VPH >C7 - C8	0.35	mg/kg	19/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<3.0	mg/kg	19/03/2012		M Cov	304
Aromatic EPH >C10 - C12	3.3	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	13	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	36	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901671**

Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP2**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1015

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	150	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	56	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	260	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	460	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	0.91	mg/kg	19/03/2012		Y Cov	313
Acenaphthylene	0.15	mg/kg	19/03/2012		Y Cov	313
Acenaphthene	0.58	mg/kg	19/03/2012		M Cov	313
Fluorene	0.67	mg/kg	19/03/2012		M Cov	313
Phenanthrene	6.7	mg/kg	19/03/2012		M Cov	313
Anthracene	1.6	mg/kg	19/03/2012		M Cov	313
Fluoranthene	9.5	mg/kg	19/03/2012		M Cov	313
Pyrene	7.7	mg/kg	19/03/2012		M Cov	313
Benzo(a)anthracene	4.1	mg/kg	19/03/2012		M Cov	313
Chrysene	4.5	mg/kg	19/03/2012		M Cov	313
Benzo(b)fluoranthene	5.3	mg/kg	19/03/2012		M Cov	313
Benzo(k)fluoranthene	1.9	mg/kg	19/03/2012		M Cov	313
Benzo(a)pyrene	3.6	mg/kg	19/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	2.9	mg/kg	19/03/2012		M Cov	313
Dibenz(a,h)anthracene	0.62	mg/kg	19/03/2012		M Cov	313
Benzo(g,h,i)perylene	2.5	mg/kg	19/03/2012		Y Cov	313
PAH, Total of 16 EPA	53	mg/kg	19/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Chloroform	<6.0	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901671**

Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP2**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1015

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Benzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<6.0	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<6.0	ug/kg	21/03/2012		M Cov	315
Toluene	<6.0	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<6.0	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<6.0	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<6.0	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<12	ug/kg	21/03/2012		M Cov	315
o-Xylene	<6.0	ug/kg	21/03/2012		M Cov	315
Styrene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromoform	<6.0	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<6.0	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<6.0	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<6.0	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901671**

Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP2**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1015

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<6.0	ug/kg	21/03/2012		M Cov	315
Naphthalene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	120	% Recovery	21/03/2012		N Cov	315
Toluene-d8	100	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	97	% Recovery	21/03/2012		N Cov	315
Phenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.2	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.2	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.2	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.2	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901671**

Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP2**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1015

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.2	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.4	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.2	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Phenanthrene	1.9	mg/kg	16/03/2012		M Cov	316
Anthracene	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Fluoranthene	3.3	mg/kg	16/03/2012		M Cov	316
Pyrene	3.1	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	1.9	mg/kg	16/03/2012		M Cov	316
Chrysene	2.1	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	2.4	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	1.5	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	<1.2	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	1.2	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	71	% Recovery	16/03/2012		N Cov	316
Phenol-d6	65	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	57	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	72	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	65	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	92	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.2	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901671**

Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP2**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012** Sample Time: **1015** Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	1.2	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901671:

{/*}VPH Soils: raised reporting limits as dilution sent as original has sample matrix interference
Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to r

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901672**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time: **1045**

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	30	%	15/03/2012		N Cov	Stones
Moisture content at 30C	16	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	18	mg/kg	20/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	0.93	mg/kg	20/03/2012		M Cov	30
Boron as B, hot water sol dw	2.4	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	1.5	mg/kg	20/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	17	mg/kg	20/03/2012		M Cov	30
Copper as Cu, dry weight	180	mg/kg	20/03/2012		M Cov	30
Lead as Pb, dry weight	250	mg/kg	20/03/2012		M Cov	30
Mercury as Hg, dry weight	1.3	mg/kg	20/03/2012		M Cov	30C
Nickel as Ni, dry weight	45	mg/kg	20/03/2012		M Cov	30
Selenium as Se, dry weight	0.47	mg/kg	20/03/2012		Y Cov	30C
Vanadium as V, dry weight	28	mg/kg	20/03/2012		M Cov	30
Zinc as Zn, dry weight	560	mg/kg	20/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	25	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	820	mg/kg	15/03/2012		N Cov	45
Sulphide	<7.5	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	24	%	16/03/2012		N Cov	27
pH	8.0	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	<100	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<0.12	mg/kg	19/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<0.12	mg/kg	19/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<0.12	mg/kg	19/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	<1.2	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	5.0	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	210	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	40	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	260	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	0.012	mg/kg	19/03/2012		M Cov	304
Aromatic VPH >C7 - C8	0.017	mg/kg	19/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<0.12	mg/kg	19/03/2012		M Cov	304
Aromatic EPH >C10 - C12	<1.2	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	9.3	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	20	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901672**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1045

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	130	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	48	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	200	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	460	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	4.4	mg/kg	19/03/2012		Y Cov	313
Acenaphthylene	0.18	mg/kg	19/03/2012		Y Cov	313
Acenaphthene	0.79	mg/kg	19/03/2012		M Cov	313
Fluorene	0.68	mg/kg	19/03/2012		M Cov	313
Phenanthrene	5.6	mg/kg	19/03/2012		M Cov	313
Anthracene	1.3	mg/kg	19/03/2012		M Cov	313
Fluoranthene	7.9	mg/kg	19/03/2012		M Cov	313
Pyrene	7.0	mg/kg	19/03/2012		M Cov	313
Benzo(a)anthracene	4.1	mg/kg	19/03/2012		M Cov	313
Chrysene	3.8	mg/kg	19/03/2012		M Cov	313
Benzo(b)fluoranthene	5.9	mg/kg	19/03/2012		M Cov	313
Benzo(k)fluoranthene	2.0	mg/kg	19/03/2012		M Cov	313
Benzo(a)pyrene	3.9	mg/kg	19/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	3.3	mg/kg	19/03/2012		M Cov	313
Dibenz(a,h)anthracene	0.68	mg/kg	19/03/2012		M Cov	313
Benzo(g,h,i)perylene	3.0	mg/kg	19/03/2012		Y Cov	313
PAH, Total of 16 EPA	54	mg/kg	19/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Chloroform	<6.0	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901672**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1045

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Benzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<6.0	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<6.0	ug/kg	21/03/2012		M Cov	315
Toluene	<6.0	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<6.0	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<6.0	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<6.0	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<12	ug/kg	21/03/2012		M Cov	315
o-Xylene	<6.0	ug/kg	21/03/2012		M Cov	315
Styrene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromoform	<6.0	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<6.0	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<6.0	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<6.0	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901672**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1045

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<6.0	ug/kg	21/03/2012		M Cov	315
Naphthalene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	120	% Recovery	21/03/2012		N Cov	315
Toluene-d8	99	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	96	% Recovery	21/03/2012		N Cov	315
Phenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.2	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.2	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.2	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.2	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901672**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1045

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.2	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.4	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.2	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Phenanthrene	2.3	mg/kg	16/03/2012		M Cov	316
Anthracene	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Fluoranthene	3.9	mg/kg	16/03/2012		M Cov	316
Pyrene	4.3	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	2.1	mg/kg	16/03/2012		M Cov	316
Chrysene	2.9	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	3.5	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	1.5	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	2.7	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	1.7	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	2.3	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	66	% Recovery	16/03/2012		N Cov	316
Phenol-d6	61	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	58	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	72	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	65	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	92	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.2	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901672**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Visual Description: **Black loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1045

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	0.078	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901672:

{/*}Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1,1- trichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soi

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

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Matrix: **Soil**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901673**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP5**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time: **1145**

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	62	%	15/03/2012		N Cov	Stones
Moisture content at 30C	6.8	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	4.8	mg/kg	20/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	3.5	mg/kg	20/03/2012		M Cov	30
Boron as B, hot water sol dw	2.8	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	<0.20	mg/kg	20/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	39	mg/kg	20/03/2012		M Cov	30
Copper as Cu, dry weight	20	mg/kg	20/03/2012		M Cov	30
Lead as Pb, dry weight	120	mg/kg	20/03/2012		M Cov	30
Mercury as Hg, dry weight	<0.35	mg/kg	20/03/2012		M Cov	30C
Nickel as Ni, dry weight	4.9	mg/kg	20/03/2012		M Cov	30
Selenium as Se, dry weight	1.0	mg/kg	20/03/2012		Y Cov	30C
Vanadium as V, dry weight	24	mg/kg	20/03/2012		M Cov	30
Zinc as Zn, dry weight	160	mg/kg	20/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	8.2	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	310	mg/kg	15/03/2012		N Cov	45
Sulphide	280	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	8.1	%	16/03/2012		N Cov	27
pH	9.6	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	300	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<0.11	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<0.11	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<0.11	mg/kg	15/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	8.6	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	62	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	520	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	57	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	640	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	<0.011	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C7 - C8	<0.011	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<0.11	mg/kg	15/03/2012		M Cov	304
Aromatic EPH >C10 - C12	2.8	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	35	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	240	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901673**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP5**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1145

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	820	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	250	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	1300	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	1900	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	0.55	mg/kg	20/03/2012		Y Cov	313
Acenaphthylene	0.49	mg/kg	20/03/2012		Y Cov	313
Acenaphthene	5.7	mg/kg	20/03/2012		M Cov	313
Fluorene	3.6	mg/kg	20/03/2012		M Cov	313
Phenanthrene	81	mg/kg	20/03/2012		M Cov	313
Anthracene	20	mg/kg	20/03/2012		M Cov	313
Fluoranthene	120	mg/kg	20/03/2012		M Cov	313
Pyrene	89	mg/kg	20/03/2012		M Cov	313
Benzo(a)anthracene	51	mg/kg	20/03/2012		M Cov	313
Chrysene	49	mg/kg	20/03/2012		M Cov	313
Benzo(b)fluoranthene	69	mg/kg	20/03/2012		M Cov	313
Benzo(k)fluoranthene	25	mg/kg	20/03/2012		M Cov	313
Benzo(a)pyrene	43	mg/kg	20/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	39	mg/kg	20/03/2012		M Cov	313
Dibenz(a,h)anthracene	7.3	mg/kg	20/03/2012		M Cov	313
Benzo(g,h,i)perylene	33	mg/kg	20/03/2012		Y Cov	313
PAH, Total of 16 EPA	640	mg/kg	20/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<5.4	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<5.4	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<5.4	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<5.4	ug/kg	21/03/2012		M Cov	315
Chloroform	<5.4	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901673**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP5**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1145

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<5.4	ug/kg	21/03/2012		M Cov	315
Benzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<5.4	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<5.4	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<5.4	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<5.4	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<5.4	ug/kg	21/03/2012		M Cov	315
Toluene	<5.4	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<5.4	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<5.4	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<5.4	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<5.4	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<5.4	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<5.4	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<5.4	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<5.4	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<5.4	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<11	ug/kg	21/03/2012		M Cov	315
o-Xylene	<5.4	ug/kg	21/03/2012		M Cov	315
Styrene	<5.4	ug/kg	21/03/2012		M Cov	315
Bromoform	<5.4	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<5.4	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<5.4	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<5.4	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<5.4	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<5.4	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<5.4	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<5.4	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901673**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP5**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1145

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<5.4	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<5.4	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<5.4	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<5.4	ug/kg	21/03/2012		M Cov	315
Naphthalene	<5.4	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<5.4	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	100	% Recovery	21/03/2012		N Cov	315
Toluene-d8	98	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	99	% Recovery	21/03/2012		N Cov	315
Phenol	<1.1	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.1	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.1	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.1	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.1	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.1	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.1	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.1	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.1	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.1	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.1	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.1	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.1	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.1	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.1	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.1	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.1	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.1	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.1	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.1	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.1	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.1	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.1	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901673**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP5**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1145

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.1	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.1	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.1	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.1	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.1	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.1	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.1	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.1	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.1	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.1	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.1	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.1	mg/kg	16/03/2012		N Cov	316
Phenanthrene	8.4	mg/kg	16/03/2012		M Cov	316
Anthracene	2.7	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
Fluoranthene	26	mg/kg	16/03/2012		M Cov	316
Pyrene	24	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	15	mg/kg	16/03/2012		M Cov	316
Chrysene	15	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.1	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	20	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	7.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	15	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	9.9	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	3.1	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	12	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	72	% Recovery	16/03/2012		N Cov	316
Phenol-d6	63	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	65	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	66	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	68	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	85	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.1	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901673**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP5**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1145

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	0.083	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901673:

{/*}#313 PAH Soils. Detection limit raised due to sample being over range.
Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1,1- trichloroet

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901674**

Sample **5** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time: **1215**

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	44	%	15/03/2012		N Cov	Stones
Moisture content at 30C	9.2	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	22	mg/kg	20/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	0.35	mg/kg	20/03/2012		M Cov	30
Boron as B, hot water sol dw	1.3	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	<0.20	mg/kg	20/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	9.6	mg/kg	20/03/2012		M Cov	30
Copper as Cu, dry weight	30	mg/kg	20/03/2012		M Cov	30
Lead as Pb, dry weight	110	mg/kg	20/03/2012		M Cov	30
Mercury as Hg, dry weight	<0.35	mg/kg	20/03/2012		M Cov	30C
Nickel as Ni, dry weight	24	mg/kg	20/03/2012		M Cov	30
Selenium as Se, dry weight	0.57	mg/kg	20/03/2012		Y Cov	30C
Vanadium as V, dry weight	12	mg/kg	20/03/2012		M Cov	30
Zinc as Zn, dry weight	68	mg/kg	20/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	4.6	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	1000	mg/kg	15/03/2012		N Cov	45
Sulphide	<7.5	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	4.6	%	16/03/2012		N Cov	27
pH	8.5	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	<100	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<0.11	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<0.11	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<0.11	mg/kg	15/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	<1.1	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	4.1	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	26	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	<1.1	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	31	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	<0.011	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C7 - C8	<0.011	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<0.11	mg/kg	15/03/2012		M Cov	304
Aromatic EPH >C10 - C12	<1.1	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	<1.1	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	6.6	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901674**

Sample **5** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1215

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	21	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	3.0	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	31	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	61	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	0.096	mg/kg	19/03/2012		Y Cov	313
Acenaphthylene	0.021	mg/kg	19/03/2012		Y Cov	313
Acenaphthene	0.022	mg/kg	19/03/2012		M Cov	313
Fluorene	0.032	mg/kg	19/03/2012		M Cov	313
Phenanthrene	0.32	mg/kg	19/03/2012		M Cov	313
Anthracene	0.11	mg/kg	19/03/2012		M Cov	313
Fluoranthene	0.87	mg/kg	19/03/2012		M Cov	313
Pyrene	0.79	mg/kg	19/03/2012		M Cov	313
Benzo(a)anthracene	0.50	mg/kg	19/03/2012		M Cov	313
Chrysene	0.45	mg/kg	19/03/2012		M Cov	313
Benzo(b)fluoranthene	0.78	mg/kg	19/03/2012		M Cov	313
Benzo(k)fluoranthene	0.27	mg/kg	19/03/2012		M Cov	313
Benzo(a)pyrene	0.44	mg/kg	19/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	0.37	mg/kg	19/03/2012		M Cov	313
Dibenz(a,h)anthracene	0.089	mg/kg	19/03/2012		M Cov	313
Benzo(g,h,i)perylene	0.32	mg/kg	19/03/2012		Y Cov	313
PAH, Total of 16 EPA	5.5	mg/kg	19/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<5.5	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<5.5	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<5.5	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<5.5	ug/kg	21/03/2012		M Cov	315
Chloroform	<5.5	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901674**

Sample **5** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1215

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<5.5	ug/kg	21/03/2012		M Cov	315
Benzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<5.5	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<5.5	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<5.5	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<5.5	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<5.5	ug/kg	21/03/2012		M Cov	315
Toluene	<5.5	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<5.5	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<5.5	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<5.5	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<5.5	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<5.5	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<5.5	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<5.5	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<5.5	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<5.5	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<11	ug/kg	21/03/2012		M Cov	315
o-Xylene	<5.5	ug/kg	21/03/2012		M Cov	315
Styrene	<5.5	ug/kg	21/03/2012		M Cov	315
Bromoform	<5.5	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<5.5	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<5.5	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<5.5	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<5.5	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<5.5	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<5.5	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<5.5	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901674**

Sample **5** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1215

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<5.5	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<5.5	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<5.5	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<5.5	ug/kg	21/03/2012		M Cov	315
Naphthalene	<5.5	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<5.5	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	86	% Recovery	21/03/2012		N Cov	315
Toluene-d8	100	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	100	% Recovery	21/03/2012		N Cov	315
Phenol	<1.1	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.1	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.1	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.1	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.1	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.1	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.1	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.1	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.1	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.1	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.1	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.1	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.1	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.1	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.1	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.1	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.1	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.1	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.1	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.1	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.1	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.1	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.1	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.1	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901674**

Sample **5** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

1215

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.1	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.1	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.1	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.1	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.1	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.2	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.1	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.1	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.1	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.1	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.1	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.1	mg/kg	16/03/2012		N Cov	316
Phenanthrene	<1.1	mg/kg	16/03/2012		M Cov	316
Anthracene	<1.1	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
Fluoranthene	<1.1	mg/kg	16/03/2012		M Cov	316
Pyrene	<1.1	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	<1.1	mg/kg	16/03/2012		M Cov	316
Chrysene	<1.1	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.1	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	<1.1	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	<1.1	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	<1.1	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	<1.1	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	64	% Recovery	16/03/2012		N Cov	316
Phenol-d6	59	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	55	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	67	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	57	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	89	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.1	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901674**

Sample **5** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Visual Description: **Brown loam with occasional stone.**

Sample Date: **12 March 2012** Sample Time: **1215** Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	<0.060	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901674:

{/*}Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1,1- trichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soi

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901675**

Sample **6** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP8**

Visual Description: **Black loam with occasional stone**

Sample Date: **12 March 2012**

Sample Time: **1330**

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	30	%	15/03/2012		N Cov	Stones
Moisture content at 30C	17	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	23	mg/kg	21/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	1.9	mg/kg	21/03/2012		M Cov	30
Boron as B, hot water sol dw	3.3	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	1.1	mg/kg	21/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	200	mg/kg	21/03/2012		M Cov	30
Copper as Cu, dry weight	2000	mg/kg	21/03/2012		M Cov	30
Lead as Pb, dry weight	390	mg/kg	21/03/2012		M Cov	30
Mercury as Hg, dry weight	2.0	mg/kg	21/03/2012		M Cov	30C
Nickel as Ni, dry weight	44	mg/kg	21/03/2012		M Cov	30
Selenium as Se, dry weight	0.95	mg/kg	21/03/2012		Y Cov	30C
Vanadium as V, dry weight	130	mg/kg	21/03/2012		M Cov	30
Zinc as Zn, dry weight	740	mg/kg	21/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	25	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	1800	mg/kg	15/03/2012		N Cov	45
Sulphide	<7.5	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	26	%	16/03/2012		N Cov	27
pH	8.0	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	<100	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<0.12	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<0.12	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<0.12	mg/kg	15/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	<1.2	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	7.7	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	250	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	64	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	330	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	0.013	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C7 - C8	0.016	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<0.12	mg/kg	15/03/2012		M Cov	304
Aromatic EPH >C10 - C12	3.7	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	12	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	41	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901675**

Sample **6** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP8**

Visual Description: **Black loam with occasional stone**

Sample Date: **12 March 2012**

Sample Time:

1330

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	250	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	110	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	420	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	750	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	0.73	mg/kg	19/03/2012		Y Cov	313
Acenaphthylene	0.19	mg/kg	19/03/2012		Y Cov	313
Acenaphthene	0.42	mg/kg	19/03/2012		M Cov	313
Fluorene	0.49	mg/kg	19/03/2012		M Cov	313
Phenanthrene	5.3	mg/kg	19/03/2012		M Cov	313
Anthracene	1.4	mg/kg	19/03/2012		M Cov	313
Fluoranthene	9.6	mg/kg	19/03/2012		M Cov	313
Pyrene	7.8	mg/kg	19/03/2012		M Cov	313
Benzo(a)anthracene	5.2	mg/kg	19/03/2012		M Cov	313
Chrysene	4.6	mg/kg	19/03/2012		M Cov	313
Benzo(b)fluoranthene	6.8	mg/kg	19/03/2012		M Cov	313
Benzo(k)fluoranthene	2.5	mg/kg	19/03/2012		M Cov	313
Benzo(a)pyrene	4.5	mg/kg	19/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	3.8	mg/kg	19/03/2012		M Cov	313
Dibenz(a,h)anthracene	0.87	mg/kg	19/03/2012		M Cov	313
Benzo(g,h,i)perylene	3.2	mg/kg	19/03/2012		Y Cov	313
PAH, Total of 16 EPA	57	mg/kg	19/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Chloroform	<6.0	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901675**

Sample **6** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP8**

Visual Description: **Black loam with occasional stone**

Sample Date: **12 March 2012**

Sample Time:

1330

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Benzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<6.0	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<6.0	ug/kg	21/03/2012		M Cov	315
Toluene	<6.0	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<6.0	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<6.0	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<6.0	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<12	ug/kg	21/03/2012		M Cov	315
o-Xylene	<6.0	ug/kg	21/03/2012		M Cov	315
Styrene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromoform	<6.0	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<6.0	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<6.0	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<6.0	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901675**

Sample **6** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP8**

Visual Description: **Black loam with occasional stone**

Sample Date: **12 March 2012**

Sample Time:

1330

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<6.0	ug/kg	21/03/2012		M Cov	315
Naphthalene	<6.0	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<6.0	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	100	% Recovery	21/03/2012		N Cov	315
Toluene-d8	100	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	96	% Recovery	21/03/2012		N Cov	315
Phenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.2	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.2	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.2	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.2	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.2	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.2	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.2	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.2	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.2	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901675**

Sample **6** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP8**

Visual Description: **Black loam with occasional stone**

Sample Date: **12 March 2012**

Sample Time:

1330

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.2	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.2	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.2	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.4	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.2	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.2	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.2	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.2	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.2	mg/kg	16/03/2012		N Cov	316
Phenanthrene	2.3	mg/kg	16/03/2012		M Cov	316
Anthracene	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Fluoranthene	4.6	mg/kg	16/03/2012		M Cov	316
Pyrene	4.6	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	2.8	mg/kg	16/03/2012		M Cov	316
Chrysene	3.0	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.2	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	3.3	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	1.4	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	2.7	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	1.6	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	<1.2	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	2.0	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	55	% Recovery	16/03/2012		N Cov	316
Phenol-d6	58	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	54	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	68	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	59	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	91	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.2	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil - Sand**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901675**

Sample **6** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP8**

Visual Description: **Black loam with occasional stone**

Sample Date: **12 March 2012**

Sample Time:

1330

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	0.19	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901675:

{/*}Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1,1- trichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soi

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901676**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Visual Description: **Brown clay with occasional stone.**

Sample Date: **12 March 2012** Sample Time:

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	24	%	15/03/2012		N Cov	Stones
Moisture content at 30C	23	%	15/03/2012		N Cov	33A
Arsenic as As, dry weight	8.7	mg/kg	21/03/2012		M Cov	30/30C
Beryllium as Be, dry weight	0.90	mg/kg	21/03/2012		M Cov	30
Boron as B, hot water sol dw	1.8	mg/kg	20/03/2012		M Cov	6
Cadmium as Cd, dry weight	<0.20	mg/kg	21/03/2012		M Cov	30
Hexavalent Chromium as dw	<0.10	mg/kg	19/03/2012		N Cov	30B
Chromium as Cr, dry weight	16	mg/kg	21/03/2012		M Cov	30
Copper as Cu, dry weight	39	mg/kg	21/03/2012		M Cov	30
Lead as Pb, dry weight	55	mg/kg	21/03/2012		M Cov	30
Mercury as Hg, dry weight	<0.35	mg/kg	21/03/2012		M Cov	30C
Nickel as Ni, dry weight	39	mg/kg	21/03/2012		M Cov	30
Selenium as Se, dry weight	0.39	mg/kg	21/03/2012		Y Cov	30C
Vanadium as V, dry weight	20	mg/kg	21/03/2012		M Cov	30
Zinc as Zn, dry weight	50	mg/kg	21/03/2012		M Cov	30
Cyanide, Total dry weight	<2.5	mg/kg	15/03/2012		Y Cov	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	14/03/2012		Y Cov	40A
Loss on ignition, dried solids	7.0	%	15/03/2012		M Cov	337
Sulphate, Total as SO4 dw	280	mg/kg	15/03/2012		N Cov	45
Sulphide	<7.5	mg/kg	16/03/2012		M Cov	47
TOC by Ignition in O2	1.4	%	16/03/2012		N Cov	27
pH	7.8	pH units	20/03/2012		M Cov	39
Sulphur, Elemental	<100	mg/kg	21/03/2012		M Cov	51
Aliphatic VPH >C5 - C6	<0.13	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C6 - C8	<0.13	mg/kg	15/03/2012		M Cov	304
Aliphatic VPH >C8 - C10	<0.13	mg/kg	15/03/2012		M Cov	304
Aliphatic EPH >C10 - C12	<1.3	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C12 - C16	<1.3	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C16 - C35	<1.3	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C35 - C44	<1.3	mg/kg	22/03/2012		M Cov	317EPH
Aliphatic EPH >C5 - C44	<6.5	mg/kg	22/03/2012		Y Cov	304/317EPH
Aromatic VPH >C5 - C7	<0.013	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C7 - C8	<0.013	mg/kg	15/03/2012		M Cov	304
Aromatic VPH >C8 - C10	<0.13	mg/kg	15/03/2012		M Cov	304
Aromatic EPH >C10 - C12	<1.3	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C12 - C16	<1.3	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C16 - C21	<1.3	mg/kg	22/03/2012		M Cov	317EPH

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901676**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Visual Description: **Brown clay with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Aromatic EPH >C21 - C35	14	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C35 - C44	2.6	mg/kg	22/03/2012		M Cov	317EPH
Aromatic EPH >C5 - C44	17	mg/kg	22/03/2012		Y Cov	304/317EPH
VPH/EPH >C5 - C44	17	mg/kg	22/03/2012		M Cov	304/317EPH
Naphthalene	0.013	mg/kg	19/03/2012		Y Cov	313
Acenaphthylene	<0.010	mg/kg	19/03/2012		Y Cov	313
Acenaphthene	<0.010	mg/kg	19/03/2012		M Cov	313
Fluorene	<0.010	mg/kg	19/03/2012		M Cov	313
Phenanthrene	0.057	mg/kg	19/03/2012		M Cov	313
Anthracene	0.013	mg/kg	19/03/2012		M Cov	313
Fluoranthene	0.10	mg/kg	19/03/2012		M Cov	313
Pyrene	0.091	mg/kg	19/03/2012		M Cov	313
Benzo(a)anthracene	0.046	mg/kg	19/03/2012		M Cov	313
Chrysene	0.044	mg/kg	19/03/2012		M Cov	313
Benzo(b)fluoranthene	0.068	mg/kg	19/03/2012		M Cov	313
Benzo(k)fluoranthene	0.023	mg/kg	19/03/2012		M Cov	313
Benzo(a)pyrene	0.046	mg/kg	19/03/2012		M Cov	313
Indeno(1,2,3-c,d)pyrene	0.032	mg/kg	19/03/2012		M Cov	313
Dibenz(a,h)anthracene	<0.010	mg/kg	19/03/2012		M Cov	313
Benzo(g,h,i)perylene	0.029	mg/kg	19/03/2012		Y Cov	313
PAH, Total of 16 EPA	0.57	mg/kg	19/03/2012		Y Cov	313
VOC	See Report	ug/kg	16/03/2012		N Cov	315
Dichlorodifluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Chloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Bromomethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Trichlorofluoromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethene	Analyst Comme	ug/kg	21/03/2012		M Cov	315
Dichloromethane	<6.5	ug/kg	21/03/2012		M Cov	315
trans-1,2-Dichloroethene	<6.5	ug/kg	21/03/2012		M Cov	315
1,1-Dichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
cis-1,2-Dichloroethene	<6.5	ug/kg	21/03/2012		M Cov	315
2,2-Dichloropropane	<6.5	ug/kg	21/03/2012		M Cov	315
Chloroform	<6.5	ug/kg	21/03/2012		M Cov	315
Bromochloromethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1,1-Trichloroethane	Analyst Comme	ug/kg	21/03/2012		M Cov	315
1,1-Dichloropropene	Analyst Comme	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901676**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Visual Description: **Brown clay with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
1,2-Dichloroethane	<6.5	ug/kg	21/03/2012		M Cov	315
Benzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,2-Dichloropropane	<6.5	ug/kg	21/03/2012		M Cov	315
Trichloroethene	<6.5	ug/kg	21/03/2012		M Cov	315
Bromodichloromethane	<6.5	ug/kg	21/03/2012		M Cov	315
Dibromomethane	<6.5	ug/kg	21/03/2012		M Cov	315
cis-1,3-Dichloropropene	<6.5	ug/kg	21/03/2012		M Cov	315
Toluene	<6.5	ug/kg	21/03/2012		M Cov	315
trans-1,3-Dichloropropene	<6.5	ug/kg	21/03/2012		M Cov	315
1,1,2-Trichloroethane	<6.5	ug/kg	21/03/2012		M Cov	315
Carbon Tetrachloride	<6.5	ug/kg	21/03/2012		M Cov	315
Vinyl Chloride	<6.5	ug/kg	21/03/2012		M Cov	315
1,3-Dichloropropane	<6.5	ug/kg	21/03/2012		M Cov	315
Tetrachloroethene	<6.5	ug/kg	21/03/2012		M Cov	315
Dibromochloromethane	<6.5	ug/kg	21/03/2012		M Cov	315
1,2-Dibromoethane	<6.5	ug/kg	21/03/2012		M Cov	315
Chlorobenzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,1,1,2-Tetrachloroethane	<6.5	ug/kg	21/03/2012		M Cov	315
Ethylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
m&p-Xylene	<13	ug/kg	21/03/2012		M Cov	315
o-Xylene	<6.5	ug/kg	21/03/2012		M Cov	315
Styrene	<6.5	ug/kg	21/03/2012		M Cov	315
Bromoform	<6.5	ug/kg	21/03/2012		M Cov	315
iso-Propylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,1,2,2-Tetrachloroethane	<6.5	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichloropropane	<6.5	ug/kg	21/03/2012		M Cov	315
n-Propylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
Bromobenzene	<6.5	ug/kg	21/03/2012		M Cov	315
2-Chlorotoluene	<6.5	ug/kg	21/03/2012		M Cov	315
1,3,5-Trimethylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
4-Chlorotoluene	<6.5	ug/kg	21/03/2012		M Cov	315
tert-Butylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,2,4-Trimethylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
sec-Butylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
p-Isopropyltoluene	<6.5	ug/kg	21/03/2012		M Cov	315
1,3-Dichlorobenzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,4-Dichlorobenzene	<6.5	ug/kg	21/03/2012		M Cov	315

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901676**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Visual Description: **Brown clay with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
n-Butylbenzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,2-Dichlorobenzene	<6.5	ug/kg	21/03/2012		M Cov	315
1,2-Dibromo-3-chloropropane	<6.5	ug/kg	21/03/2012		M Cov	315
1,2,4-Trichlorobenzene	<6.5	ug/kg	21/03/2012		M Cov	315
Hexachlorobutadiene	<6.5	ug/kg	21/03/2012		M Cov	315
Naphthalene	<6.5	ug/kg	21/03/2012		M Cov	315
1,2,3-Trichlorobenzene	<6.5	ug/kg	21/03/2012		M Cov	315
Dibromofluoromethane	100	% Recovery	21/03/2012		N Cov	315
Toluene-d8	100	% Recovery	21/03/2012		N Cov	315
4-Bromofluorobenzene	98	% Recovery	21/03/2012		N Cov	315
Phenol	<1.3	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethyl)-ether	<1.3	mg/kg	16/03/2012		Y Cov	316
2-Chlorophenol	<1.3	mg/kg	16/03/2012		M Cov	316
1,3-Dichlorobenzene	<1.3	mg/kg	16/03/2012		Y Cov	316
1,4-Dichlorobenzene	<1.3	mg/kg	16/03/2012		Y Cov	316
2-Methylphenol	<1.3	mg/kg	16/03/2012		Y Cov	316
3&4-Methylphenol	<1.3	mg/kg	16/03/2012		Y Cov	316
Dibenzofuran	<1.3	mg/kg	16/03/2012		M Cov	316
1,2-Dichlorobenzene	<1.3	mg/kg	16/03/2012		Y Cov	316
bis-(2-Chloroisopropyl)-ether	<1.3	mg/kg	16/03/2012		Y Cov	316
n-Nitroso-di-n-propylamine	<1.3	mg/kg	16/03/2012		M Cov	316
Hexachloroethane	<1.3	mg/kg	16/03/2012		Y Cov	316
Nitrobenzene	<1.3	mg/kg	16/03/2012		M Cov	316
Isophorone	<1.3	mg/kg	16/03/2012		Y Cov	316
2,4-Dimethylphenol	<1.3	mg/kg	16/03/2012		Y Cov	316
2-Nitrophenol	<1.3	mg/kg	16/03/2012		M Cov	316
bis-(2-Chloroethoxy)-methane	<1.3	mg/kg	16/03/2012		M Cov	316
2,4-Dichlorophenol	<1.3	mg/kg	16/03/2012		Y Cov	316
1,2,4-Trichlorobenzene	<1.3	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrophenol	<1.3	mg/kg	16/03/2012		N Cov	316
Naphthalene	<1.3	mg/kg	16/03/2012		M Cov	316
Hexachlorobutadiene	<1.3	mg/kg	16/03/2012		Y Cov	316
4-Chloro-3-methylphenol	<1.3	mg/kg	16/03/2012		N Cov	316
2-Methylnaphthalene	<1.3	mg/kg	16/03/2012		M Cov	316
2,4,6-Trichlorophenol	<1.3	mg/kg	16/03/2012		Y Cov	316
2,4,5-Trichlorophenol	<1.3	mg/kg	16/03/2012		Y Cov	316
2-Chloronaphthalene	<1.3	mg/kg	16/03/2012		M Cov	316

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901676**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Visual Description: **Brown clay with occasional stone.**

Sample Date: **12 March 2012**

Sample Time:

Sample Received:

12 March 2012

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Dimethyl Phthalate	<1.3	mg/kg	16/03/2012		M Cov	316
2,6-Dinitrotoluene	<1.3	mg/kg	16/03/2012		M Cov	316
Acenaphthylene	<1.3	mg/kg	16/03/2012		N Cov	316
Acenaphthene	<1.3	mg/kg	16/03/2012		M Cov	316
2,4-Dinitrotoluene	<1.3	mg/kg	16/03/2012		M Cov	316
Diethyl Phthalate	<1.3	mg/kg	16/03/2012		Y Cov	316
4-Nitrophenol	<2.6	mg/kg	16/03/2012		N Cov	316
4-Chlorophenyl Phenyl Ether	<1.3	mg/kg	16/03/2012		Y Cov	316
Fluorene	<1.3	mg/kg	16/03/2012		Y Cov	316
Carbazole	<1.3	mg/kg	16/03/2012		Y Cov	316
4-Bromophenyl Phenyl Ether	<1.3	mg/kg	16/03/2012		Y Cov	316
Hexachlorobenzene	<1.3	mg/kg	16/03/2012		M Cov	316
Pentachlorophenol	<1.3	mg/kg	16/03/2012		N Cov	316
Phenanthrene	<1.3	mg/kg	16/03/2012		M Cov	316
Anthracene	<1.3	mg/kg	16/03/2012		Y Cov	316
Di-n-butyl Phthalate	<1.3	mg/kg	16/03/2012		M Cov	316
Fluoranthene	<1.3	mg/kg	16/03/2012		M Cov	316
Pyrene	<1.3	mg/kg	16/03/2012		M Cov	316
Butyl Benzyl Phthalate	<1.3	mg/kg	16/03/2012		M Cov	316
Benzo(a)anthracene	<1.3	mg/kg	16/03/2012		M Cov	316
Chrysene	<1.3	mg/kg	16/03/2012		M Cov	316
bis-(2-Ethylhexyl)-phthalate	<1.3	mg/kg	16/03/2012		Y Cov	316
Di-n-octyl Phthalate	<1.3	mg/kg	16/03/2012		M Cov	316
Benzo(b)fluoranthene	<1.3	mg/kg	16/03/2012		M Cov	316
Benzo(k)fluoranthene	<1.3	mg/kg	16/03/2012		M Cov	316
Benzo(a)pyrene	<1.3	mg/kg	16/03/2012		M Cov	316
Indeno(1,2,3-c,d)pyrene	<1.3	mg/kg	16/03/2012		M Cov	316
Dibenz(a,h)anthracene	<1.3	mg/kg	16/03/2012		M Cov	316
Benzo(g,h,i)perylene	<1.3	mg/kg	16/03/2012		M Cov	316
2-Fluorophenol	67	% Recovery	16/03/2012		N Cov	316
Phenol-d6	64	% Recovery	16/03/2012		N Cov	316
Nitrobenzene-d5	59	% Recovery	16/03/2012		N Cov	316
2-Fluorobiphenyl	69	% Recovery	16/03/2012		N Cov	316
2,4,6-Tribromophenol	55	% Recovery	16/03/2012		N Cov	316
Terphenyl-d14	91	% Recovery	16/03/2012		N Cov	316
diphenylamine&diphenylnitrosam	<1.3	mg/kg	16/03/2012		Y Cov	316
Description of Sample	Analyst Comme	Text	21/03/2012		N Cov	70

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Matrix: **Soil - Clay**

Report Number: **COV/845598/2012**

Issue **1**

Laboratory Number: **12901676**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Visual Description: **Brown clay with occasional stone.**

Sample Date: **12 March 2012** Sample Time:

Sample Received: **12 March 2012**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Asbestos Identification	Analyst Comme	Text	21/03/2012		Y Cov	70
Sulphate as SO ₄ , Water Soluble	0.094	g/l	16/03/2012		Y Cov	46
SVOC	See Report	mg/kg	16/03/2012		N Cov	316

Analyst Comments for 12901676:

{/*}Method 315 VOC Soils PT,unable to report Dichlorodifluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Chloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromomethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Trichlorofluoromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethene due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1-Dichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report Bromochloromethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soils PT,unable to report 1,1,1- trichloroethane due to QC failure. Indicative result is <5ug/l.
Method 315 VOC Soi

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **22 March 2012**

Title: **Chemistry Operations Manager**

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DETERMINAND COMMENTS FOR REPORT

COV/845598/2012

ISSUE 1

Date of Issue : 22 March 2012

Sample No	Description	Determinand	Comments
12901670	10973/SI TP1	Asbestos Identification	{/*}Non Detected{*/}
12901670	10973/SI TP1	Description of Sample	{/*}Soil{*/}
12901671	10973/SI TP2	Asbestos Identification	{/*}Chrysotile{*/}
12901671	10973/SI TP2	Description of Sample	{/*}Fibres in soil{*/}
12901672	10973/SI TP3	Asbestos Identification	{/*}Non Detected{*/}
12901672	10973/SI TP3	Description of Sample	{/*}Soil{*/}
12901673	10973/SI TP5	Asbestos Identification	{/*}Non Detected{*/}
12901673	10973/SI TP5	Description of Sample	{/*}Soil{*/}
12901674	10973/SI TP6	Asbestos Identification	{/*}Non Detected{*/}
12901674	10973/SI TP6	Description of Sample	{/*}Soil{*/}
12901675	10973/SI TP8	Asbestos Identification	{/*}Amosite{*/}
12901675	10973/SI TP8	Description of Sample	{/*}Fibres in soil{*/}
12901676	10973/SI TP10	Asbestos Identification	{/*}Non Detected{*/}
12901676	10973/SI TP10	Description of Sample	{/*}Soil{*/}

Signed:



Name: J. Fell

Date: 22 March 2012

Title: Chemistry Operations Manager

METHOD COMMENTS FOR REPORT COV/845598/2012

Issue 1

Date of Issue :22 March 2012

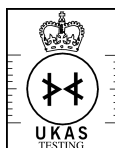
Method	Statement
14	The cyanides in the sample are determined in two stages. The free cyanide is liberated by heating with pH 4 buffer and the resulting gas collected in sodium hydroxide solution. Complex cyanide is liberated using phosphoric acid under the same conditions. The two portions of sodium hydroxide are then analysed for cyanide content using a discrete autoanalyser. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
27	The sample is treated with acid to remove any inorganic carbonate or bicarbonate that may be present. The sample is then ignited at 1350oC in a stream of oxygen to convert the remaining carbon into carbon dioxide. The quantity of carbon dioxide liberated from the sample is measured by a dual channel infrared detector and is quantified by comparison with standards containing known concentrations of carbon. The result is reported as percentage carbon related back to the original sample weight.
30	Metals are extracted from land samples by boiling with hydrochloric/nitric acids (3:1 ratio). The measurement of metal concentrations is determined directly on an ICP-OES at defined wavelengths. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
30/30C	Metals are extracted from land samples by boiling with hydrochloric/nitric acids (3:1 ratio). For the measurement of metal concentrations is determined on an ICP-OES at defined wavelengths. Where a result is 25mg/kg or above results are obtained directly. Otherwise results are obtained via hydride generation. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
304	The method employs the use of Headspace extraction of the volatile hydrocarbons from as received soil samples using a commercial headspace sampler followed by gas chromatograph (GC). The effluent from the chromatographic column is split between a flame ionisation detector (FID) for the determination of total VPH and a mass selective detector (MSD) for the determination of aromatic volatile hydrocarbons. This analysis is carried out on an as received portion of sample.
304/317EPH	Headspace extraction of the compounds from the sample using a commercial headspace sampler followed by separation and quantitative determination of the compounds using gas chromatography with flame ionisation detection/Soil samples are extracted with hexane. The extracts are separated into aliphatic and aromatic fractions using silica solid phase extraction cartridges. The fractionated extracts are then analysed by capillary gas chromatography with flame ionisation detection (GC-FID). This analysis is carried out on an as received portion of sample.
30B	Hexavalent chromium is extracted from land samples using dilute hydrochloric acid. The extract is shaken and then filtered. The measurement of chromium in the filtrate is then determined directly by ICP-OES at a defined wavelength. This analysis is carried out on an air dried sample, ground to pass a 212um sieve.
30C	Metals are extracted from land samples by boiling with hydrochloric/nitric acid (3:1 ratio). The measurement of metal concentrations is determined by means of hydride generation / atomic vapour on an ICP-OES at defined wavelengths. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
313	PAHs are extracted from land samples using Dichloromethane, and sonication. An aliquot of the supernatant liquid is then transferred to a separate vial and analysed by GC-MS. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
315	Based on USEPA methodology 8260. Purge & Trap extraction followed by GCMSD detection of a list of 59 compounds, with an option for qualitative identification of tentatively identified compounds. This analysis is carried out on an as received portion of sample.
316	Based on USEPA methodology 8270. The SVOC content of land samples is extracted with dichloromethane/acetone mix solvent using an accelerated solvent extractor (ASE). The extract is concentrated using a turbovap evaporator to 1ml and internal standard is added. The SVOC content of this extract is then determined by GC-MS. This analysis is carried out on an as received portion of sample.
317EPH	A known amount of soil, with a surrogate spike added, is shaken and sonicated in an extraction vial containing hexane and acetone. Water is added to the sample and then centrifuged; a test portion of the resulting hexane layer is transferred to a 2ml vial. The extract can then be analysed by FC-FID. Fractionation is done by solid phase extraction using an unmodified silica column. This analysis is carried out on an as received portion of sample.
337	The loss on ignition of a pre-weighted portion of soil is determined by gravimetry after 4 hours at 450degrees C. This analysis is carried out on an air dried sample, ground to pass a 212um sieve.
33A	Moisture Content is the weight difference between an as received sample and the air dried sample at 30 degrees C.
39	The test is carried out by extraction using deionised water with agitation. The pH of this suspension is read directly from an electronic pH meter. This analysis is carried out on an air dried sample, ground to pass a 212um sieve.
40A	This method determines steam distillable phenolic compounds in land materials. Phenol is extracted from air dried soil using steam distillation. The pH adjusted distillate is measured colorimetrically at a defined wavelength. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
45	The sulphates are extracted from land samples using boiling hydrochloric acid solution. After cooling and filtration the determination of sulphate is obtained from an aliquot of solution, via a turbidimetric measurement. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
46	Water soluble sulphate is content of land samples is extracted by shaking with deionised water. The resultant solution is filtered and the determination of sulphate is obtained turbidimetrically from this filtrate via a reaction with barium chloride. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.

47	The sulphide content of land samples is determined via extraction with dilute sulphuric acid and steam distillation into zinc acetate solution and sodium hydroxide. The distillate is then titrated against sodium thiosulphate solution using iodine indicator. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
51	Elemental sulphur is extracted from land samples using dichloromethane by microwave assisted extraction. Samples are cooled, centrifuged and transferred to separate vials before analysis by HPLC. This analysis is carried out on an air dried sample, ground to pass a 2mm sieve.
6	Boron is extracted from land samples using boiling deionised water followed by vacuum filtration. The measurement of boron in the filtrate is then determined directly by ICP-OES at the defined wavelength. This analysis is carried out on an air-dried sample, ground to pass a 2mm sieve. For analysis by National Grid - Version 1.0, the samples are ground to pass a 212um sieve.
70	Representative fibres are mounted in appropriate Refractive Index (RI) liquids on slides and the different fibrous components are identified using PLM. If no asbestos is found then additional searches for small asbestos fibres on random sub-samples are undertaken using PLM.
Stones	The percentage weight of the stones that are naturally occurring and are greater than 10mm in diameter of the total weight of sample.

APPENDIX F

LABORATORY CHEMICAL TEST RESULTS (LEACHATE)

Report Summary



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Mr Stefan Imiolczyk
Integral Geotechnique
Integral House
Beddau Way
Castlegate Business Park
Caerphilly
Caerphilly
CF83 2AX

Date of Issue: **13 April 2012**

Report Number: **COV/845602/2012**

Issue **1**

Job Description: Integral General Project

Job Location: 10973/SI Land off Hood Road Barry

Number of Samples
included in this report **10**

Job Received: **12 March 2012**

Number of Test Results
included in this report **236**

Analysis Commenced: **13 March 2012**

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

Severn Trent Services was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901687**

Sample **1** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Sample Matrix: **Soil - Clay**

Sample Date/Time: **12 March 2012 09:40**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Moisture Content Ratio at 105C	0.70	% ratio	N Cov	33
Moisture at 105C	0.69	%	N Cov	33
Dry Ratio (BSEN 12457)	99.31	%	N Cov	Calculated

Analyst Comments for 12901687:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901688**

Sample **2** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Sample Matrix: **Soil - Sand**

Sample Date/Time: **12 March 2012 10:45**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Moisture Content Ratio at 105C	0.99	% ratio	N Cov	33
Moisture at 105C	0.98	%	N Cov	33
Dry Ratio (BSEN 12457)	99.02	%	N Cov	Calculated

Analyst Comments for 12901688:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901689**

Sample **3** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Sample Matrix: **Soil - Sand**

Sample Date/Time: **12 March 2012 12:15**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Moisture Content Ratio at 105C	0.59	% ratio	N Cov	33
Moisture at 105C	0.59	%	N Cov	33
Dry Ratio (BSEN 12457)	99.41	%	N Cov	Calculated

Analyst Comments for 12901689:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901690**

Sample **4** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP7**

Sample Matrix: **Soil - Sand**

Sample Date/Time: **12 March 2012 13:00**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
EN 12457-3 Leachate	Y		N Cov	EN12457-3
Moisture Content Ratio at 105C	1.11	% ratio	N Cov	33
Moisture at 105C	1.1	%	N Cov	33
Dry Ratio (BSEN 12457)	98.91	%	N Cov	Calculated

Analyst Comments for 12901690: No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901691**

Sample **5** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Sample Matrix: **Soil - Clay**

Sample Date/Time: **12 March 2012**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Moisture Content Ratio at 105C	25.80	% ratio	N Cov	33
Moisture at 105C	21	%	N Cov	33
Dry Ratio (BSEN 12457)	79.49	%	N Cov	Calculated

Analyst Comments for 12901691:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

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Signed:

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Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901692**

Sample **6** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 09:40**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
EN Leachate 2:1	Y	g	N Cov	EN12457-3 2:1
Boron, Filtered as B	<0.23	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	40.0	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	<0.0020	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	0.063	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	0.007	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	2.50	mg/l	Y Cov	WAS049
Mercury, Total as Hg	<0.0001	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	0.005	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	<0.004	mg/l	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	Y Cov	WAS049
pH	8.0	pH units	Y Cov	WAS039
Total Hardness as CaCO3	110	mg/l	Y Cov	WAS049
Sulphate as SO4	25.6	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
EH >C6 - C40	19	ug/l	Y Cov	GEO35
EH >C6 - C8	<10	ug/l	N Cov	GEO35
EH >C8 - C10	19	ug/l	N Cov	GEO35
EH >C16 - C24	<10	ug/l	N Cov	GEO35
EH >C24 - C40	<10	ug/l	N Cov	GEO35
EH >C10 - C16	<10	ug/l	N Cov	GEO35
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19

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Report Number: **COV/845602/2012**

Laboratory Number: **12901692**

Issue **1**

Sample **6** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP1**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 09:40**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.01	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.01	ug/l	N Cov	GEO19
Arsenic, Filtered as As	0.003	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.002	mg/l	Y Cov	WAS051

Analyst Comments for 12901692:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901693**

Sample **7** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 10:45**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
EN Leachate 2:1	Y	g	N Cov	EN12457-3 2:1
Boron, Filtered as B	<0.23	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	40.4	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	0.0101	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	0.051	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	3.30	mg/l	Y Cov	WAS049
Mercury, Total as Hg	<0.0001	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	0.003	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	0.009	mg/l	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	Y Cov	WAS049
pH	8.4	pH units	Y Cov	WAS039
Total Hardness as CaCO3	115	mg/l	Y Cov	WAS049
Sulphate as SO4	63.5	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
EH >C6 - C40	40	ug/l	Y Cov	GEO35
EH >C6 - C8	<10	ug/l	N Cov	GEO35
EH >C8 - C10	18	ug/l	N Cov	GEO35
EH >C16 - C24	<10	ug/l	N Cov	GEO35
EH >C24 - C40	<10	ug/l	N Cov	GEO35
EH >C10 - C16	22	ug/l	N Cov	GEO35
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19

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Report Number: **COV/845602/2012**

Laboratory Number: **12901693**

Issue **1**

Sample **7** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP3**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 10:45**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.01	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.01	ug/l	N Cov	GEO19
Arsenic, Filtered as As	0.009	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.002	mg/l	Y Cov	WAS051

Analyst Comments for 12901693:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

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Signed:

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Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901694**

Sample **8** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 12:15**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
EN Leachate 2:1	Y	g	N Cov	EN12457-3 2:1
Boron, Filtered as B	<0.23	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	27.8	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	<0.0020	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	0.011	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	5.94	mg/l	Y Cov	WAS049
Mercury, Total as Hg	0.0003	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	0.004	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	<0.004	mg/l	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	Y Cov	WAS049
pH	8.1	pH units	Y Cov	WAS039
Total Hardness as CaCO3	94.2	mg/l	Y Cov	WAS049
Sulphate as SO4	18.4	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
EH >C6 - C40	71	ug/l	Y Cov	GEO35
EH >C6 - C8	<10	ug/l	N Cov	GEO35
EH >C8 - C10	40	ug/l	N Cov	GEO35
EH >C16 - C24	<10	ug/l	N Cov	GEO35
EH >C24 - C40	21	ug/l	N Cov	GEO35
EH >C10 - C16	10	ug/l	N Cov	GEO35
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19

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Report Number: **COV/845602/2012**

Laboratory Number: **12901694**

Issue **1**

Sample **8** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP6**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 12:15**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.04	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.04	ug/l	N Cov	GEO19
Arsenic, Filtered as As	0.0016	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.0017	mg/l	Y Cov	WAS051

Analyst Comments for 12901694:

The reporting limit for Naphthalene has been raised due to interference. Consequently, the reporting limit for PAH total has also been raised.

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

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Signed:

Name: **J. Fell**

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Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901695**

Sample **9** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP7**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 13:00**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
EN Leachate 2:1	Y	g	N Cov	EN12457-3 2:1
Boron, Filtered as B	<0.23	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	59.2	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	0.008	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	0.020	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	1.39	mg/l	Y Cov	WAS049
Mercury, Total as Hg	0.0001	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	0.006	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	0.034	mg/l	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	Y Cov	WAS049
pH	9.8	pH units	Y Cov	WAS039
Total Hardness as CaCO3	154	mg/l	Y Cov	WAS049
Sulphate as SO4	50.1	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
EH >C6 - C40	25	ug/l	Y Cov	GEO35
EH >C6 - C8	<20	ug/l	N Cov	GEO35
EH >C8 - C10	25	ug/l	N Cov	GEO35
EH >C16 - C24	<20	ug/l	N Cov	GEO35
EH >C24 - C40	<20	ug/l	N Cov	GEO35
EH >C10 - C16	<20	ug/l	N Cov	GEO35
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19

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Report Number: **COV/845602/2012**

Laboratory Number: **12901695**

Issue **1**

Sample **9** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP7**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012 13:00**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.02	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.02	ug/l	N Cov	GEO19
Arsenic, Filtered as As	0.026	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.005	mg/l	Y Cov	WAS051

Analyst Comments for 12901695:

The reporting limit for Naphthalene has been raised due to interference. Consequently, the reporting limit for PAH total has also been raised.

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/845602/2012**

Issue **1**

Laboratory Number: **12901696**

Sample **10** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
EN Leachate 2:1	Y	g	N Cov	EN12457-3 2:1
Boron, Filtered as B	<0.23	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	52.9	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	<0.0020	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	<0.009	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	2.91	mg/l	Y Cov	WAS049
Mercury, Total as Hg	<0.0001	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	<0.003	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	<0.004	mg/l	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	Y Cov	WAS049
pH	8.5	pH units	Y Cov	WAS039
Total Hardness as CaCO3	144	mg/l	Y Cov	WAS049
Sulphate as SO4	23.4	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
EH >C6 - C40	16	ug/l	Y Cov	GEO35
EH >C6 - C8	<10	ug/l	N Cov	GEO35
EH >C8 - C10	16	ug/l	N Cov	GEO35
EH >C16 - C24	<10	ug/l	N Cov	GEO35
EH >C24 - C40	<10	ug/l	N Cov	GEO35
EH >C10 - C16	<10	ug/l	N Cov	GEO35
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19

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Report Number: **COV/845602/2012**

Laboratory Number: **12901696**

Issue **1**

Sample **10** of **10**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973/SI TP10**

Sample Matrix: **Leachates from soils**

Sample Date/Time: **12 March 2012**

Sample Received: **12 March 2012**

Analysis Complete: **13 April 2012**

Test Description	Result	Units	Accreditation	Method
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.01	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.01	ug/l	N Cov	GEO19
Arsenic, Filtered as As	<0.0014	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.006	mg/l	Y Cov	WAS051

Analyst Comments for 12901696:

Sub sample taken from PET container for EH due to quality control failure on the original sample taken from the glass container.

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:

Name: **J. Fell**

Date: **13 April 2012**

Title: **Chemistry Operations Manager**

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ANALYST COMMENTS FOR REPORT

COV/845602/2012

Issue 1

Date of Issue: 13 April 2012

Sample No	Analysis Comments
12901687	
12901688	
12901689	
12901690	
12901691	
12901692	
12901693	
12901694	The reporting limit for Naphthalene has been raised due to interference. Consequently, the reporting limit for PAH total has also been raised.
12901695	The reporting limit for Naphthalene has been raised due to interference. Consequently, the reporting limit for PAH total has also been raised.
12901696	Sub sample taken from PET container for EH due to quality control failure on the original sample taken from the glass container.

Signed:



Name: J. Fell

Date: 13 April 2012


Title: Chemistry Operations Manager

DETERMINAND COMMENTS FOR REPORT COV/845602/2012

ISSUE 1

Date of Issue : 13 April 2012

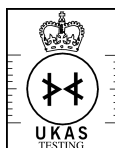
Sample No	Description	Determinand	Comments

Signed: 	Name: J. Fell	Date: 13 April 2012
	Title: Chemistry Operations Manager	

APPENDIX G

LABORATORY CHEMICAL TEST RESULTS (GROUNDWATER)

Report Summary



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Mr Roger Hawkins
Integral Geotechnique
Integral House
Beddau Way
Castlegate Business Park
Caerphilly
Caerphilly
CF83 2AX

Date of Issue: **03 April 2012**

Report Number: **COV/847175/2012**

Issue **1**

Job Description: Integral General Project

Job Location: 10973 Hood Road Barry

Number of Samples
included in this report **3**

Job Received: **19 March 2012**

Number of Test Results
included in this report **561**

Analysis Commenced: **20 March 2012**

Signed:

Name: **J. Fell**

Date: **03 April 2012**

Title: **Chemistry Operations Manager**

Severn Trent Services was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

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Report Number: **COV/847175/2012**

Issue **1**

Laboratory Number: **12913521**

Sample **1** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH1**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 09:30**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Boron, Filtered as B	1.01	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	0.0176	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	996	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	<0.0020	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	<0.009	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	249	mg/l	Y Cov	WAS049
Mercury, Total as Hg	0.0003	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	0.005	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	<0.004	mg/l	Y Cov	WAS049
Zinc, Total as Zn	1.22	mg/l	Y Cov	WAS049
pH	8.1	pH units	Y Cov	WAS039
Total Hardness as CaCO3	3520	mg/l	Y Cov	WAS049
Sulphate as SO4	197	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
Aliphatic VPH >C5 - C6	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<20	ug/l	Y Cov	GEO46
Aliphatic EPH >C12 - C16	<20	ug/l	Y Cov	GEO46
Aliphatic EPH >C16 - C35	<20	ug/l	Y Cov	GEO46
Aliphatic EPH >C35 - C44	<20	ug/l	Y Cov	GEO46

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Report Number: **COV/847175/2012**

Laboratory Number: **12913521**

Issue **1**

Sample **1** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH1**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 09:30**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Aliphatic EPH >C10 - C44	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C10 - C12	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C12 - C16	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C16 - C21	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C21 - C35	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C35 - C44	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C10 - C44	<20	ug/l	Y Cov	GEO46
EPH >C10 - C44	<20	ug/l	Y Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<20	ug/l	Y Cov	GEO45/GEO46
Aromatic VPH/EPH >C5 - C44	<20	ug/l	Y Cov	GEO45/GEO46
VPH/EPH >C5 - C44	<20	ug/l	Y Cov	GEO45/GEO46
Acenaphthene	0.024	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	0.011	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	0.018	ug/l	Y Cov	GEO19
Phenanthrene	0.016	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	0.069	ug/l	N Cov	GEO19
VOC	Y	ug/l	Y Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	Y Cov	GEO32
Chloromethane	<1.0	ug/l	Y Cov	GEO32
Chloroethane	<1.0	ug/l	Y Cov	GEO32

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Report Number: **COV/847175/2012**

Laboratory Number: **12913521**

Issue **1**

Sample **1** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH1**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 09:30**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Bromomethane	<1.0	ug/l	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Chloroform	<1.0	ug/l	Y Cov	GEO32
Bromochloromethane	<1.0	ug/l	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	Y Cov	GEO32
Benzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
Toluene	<1.0	ug/l	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	Y Cov	GEO32
o-Xylene	<1.0	ug/l	Y Cov	GEO32

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Report Number: **COV/847175/2012**

Laboratory Number: **12913521**

Issue **1**

Sample **1** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH1**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 09:30**

Sample Received: **19 March 2012**

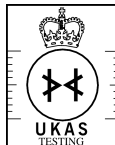
Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Styrene	<1.0	ug/l	Y Cov	GEO32
Bromoform	<1.0	ug/l	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	Y Cov	GEO32
1,3,5-Trimethylbenzene	<1.0	ug/l	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	Y Cov	GEO32
Naphthalene	<1.0	ug/l	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO32
MTBE	<1.0	ug/l	Y Cov	GEO32
Dibromofluoromethane	99.3	%Recovery	N Cov	GEO32
Toluene-d8	99.3	%Recovery	N Cov	GEO32
4-Bromofluorobenzene	90.4	%Recovery	N Cov	GEO32
SVOC	y	ug/l	Y Cov	GEO40
Phenol	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	Y Cov	GEO40

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Report Number: **COV/847175/2012**

Laboratory Number: **12913521**

Issue **1**

Sample **1** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH1**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 09:30**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
1,3-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	Y Cov	GEO40
Nitrobenzene	10.9	ug/l	Y Cov	GEO40
Isophorone	<1.0	ug/l	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO40
Naphthalene	<2.0	ug/l	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	Y Cov	GEO40
Fluorene	<1.0	ug/l	Y Cov	GEO40

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Report Number: **COV/847175/2012**

Laboratory Number: **12913521**

Issue **1**

Sample **1** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH1**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 09:30**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Diphenylamine	<1.0	ug/l	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	Y Cov	GEO40
Anthracene	<1.0	ug/l	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	Y Cov	GEO40
Pyrene	<1.0	ug/l	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	Y Cov	GEO40
Chrysene	<1.0	ug/l	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	Y Cov	GEO40
2-Fluorophenol	100.2	%Recovery	N Cov	GEO40
Phenol-d6	80.0	%Recovery	N Cov	GEO40
Nitrobenzene-d5	102.6	%Recovery	N Cov	GEO40
2-Fluorobiphenyl	109.1	%Recovery	N Cov	GEO40
2,4,6-Tribromophenol	77.5	%Recovery	N Cov	GEO40
Terphenyl-d14	104.4	%Recovery	N Cov	GEO40
Arsenic, Filtered as As	<0.0014	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.0051	mg/l	Y Cov	WAS051

Analyst Comments for 12913521:

No Analyst Comment

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Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed: 

Name: **J. Fell**

Date: **03 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/847175/2012**

Issue **1**

Laboratory Number: **12913522**

Sample **2** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH2**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 10:15**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Boron, Filtered as B	1.02	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	105	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	<0.0020	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	<0.009	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	201	mg/l	Y Cov	WAS049
Mercury, Total as Hg	<0.0001	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	<0.003	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	<0.004	mg/l	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	Y Cov	WAS049
pH	7.9	pH units	Y Cov	WAS039
Total Hardness as CaCO ₃	1100	mg/l	Y Cov	WAS049
Sulphate as SO ₄	525	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	<0.029	mg/l	Y Cov	WAS033
Aliphatic VPH >C5 - C6	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	Y Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	Y Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	Y Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	Y Cov	GEO46

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Report Number: **COV/847175/2012**

Laboratory Number: **12913522**

Issue **1**

Sample **2** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH2**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 10:15**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Aliphatic EPH >C10 - C44	<10	ug/l	Y Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	Y Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	Y Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	Y Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	Y Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	Y Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	Y Cov	GEO46
EPH >C10 - C44	<10	ug/l	Y Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	Y Cov	GEO45/GEO46
Aromatic VPH/EPH >C5 - C44	<10	ug/l	Y Cov	GEO45/GEO46
VPH/EPH >C5 - C44	<10	ug/l	Y Cov	GEO45/GEO46
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.01	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.01	ug/l	N Cov	GEO19
VOC	Y	ug/l	Y Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	Y Cov	GEO32
Chloromethane	<1.0	ug/l	Y Cov	GEO32
Chloroethane	<1.0	ug/l	Y Cov	GEO32

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Report Number: **COV/847175/2012**

Laboratory Number: **12913522**

Issue **1**

Sample **2** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH2**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 10:15**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Bromomethane	<1.0	ug/l	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Chloroform	<1.0	ug/l	Y Cov	GEO32
Bromochloromethane	<1.0	ug/l	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	Y Cov	GEO32
Benzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
Toluene	<1.0	ug/l	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	Y Cov	GEO32
o-Xylene	<1.0	ug/l	Y Cov	GEO32

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Report Number: **COV/847175/2012**

Laboratory Number: **12913522**

Issue **1**

Sample **2** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH2**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 10:15**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Styrene	<1.0	ug/l	Y Cov	GEO32
Bromoform	<1.0	ug/l	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	Y Cov	GEO32
1,3,5-Trimethylbenzene	<1.0	ug/l	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	Y Cov	GEO32
Naphthalene	<1.0	ug/l	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO32
MTBE	<1.0	ug/l	Y Cov	GEO32
Dibromofluoromethane	99.1	%Recovery	N Cov	GEO32
Toluene-d8	99.1	%Recovery	N Cov	GEO32
4-Bromofluorobenzene	88.0	%Recovery	N Cov	GEO32
SVOC	y	ug/l	Y Cov	GEO40
Phenol	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	Y Cov	GEO40

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Report Number: **COV/847175/2012**

Laboratory Number: **12913522**

Issue **1**

Sample **2** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH2**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 10:15**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
1,3-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	Y Cov	GEO40
Isophorone	<1.0	ug/l	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO40
Naphthalene	<2.0	ug/l	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	Y Cov	GEO40
Fluorene	<1.0	ug/l	Y Cov	GEO40

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Report Number: **COV/847175/2012**

Laboratory Number: **12913522**

Issue **1**

Sample **2** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH2**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 10:15**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Diphenylamine	<1.0	ug/l	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	Y Cov	GEO40
Anthracene	<1.0	ug/l	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	Y Cov	GEO40
Pyrene	<1.0	ug/l	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	Y Cov	GEO40
Chrysene	<1.0	ug/l	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	Y Cov	GEO40
2-Fluorophenol	104.3	%Recovery	N Cov	GEO40
Phenol-d6	90.3	%Recovery	N Cov	GEO40
Nitrobenzene-d5	104.7	%Recovery	N Cov	GEO40
2-Fluorobiphenyl	105.3	%Recovery	N Cov	GEO40
2,4,6-Tribromophenol	80.9	%Recovery	N Cov	GEO40
Terphenyl-d14	106.6	%Recovery	N Cov	GEO40
Arsenic, Filtered as As	0.0015	mg/l	Y Cov	WAS051
Selenium, Total as Se	<0.0016	mg/l	Y Cov	WAS051

Analyst Comments for 12913522:

No Analyst Comment

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Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:



Name: **J. Fell**

Date: **03 April 2012**

Title: **Chemistry Operations Manager**

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Report Number: **COV/847175/2012**

Issue **1**

Laboratory Number: **12913523**

Sample **3** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH3**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 11:00**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Boron, Filtered as B	0.24	mg/l	Y Cov	WAS049
Cadmium , Total as Cd	0.0007	mg/l	Y Cov	WAS049
Cadmium, Filtered as Cd	<0.0006	mg/l	Y Cov	WAS049
Calcium , Total as Ca	621	mg/l	Y Cov	WAS049
Chromium, Filtered as Cr	<0.0020	mg/l	Y Cov	WAS049
Copper, Filtered as Cu	<0.009	mg/l	Y Cov	WAS049
Lead, Filtered as Pb	<0.006	mg/l	Y Cov	WAS049
Magnesium, Total as Mg	16.7	mg/l	Y Cov	WAS049
Mercury, Total as Hg	<0.0001	mg/l	Y Cov	WAS013
Nickel, Filtered as Ni	0.004	mg/l	Y Cov	WAS049
Vanadium, Filtered as V	<0.004	mg/l	Y Cov	WAS049
Zinc, Total as Zn	0.07	mg/l	Y Cov	WAS049
pH	7.6	pH units	Y Cov	WAS039
Total Hardness as CaCO3	1620	mg/l	Y Cov	WAS049
Sulphate as SO4	76.1	mg/l	Y Cov	WAS036
Cyanide, Total as CN	<0.009	mg/l	Y Cov	WAS018
Phenols Mono (Phenol Index)	<0.15	mg/l	Y Cov	WAS019
Sulphide as S	0.301	mg/l	Y Cov	WAS033
Aliphatic VPH >C5 - C6	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<20	ug/l	Y Cov	GEO46
Aliphatic EPH >C12 - C16	<20	ug/l	Y Cov	GEO46
Aliphatic EPH >C16 - C35	<20	ug/l	Y Cov	GEO46
Aliphatic EPH >C35 - C44	<20	ug/l	Y Cov	GEO46

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Report Number: **COV/847175/2012**

Laboratory Number: **12913523**

Issue **1**

Sample **3** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH3**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 11:00**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Aliphatic EPH >C10 - C44	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C10 - C12	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C12 - C16	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C16 - C21	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C21 - C35	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C35 - C44	<20	ug/l	Y Cov	GEO46
Aromatic EPH >C10 - C44	<20	ug/l	Y Cov	GEO46
EPH >C10 - C44	<20	ug/l	Y Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<20	ug/l	Y Cov	GEO45/GEO46
Aromatic VPH/EPH >C5 - C44	<20	ug/l	Y Cov	GEO45/GEO46
VPH/EPH >C5 - C44	<20	ug/l	Y Cov	GEO45/GEO46
Acenaphthene	<0.01	ug/l	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	Y Cov	GEO19
Anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	Y Cov	GEO19
Chrysene	<0.01	ug/l	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	Y Cov	GEO19
Fluorene	<0.01	ug/l	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	Y Cov	GEO19
Naphthalene	<0.01	ug/l	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	Y Cov	GEO19
Pyrene	<0.01	ug/l	Y Cov	GEO19
PAH, Total	<0.01	ug/l	N Cov	GEO19
VOC	Y	ug/l	Y Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	Y Cov	GEO32
Chloromethane	<1.0	ug/l	Y Cov	GEO32
Chloroethane	<1.0	ug/l	Y Cov	GEO32

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Report Number: **COV/847175/2012**

Laboratory Number: **12913523**

Issue **1**

Sample **3** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH3**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 11:00**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Bromomethane	<1.0	ug/l	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Chloroform	<1.0	ug/l	Y Cov	GEO32
Bromochloromethane	<1.0	ug/l	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	Y Cov	GEO32
Benzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
Toluene	<1.0	ug/l	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	Y Cov	GEO32
Carbon Tetrachloride	1.5	ug/l	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	Y Cov	GEO32
o-Xylene	<1.0	ug/l	Y Cov	GEO32

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Report Number: **COV/847175/2012**

Laboratory Number: **12913523**

Issue **1**

Sample **3** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH3**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 11:00**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Styrene	<1.0	ug/l	Y Cov	GEO32
Bromoform	<1.0	ug/l	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	Y Cov	GEO32
1,3,5-Trimethylbenzene	<1.0	ug/l	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	Y Cov	GEO32
Naphthalene	<1.0	ug/l	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO32
MTBE	<1.0	ug/l	Y Cov	GEO32
Dibromofluoromethane	98.6	%Recovery	N Cov	GEO32
Toluene-d8	98.2	%Recovery	N Cov	GEO32
4-Bromofluorobenzene	89.7	%Recovery	N Cov	GEO32
SVOC	y	ug/l	Y Cov	GEO40
Phenol	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	Y Cov	GEO40

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Report Number: **COV/847175/2012**

Laboratory Number: **12913523**

Issue **1**

Sample **3** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH3**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 11:00**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
1,3-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	Y Cov	GEO40
Isophorone	<1.0	ug/l	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	Y Cov	GEO40
Naphthalene	<2.0	ug/l	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	Y Cov	GEO40
Fluorene	<1.0	ug/l	Y Cov	GEO40

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Report Number: **COV/847175/2012**

Laboratory Number: **12913523**

Issue **1**

Sample **3** of **3**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **10973 BH3**

Sample Matrix: **Ground waters**

Sample Date/Time: **19 March 2012 11:00**

Sample Received: **19 March 2012**

Analysis Complete: **03 April 2012**

Test Description	Result	Units	Accreditation	Method
Diphenylamine	<1.0	ug/l	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	Y Cov	GEO40
Pentachlorophenol	<5.0	ug/l	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	Y Cov	GEO40
Anthracene	<1.0	ug/l	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	Y Cov	GEO40
Pyrene	<1.0	ug/l	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	Y Cov	GEO40
Chrysene	<1.0	ug/l	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	Y Cov	GEO40
2-Fluorophenol	84.3	%Recovery	N Cov	GEO40
Phenol-d6	83.2	%Recovery	N Cov	GEO40
Nitrobenzene-d5	97.7	%Recovery	N Cov	GEO40
2-Fluorobiphenyl	98.5	%Recovery	N Cov	GEO40
2,4,6-Tribromophenol	91.0	%Recovery	N Cov	GEO40
Terphenyl-d14	100.1	%Recovery	N Cov	GEO40
Arsenic, Filtered as As	<0.0014	mg/l	Y Cov	WAS051
Selenium, Total as Se	0.0025	mg/l	Y Cov	WAS051

Analyst Comments for 12913523:

Raised reporting limits for Pentachlorophenol due to interferences.

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Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS.

Analysed at: Brd = Bridgend, Cov = Coventry, Rea = Reading, Run = Runcorn, S = Subcontracted, Wak = Wakefield.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample

Signed:



Name: **J. Fell**

Date: **03 April 2012**

Title: **Chemistry Operations Manager**

ANALYST COMMENTS FOR REPORT

COV/847175/2012

Issue 1

Date of Issue: 03 April 2012

Sample No	Analysis Comments
12913521	
12913522	
12913523	Raised reporting limits for Pentachlorophenol due to interferences.

Signed:



Name: J. Fell

Date: 03 April 2012


Title: Chemistry Operations Manager

DETERMINAND COMMENTS FOR REPORT COV/847175/2012

ISSUE 1

Date of Issue : 03 April 2012

Sample No	Description	Determinand	Comments

Signed: 	Name: J. Fell	Date: 03 April 2012
	Title: Chemistry Operations Manager	

APPENDIX H

GEOTECHNICAL TEST RESULTS



Laboratory Report



Contract Number: 15510

Client's Reference: 10973

Report Date: 02-04-2012

Client Name: Integral Geotechnique (Wales) Limited
7 Beddau Way,
Castlegate Business Park,
Caerphilly,
Cardiff,

CF83 2AX

Contract Title: Hood Road, Barry
For the attention of: Stefan Imiolczyk

Date Received: 19-03-2012
Date Commenced: 19-03-2012
Date Completed: 24-04-2012

Test Description	Quantity	Checked	Approved
Moisture Content 1377 : 1990 Part 2 : 3.2 *	2		
4 Point Liquid & Plastic Limit 1377 : 1990 Part 2 : 4.3 & 5.3 *	2		
PSD Wet Sieve method 1377 : 1990 Part 2 : 9.2 *	6		
One-dimensional Consolidation 75mm or 50mm diameter specimens (5 days) 1377 : 1990 Part 5 : 3 *	2		
Water Soluble Sulphate 2:1 extract 1377 : 1990 Part 3 : 5	9		
CUD 100mm Consolidated undrained triaxial compression test on a Single Specimen with Multistage Loading with the measurement of pore water pressure including saturation and consolidation, test duration FOUR days. 1377 : 1990	2		

Notes:
Observations and Interpretations are outside the UKAS Accreditation
* - Denotes test included in laboratory scope of accreditation
- Denotes test carried out by approved contractor

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Approved Signatories:

Paul Evans (Quality Manager), Emma Williams (Office Manager),
Benjamin Sharp (Laboratory Coordinator), Alex Wynn (Business Development Manager).

Client ref: 10973/SI
Location: Hood Road, Barry
Contract Number: 15510-190312

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



Checked By

DP Gang

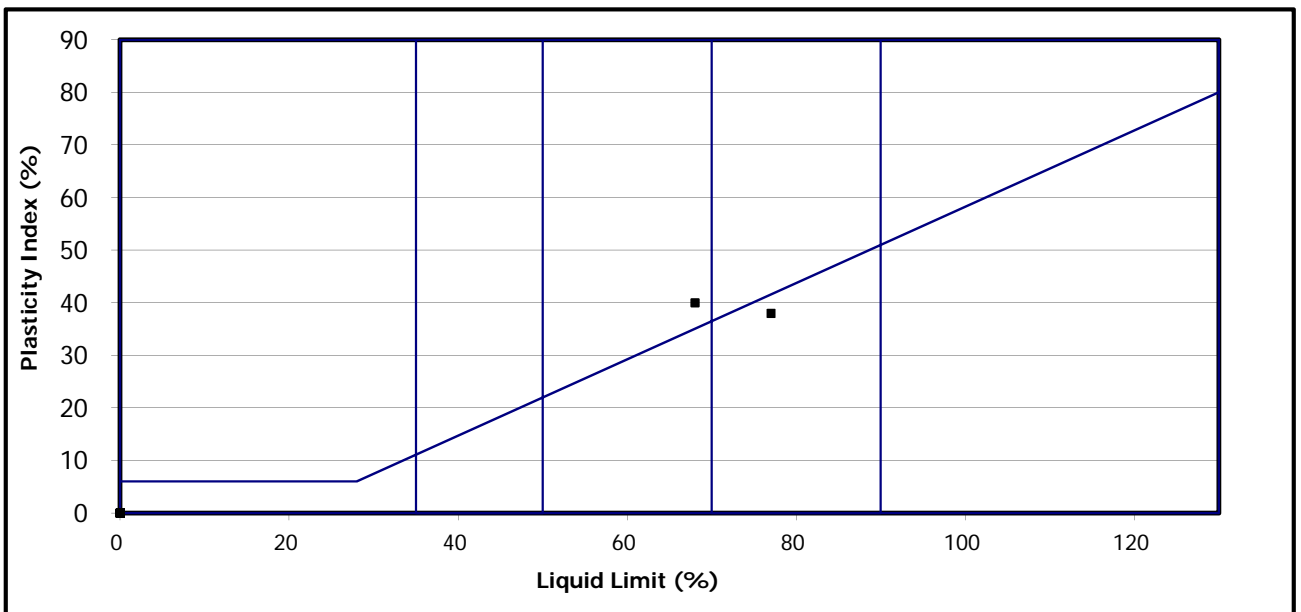
Date Approved: **4.4.12**

Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5

Client ref: 10973
Location: Hood Road, Barry
Contract Number: 15510-190312

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH1	U	5.00 - 5.45	49	77	39	38	100	MV Very High Plasticity
BH1	U	8.00 - 8.45	36	68	28	40	95	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
 PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.
 BS 5930:1999+A2:2010



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 Checked By

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 Approved By:

Date Approved: 24.12

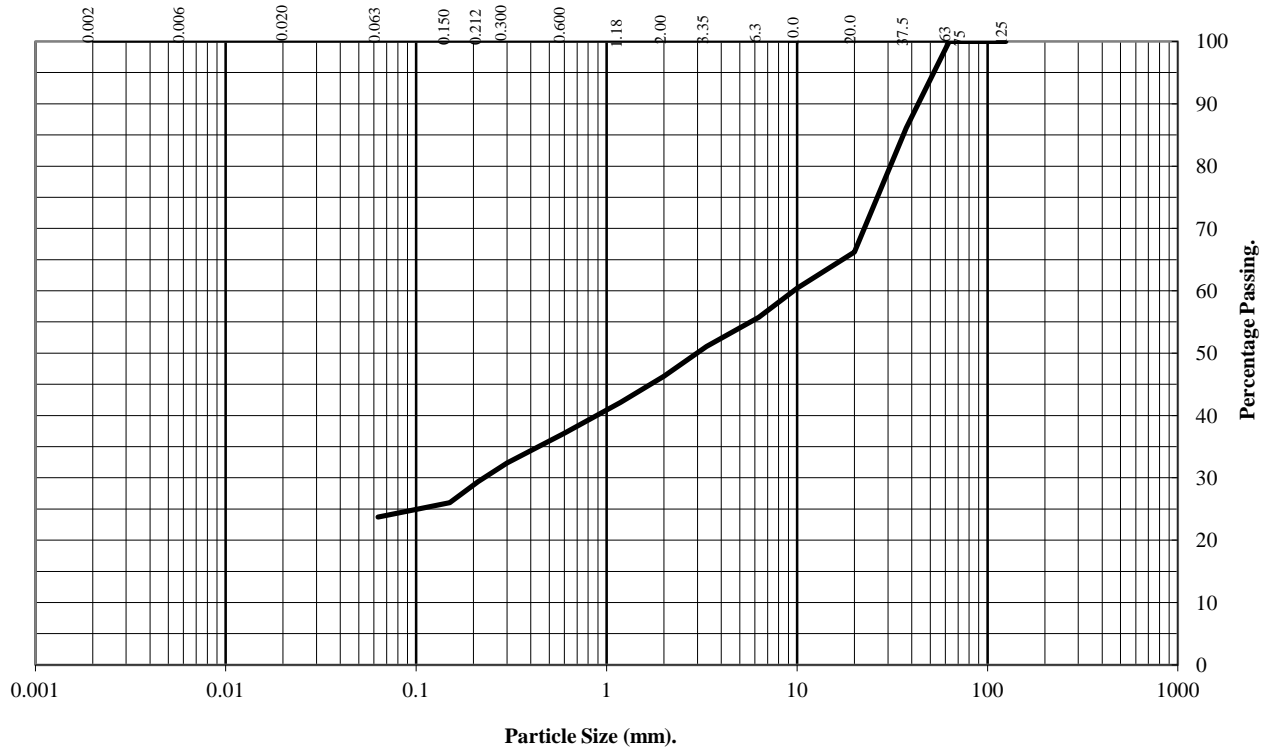


PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP1** Type: **B** Depth (m): **1.00**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	86
20	66
10	60
6.3	56
3.35	51
2.00	46
1.18	42
0.60	37
0.300	32
0.212	29
0.150	26
0.063	24

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	54
Sand	22
Silt and Clay	24

Remarks:

#- not determined

[Signature]

04/04/2012

Checked by

Date

[Signature]

04/04/2012

Approved by

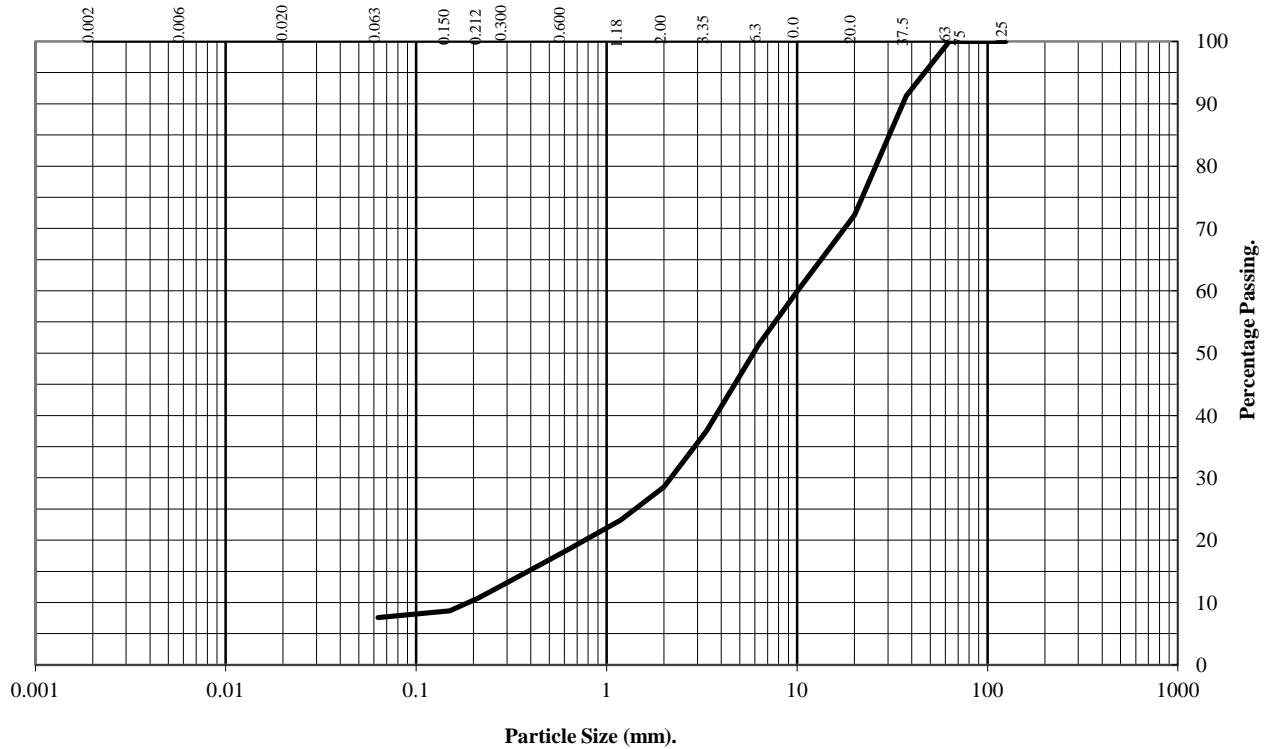
Date

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP3** Type: **B** Depth (m): **1.60**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	91
20	72
10	60
6.3	51
3.35	38
2.00	29
1.18	23
0.60	18
0.300	13
0.212	11
0.150	9
0.063	8

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	71
Sand	21
Silt and Clay	8

Remarks:

#- not determined

[Signature]

04/04/2012

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Date

[Signature]

04/04/2012

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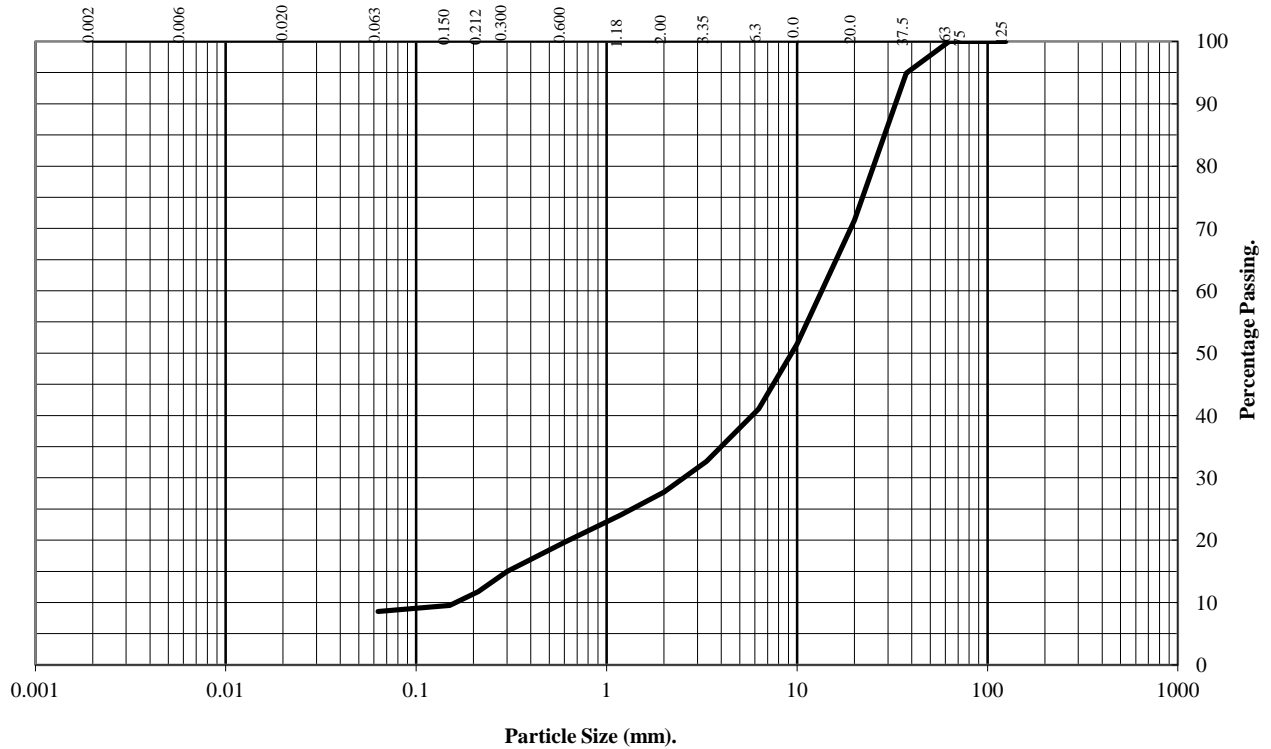
Date

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP5** Type: **B** Depth (m): **1.00**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	95
20	71
10	51
6.3	41
3.35	33
2.00	28
1.18	24
0.60	20
0.300	15
0.212	12
0.150	10
0.063	9

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	72
Sand	19
Silt and Clay	9

Remarks:

#- not determined

[Signature]

04/04/2012

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Date

[Signature]

04/04/2012

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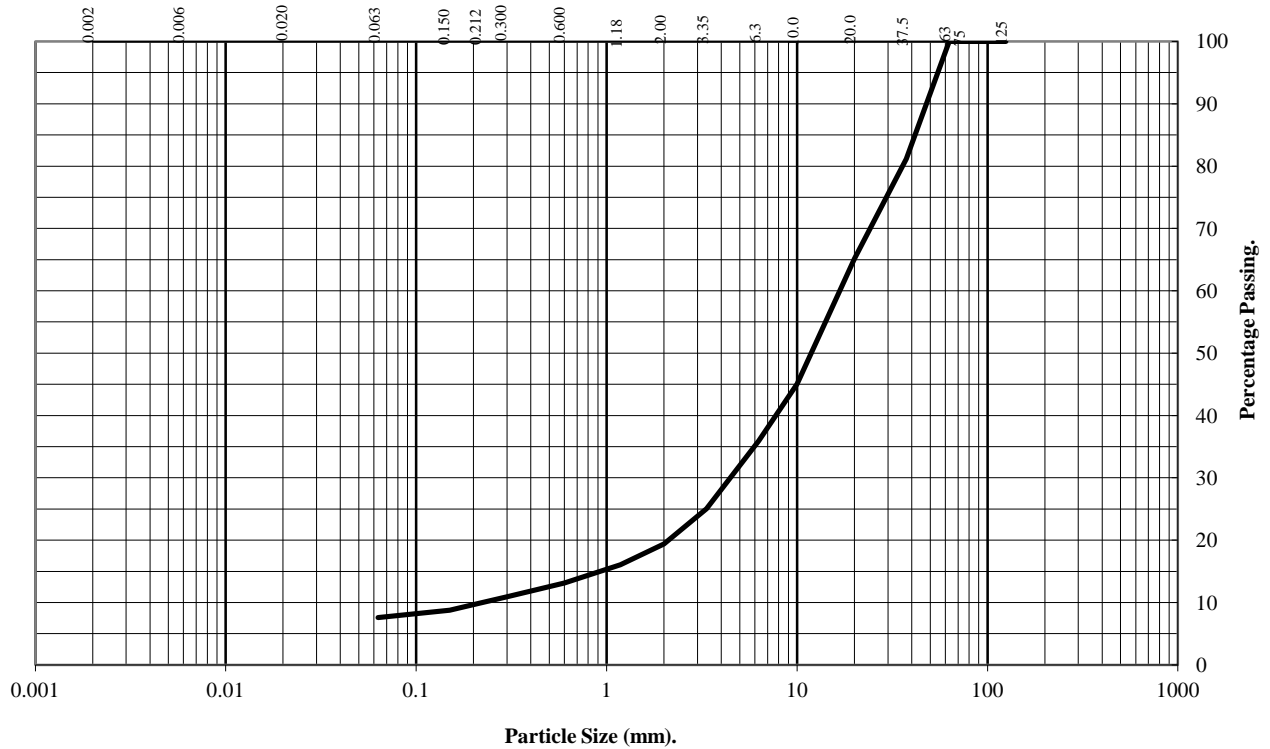
Date

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP6** Type: **B** Depth (m): **1.50**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	81
20	65
10	45
6.3	36
3.35	25
2.00	19
1.18	16
0.60	13
0.300	11
0.212	10
0.150	9
0.063	8

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	81
Sand	11
Silt and Clay	8

Remarks:

#- not determined

[Signature]

04/04/2012

Checked by

Date

[Signature]

04/04/2012

Approved by

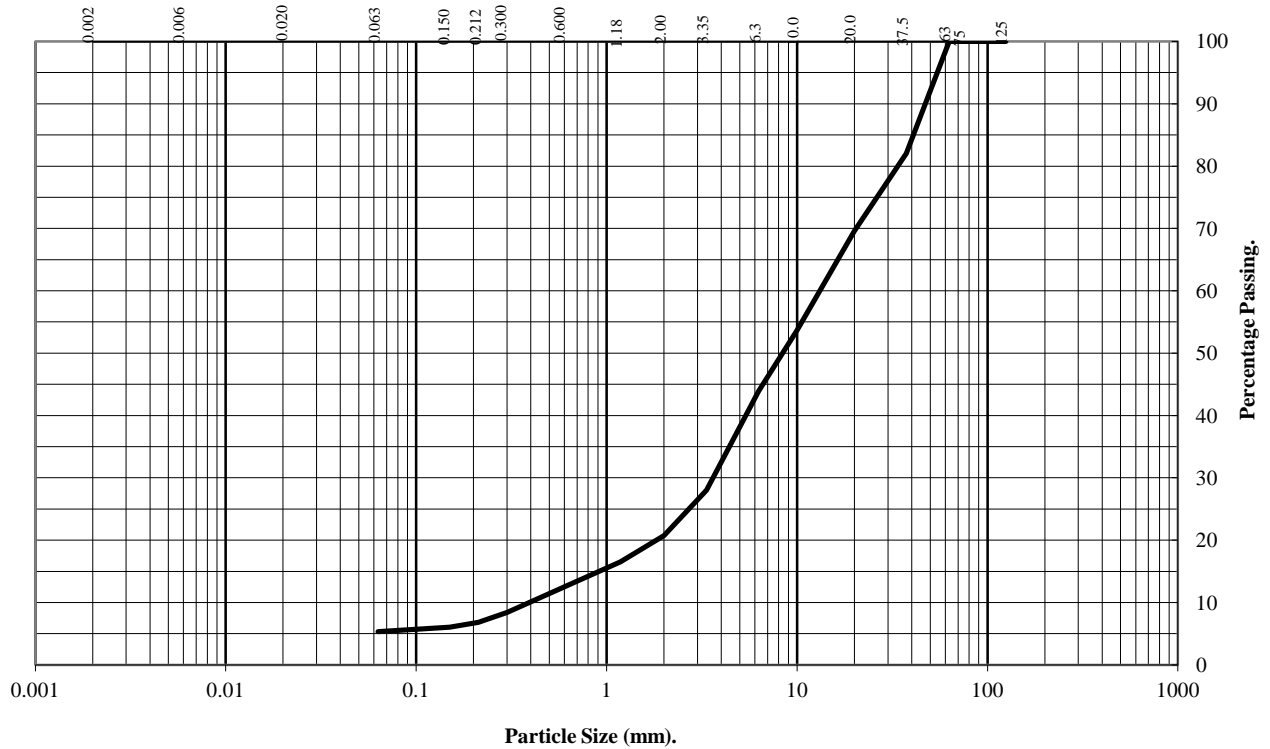
Date

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP8** Type: **B** Depth (m): **2.00**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	82
20	70
10	54
6.3	44
3.35	28
2.00	21
1.18	17
0.60	12
0.300	8
0.212	7
0.150	6
0.063	5

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	79
Sand	16
Silt and Clay	5

Remarks:

#- not determined

[Signature]

04/04/2012

Checked by

Date

[Signature]

04/04/2012

Approved by

Date

PARTICLE SIZE DISTRIBUTION TEST

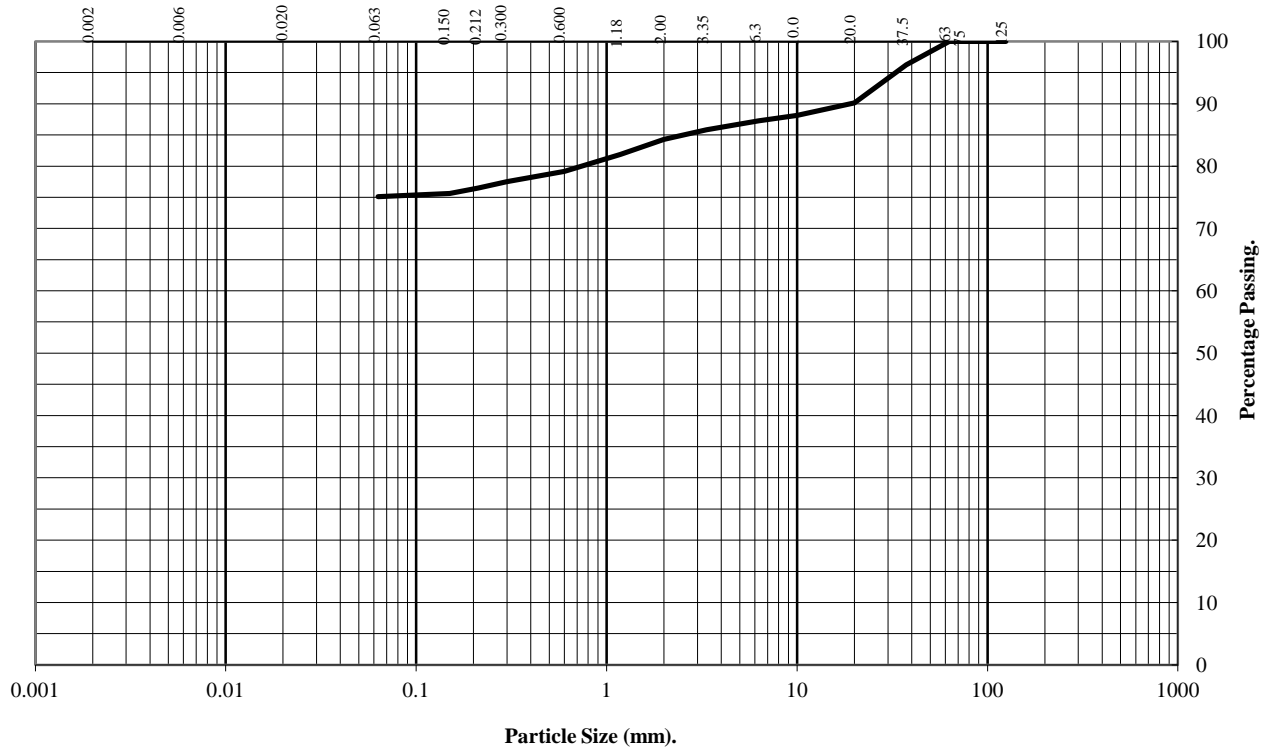
BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP10**

Type: **B**

Depth (m): **1.00**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	96
20	90
10	88
6.3	87
3.35	86
2.00	84
1.18	82
0.60	79
0.300	77
0.212	76
0.150	76
0.063	75

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	16
Sand	9
Silt and Clay	75

Remarks:

#- not determined

[Signature]

04/04/2012

Checked by

Date

[Signature]

04/04/2012

Approved by

Date



Unit 4
Heol Aur
Dafen Ind Estate
Dafen
Carmarthenshire
SA14 8QN
Tel: 01554 784040
01554 750752
Fax: 01554 770529
01554 784041
Web: www.geo.uk.com

Certificate of Analysis

Date: 2/4/2012

Client: Integral

Our Reference: 15510-190312

Client Reference: 10973

Contract Title: Land At Hood Road, Barry

Description: (Total Samples) 9

Date Received: 19/3/2012

Date Started: 23/3/2012

Date Completed: 1/4/2012

Test Procedures: (B.S. 1377 : PART 3 : 1990)


Notes:


Solid samples will be disposed 1 month and liquids 2 weeks

Approved By:

Authorised Signatories:

Emma Williams
Laboratory Office Manager


Wayne Honey
Laboratory Technician


Paul Evans
Quality Manager

Contract No: 15510-190312
Client Ref: 10973
Location: Land At Hood Road, Barry
Date: 01/04/2012



SUMMARY OF CHEMICAL ANALYSIS

(B.S. 1377 : PART 3 : 1990)

[illegible]

NCP - No Chloride present

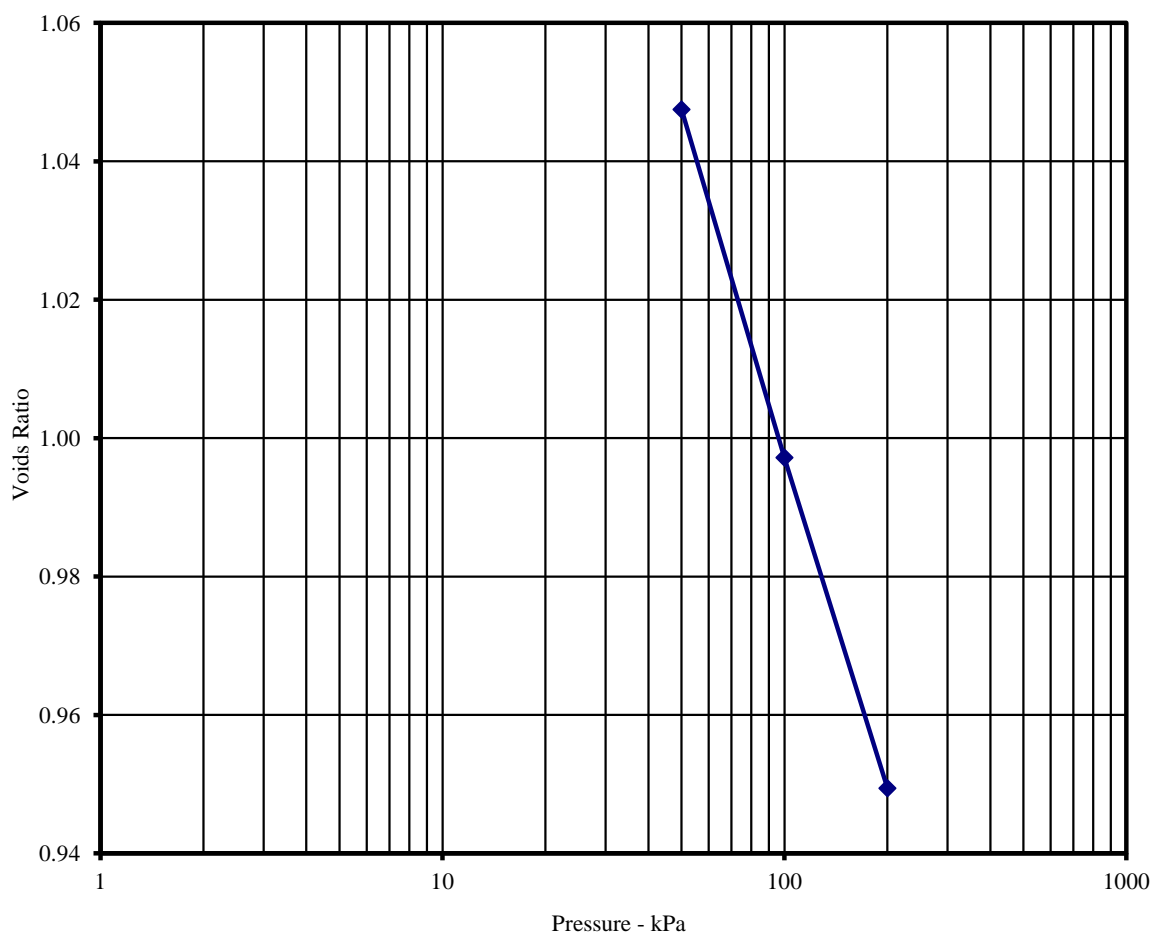
ONE DIMENSIONAL CONSOLIDATION

BS1377: Part 5: 1990

Hole Number: **BH1**

Depth (m): **5.00-5.45**

Initial Conditions		Pressure Range	Mv	Cv	Method of time fitting used
Moisture Content (%):	51	kPa	m2/MN	m2/yr	Cv Calculated using t90
Bulk Density (Mg/m3):	1.91	0 - 50	0.494	10.667	Nominal Laboratory Temperature
Dry Density (Mg/m3):	1.26	50 - 100	0.491	16.398	20°C
Voids Ratio:	1.0994	100 - 200	0.239	16.469	Location of specimen with sample
Degree of saturation:	123.6				Top
Height (mm):	19.95				Remarks:
Diameter (mm)	75.12				
Particle Density (Mg/m3):	2.65				
Assumed					



B. Sharp

Checked By

26/03/12

Date

D. P. Gnan

Approved By

26/3/12

Date

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Land at Hood Road, Barry

Contract No.
15510-190312
Client Ref No.
10973/SI



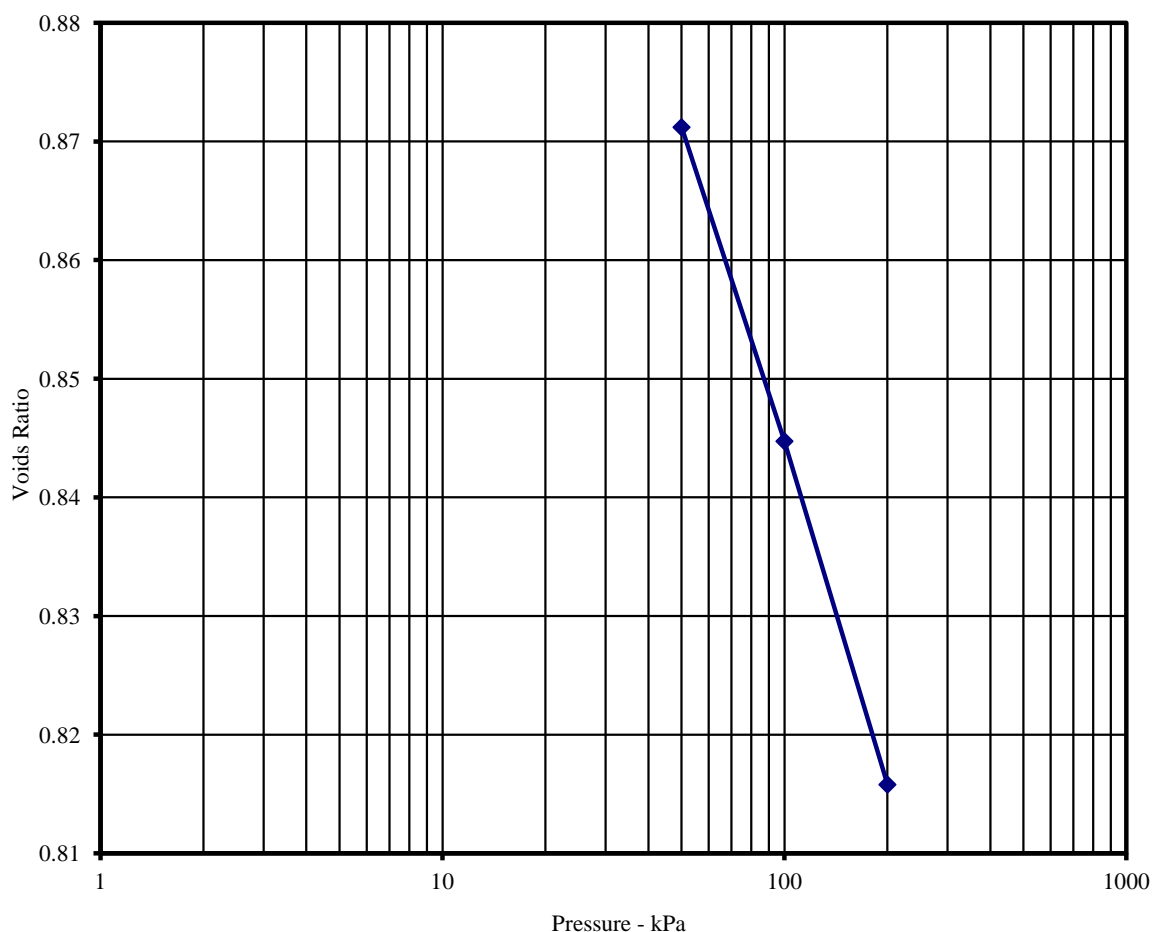
ONE DIMENSIONAL CONSOLIDATION

BS1377: Part 5: 1990

Hole Number: **BH1**

Depth (m): **8.00-8.45**

Initial Conditions		Pressure Range	Mv	Cv	Method of time fitting used
Moisture Content (%):	39	kPa	m2/MN	m2/yr	Cv Calculated using t90
Bulk Density (Mg/m3):	1.93	0 - 50	0.294	10.775	Nominal Laboratory Temperature
Dry Density (Mg/m3):	1.40	50 - 100	0.283	16.914	20°C
Voids Ratio:	0.8991	100 - 200	0.157	17.314	Location of specimen with sample
Degree of saturation:	113.9				Top
Height (mm):	19.95				Remarks:
Diameter (mm)	75.12				
Particle Density (Mg/m3):	2.65				
Assumed					



B. Shep

Checked By

26/03/12

Date

D P Gnan

Approved By

26/3/12

Date

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GEO Site & Testing Services Limited

Land at Hood Road, Barry

Contract No.
15510-190312
Client Ref No.
10973/SI



Consolidated Undrained Triaxial Compression Test
BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH2
Sample No.	
Depth	5.00-5.45
Date	18/04/2012
Disturbed / Undisturbed	undisturbed

Description of Specimen

Brown silty sandy Clay.

Initial Specimen Conditions

Height	mm	206.00
Diameter	mm	102.00
Area	mm ²	8171.28
Volume	cm ³	1683.28
Mass	g	3245.40
Dry Mass	g	2145.20
Density	Mg/m ³	1.93
Dry Density	Mg/m ³	1.27
Moisture Content	%	51
Specific Gravity	kN/m ³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	49
Density	Mg/m ³	1.94
Dry Density	Mg/m ³	1.30



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24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

15510 - 190312

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH2
Sample No.	
Depth	5.00-5.45
Date	18/04/2012

Test Setup

Date started	24/03/2012
Date Finished	12/04/2012
Top Drain Used	y
Base Drain Used	y
Side Drains Used	y
Pressure System Number	P4
Cell Number	C4

Saturation

Cell Pressure Incr.	kPa	100.00
Back Pressure Incr.	kPa	95.00
Differential Pressure	kPa	5.00
Final Cell Pressure	kPa	500.00
Final Pore Pressure	kPa	487.00
Final B Value		1.00

Consolidation

Effective Pressure	kPa	50.00	100.00	200.00
Cell Pressure	kPa	500.00	500.00	500.00
Back Pressure	kPa	450.00	400.00	300.00
Excess Pore Pressure	kPa	50.00	100.00	200.00
Pore Pressure at End	kPa	450.00	400.00	300.00
Consolidated Volume	cm ³	1674.58	1662.98	1646.08
Consolidated Height	mm	205.65	197.04	189.42
Consolidated Area	mm ²	8143.13	8439.75	8690.32
Vol. Compressibility	m ² /MN	0.01149	0.01732	0.03387
Consolidation Coef.	m ² /yr.	10.86324	3.45681	2.26784



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Client Ref



Land at Hood Road, Barry

Contract No

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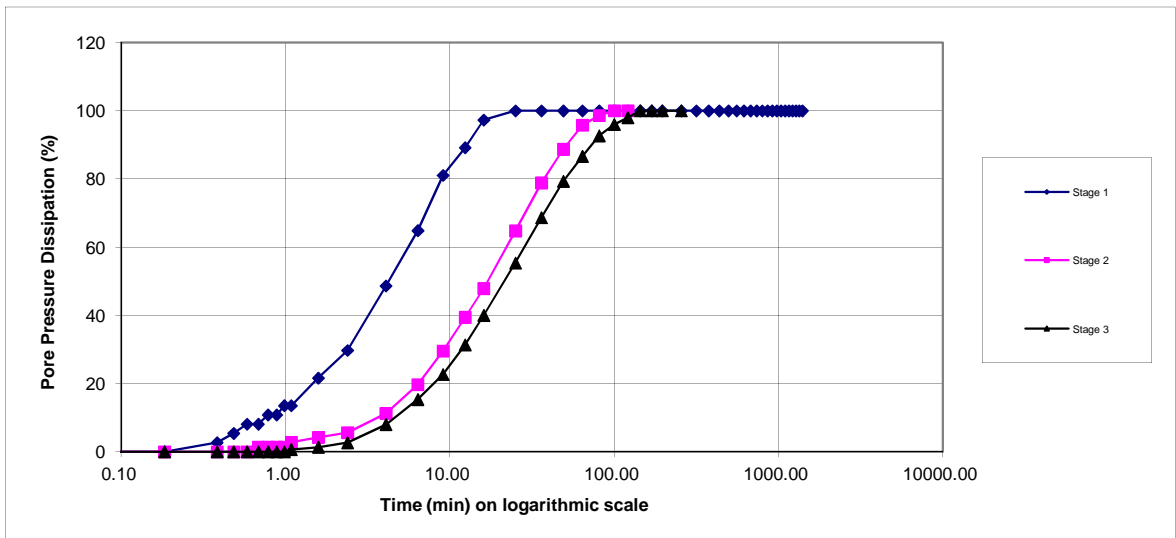
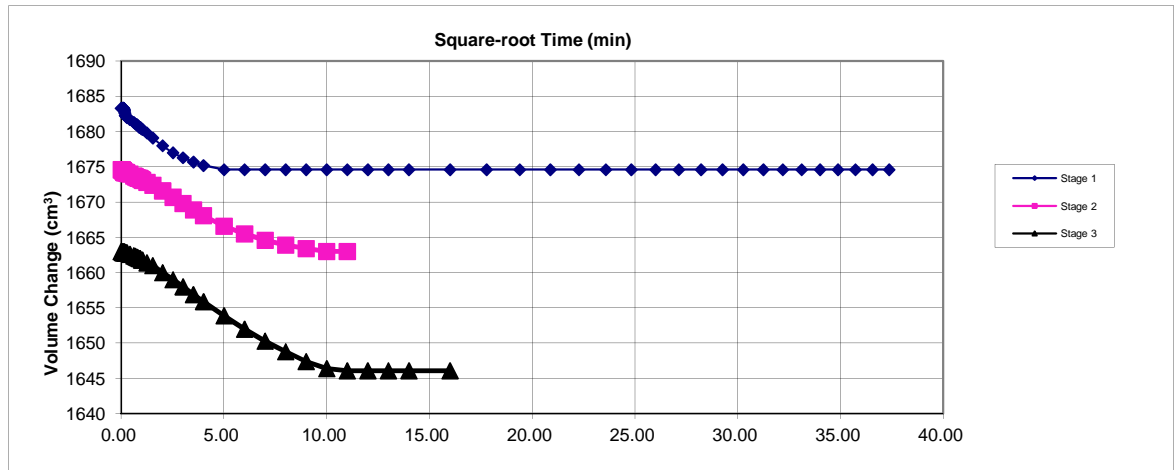
Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH2
Sample No.	
Depth	m 5.00-5.45
Date	18/04/2012

Consolidation Stage



DP Gans

Checked and Approved By

24/04/12

Date

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Geo Site & Testing Services Limited

Land at Hood Road, Barry

Contract No

15510 - 190312

Consolidated Undrained Triaxial Compression Test
BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH2
Sample No.	
Depth	m 5.00-5.45
Date	18/04/2012

Shearing

Initial Cell Pressure	kPa	500	500	500
Initial Pore Pressure	kPa	450	400	300
Rate of Strain	mm/min	0.0857	0.0690	0.0435
Max Deviator Stress				
Axial Strain		4.697	7.498	10.363
Axial Stress	kPa	114.389	177.99	301.13
Cor. Deviator stress	kPa	111.381	173.69	296.69
Effective Major Stress	kPa	154.381	245.69	423.69
Effective Minor Stress	kPa	44.000	72.00	127.00
Effective Stress Ratio		3.509	3.412	3.34
s'	kPa	99.191	158.85	275.34
t'	kPa	55.191	86.85	148.34
Max Effective Principle Stress Ratio				
Axial Strain		3.516	6.280	8.552
Axial Stress	kPa	113.888	171.467	277.171
Cor. Deviator stress	kPa	109.970	167.300	272.837
Effective Major Stress	kPa	148.970	231.300	380.837
Effective Minor Stress	kPa	39.000	64.000	108.000
Effective Stress Ratio		3.820	3.614	3.526
s'	kPa	93.985	147.650	244.418
t'	kPa	54.985	83.650	136.418
Shear Resistance Angle	degs	32.0		
Cohesion c'	kPa	8		

D P Gons

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Contract No

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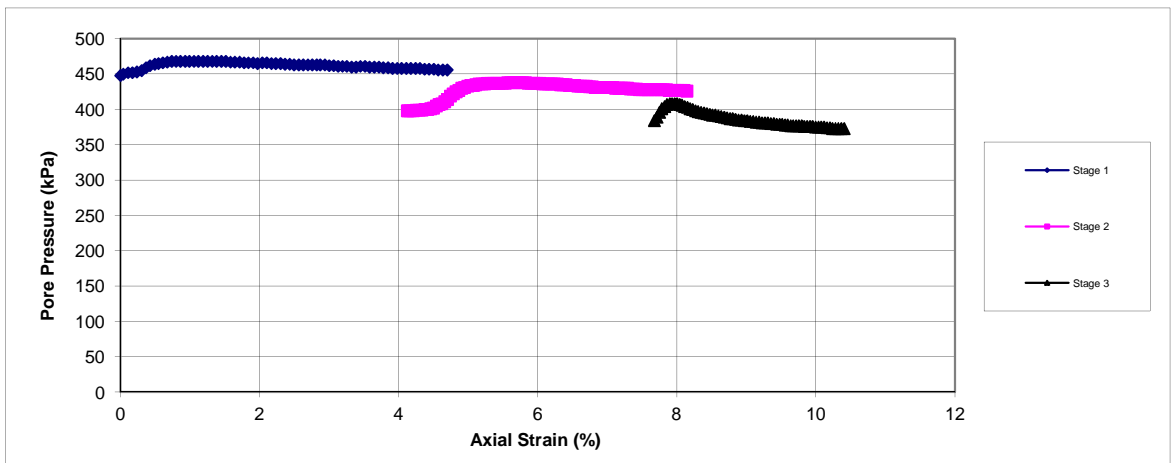
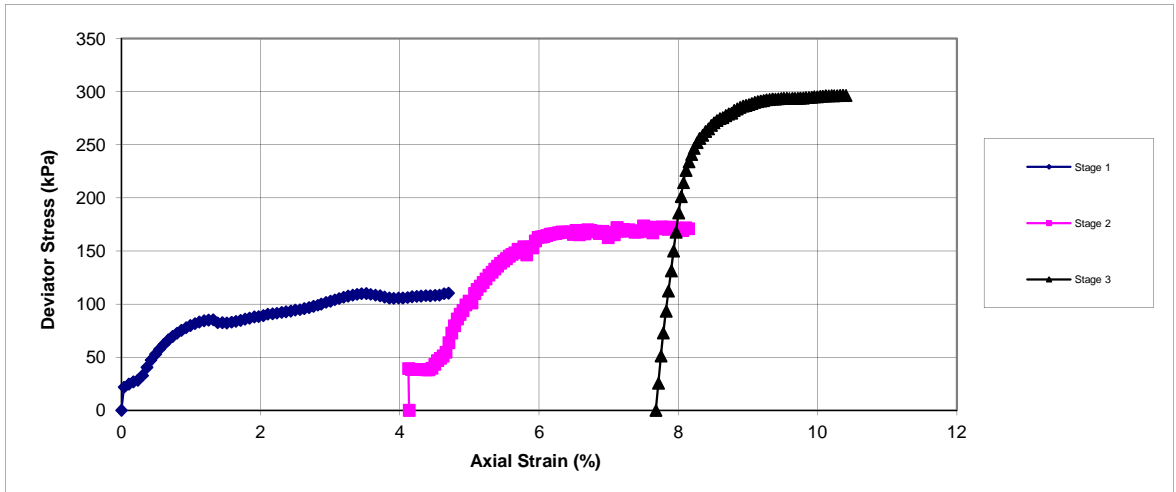
Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH2
Sample No.	
Depth	5.00-5.45
Date	18/04/2012

Shearing Stage



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Checked and Approved By

24/04/12
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Client Ref

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Land at Hood Road, Barry

Contract No

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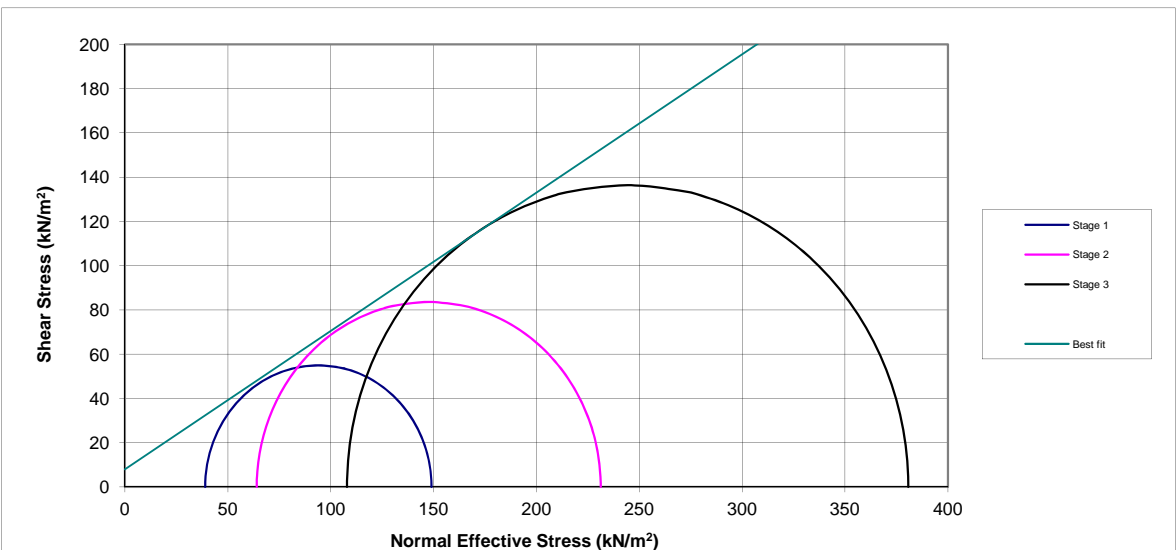
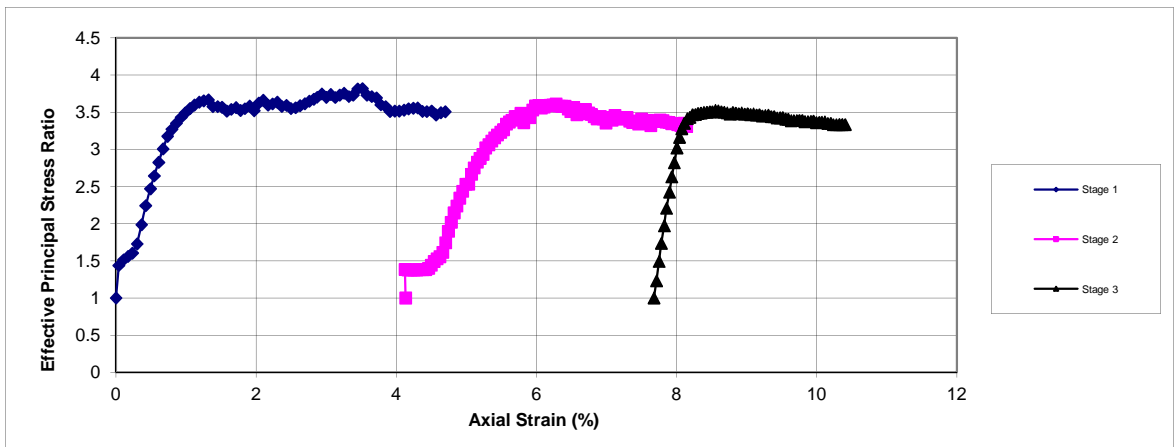
Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH2
Sample No.	
Depth	m 5.00-5.45
Date	18/04/2012

Shearing Stage



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Land at Hood Road, Barry

Contract No

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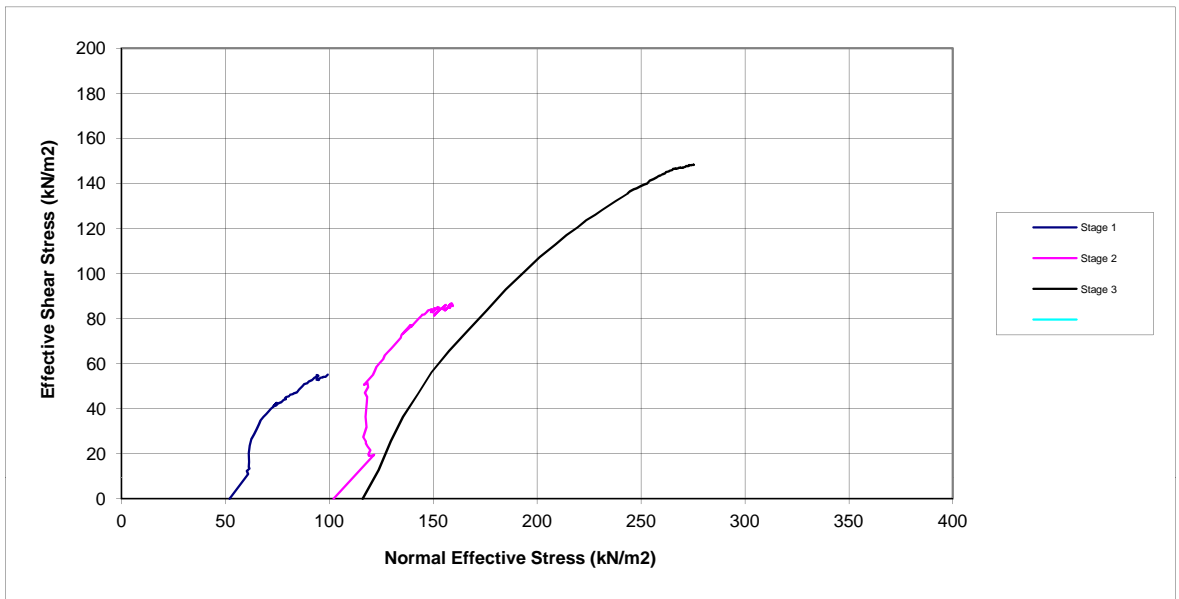
Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH2
Sample No.		
Depth	m	5.00-5.45
Date		18/04/2012

Shearing Stage



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24/04/12

Date

Client Ref

GSTL
Geo Site & Testing Services Limited

Land at Hood Road, Barry

Contract No

15510 - 190312

Consolidated Undrained Triaxial Compression Test
BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH01
Sample No.		
Depth	m	8.00-8.45
Date		17/04/2012
Disturbed / Undisturbed		Undisturbed

Description of Specimen

Brown sandy silty CLAY

Initial Specimen Conditions

Height	mm	206.00
Diameter	mm	102.00
Area	mm ²	8171.28
Volume	cm ³	1683.28
Mass	g	3286.50
Dry Mass	g	2425.20
Density	Mg/m ³	1.95
Dry Density	Mg/m ³	1.44
Moisture Content	%	36
Specific Gravity	kN/m ³	2.65
(assumed/measured)		assumed

Final Specimen Conditions

Moisture Content	%	33
Density	Mg/m ³	1.98
Dry Density	Mg/m ³	1.49

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24/04/12
Date

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Land at Hood Road, Barry

Contract No

15510 - 190312

Consolidated Undrained Triaxial Compression Test
BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH01
Sample No.		
Depth	m	8.00-8.45
Date		17/04/2012

Test Setup

Date started	24/03/2012
Date Finished	14/04/2012
Top Drain Used	y
Base Drain Used	y
Side Drains Used	y
Pressure System Number	P3
Cell Number	C3

Saturation

Cell Pressure Incr.	kPa	100.00
Back Pressure Incr.	kPa	95.00
Differential Pressure	kPa	5.00
Final Cell Pressure	kPa	600.00
Final Pore Pressure	kPa	591.00
Final B Value		1.00

Consolidation

Effective Pressure	kPa	80.00	160.00	320.00
Cell Pressure	kPa	600.00	600.00	600.00
Back Pressure	kPa	520.00	440.00	280.00
Excess Pore Pressure	kPa	71.00	91.00	202.00
Pore Pressure at End	kPa	520.00	440.00	280.00
Consolidated Volume	cm ³	1662.28	1647.38	1623.18
Consolidated Height	mm	205.14	199.81	191.66
Consolidated Area	mm ²	8103.32	8244.85	8469.58
Vol. Compressibility	m ² /MN	0.02399	0.02037	0.05246
Consolidation Coef.	m ² /yr.	0.98664	1.42788	0.75326

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24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

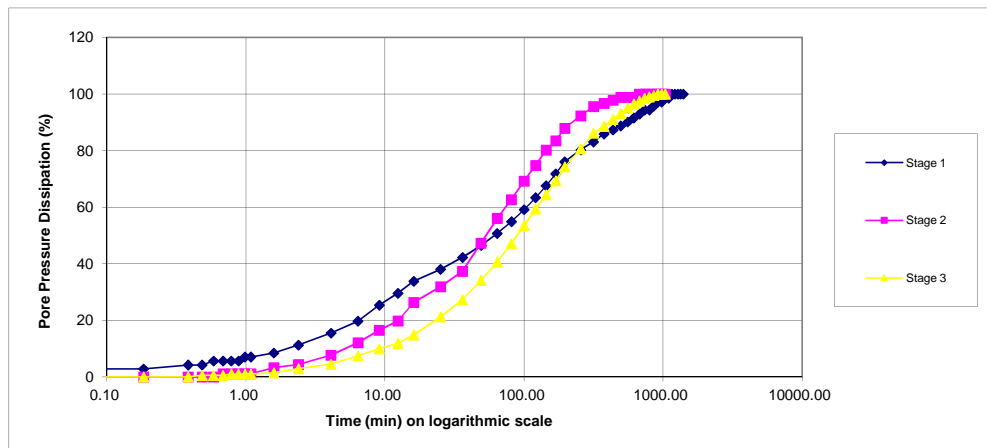
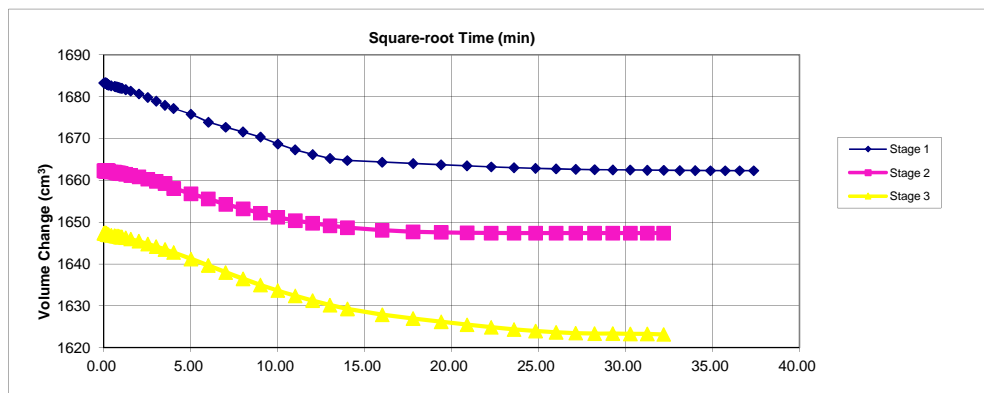
15510 - 190312

Consolidated Undrained Triaxial Compression Test BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH01
Sample No.	
Depth	m 8.00-8.45
Date	17/04/2012

Consolidation Stage



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24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

15510 - 190312

Consolidated Undrained Triaxial Compression Test
BS 1377 : Part 8 : 1990

Specimen Details

Borehole	BH01
Sample No.	
Depth	m 8.00-8.45
Date	17/04/2012

Shearing

Initial Cell Pressure	kPa	600	600	600
Initial Pore Pressure	kPa	520	440	280
Rate of Strain	mm/min	0.0205	0.0289	0.0146
Max Deviator Stress				
Axial Strain		3.373	7.104	11.233
Axial Stress	kPa	165.629	289.71	473.51
Cor. Deviator stress	kPa	162.722	285.52	469.01
Effective Major Stress	kPa	236.722	432.52	716.01
Effective Minor Stress	kPa	75.000	147.00	247.00
Effective Stress Ratio		3.156	2.942	2.90
s'	kPa	155.861	289.76	481.51
t'	kPa	80.861	142.76	234.51
Max Effective Principle Stress Ratio				
Axial Strain		3.159	7.104	10.325
Axial Stress	kPa	161.455	289.709	469.184
Cor. Deviator stress	kPa	157.565	285.517	464.744
Effective Major Stress	kPa	229.565	432.517	705.744
Effective Minor Stress	kPa	72.000	147.000	241.000
Effective Stress Ratio		3.188	2.942	2.928
s'	kPa	150.782	289.759	473.372
t'	kPa	78.782	142.759	232.372
Shear Resistance Angle	deg	28.0		
Cohesion c'	kPa	9		

D P Gans
Checked and Approved By

24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

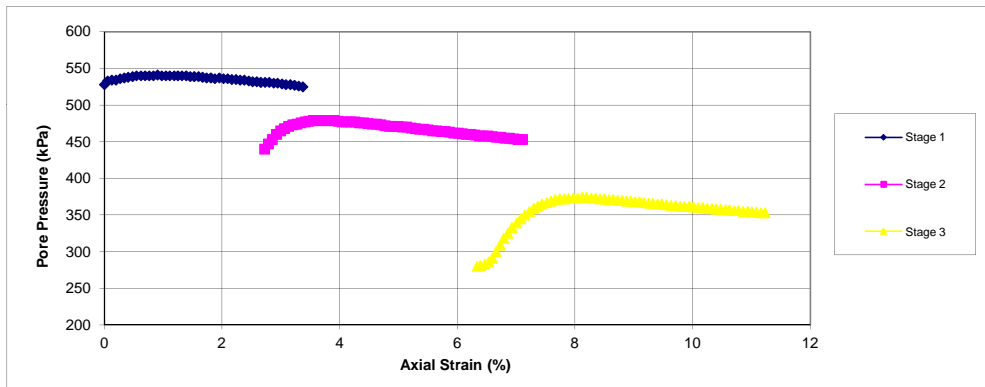
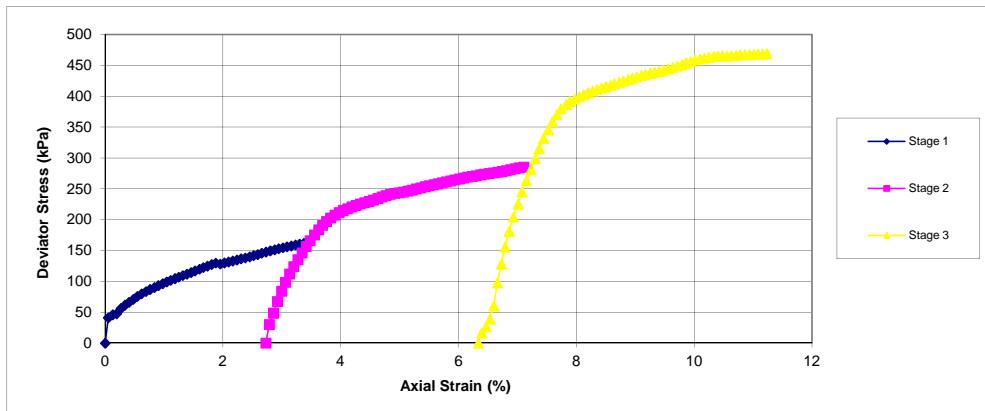
15510 - 190312

Consolidated Undrained Triaxial Compression Test BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH01
Sample No.		
Depth	m	8.00-8.45
Date		17/04/2012

Shearing Stage



D P Gnan
Checked and Approved By

24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

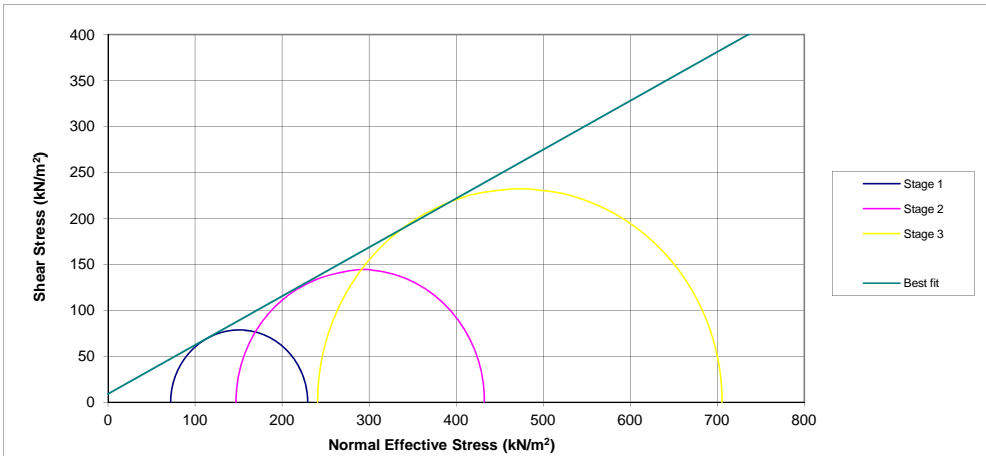
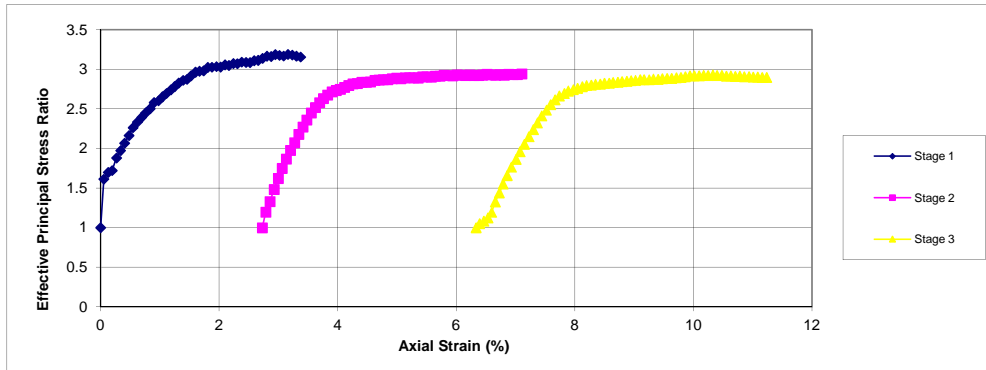
15510 - 190312

Consolidated Undrained Triaxial Compression Test BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH01
Sample No.		
Depth	m	8.00-8.45
Date		17/04/2012

Shearing Stage



DP Gang
Checked and Approved By

24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

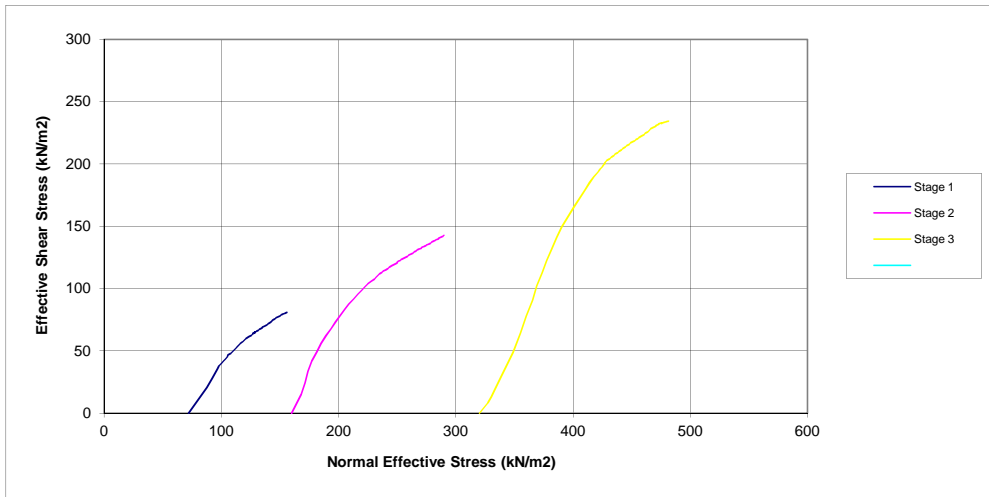
15510 - 190312

Consolidated Undrained Triaxial Compression Test
BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH01
Sample No.		
Depth	m	8.00-8.45
Date		17/04/2012

Shearing Stage



D P Gnan
Checked and Approved By

24/04/12
Date

Client Ref



Land at Hood Road, Barry

Contract No

15510 - 190312

APPENDIX I

GROUNDWATER MONITORING RESULTS

Groundwater Quality Monitoring Results										
Site:		Hood Rd Barry			Job No:		10973			
Date:		19.03.12			Weather:		Sunny			
Name of Engineer:		RH								
Sample No.	Water level (mbgl)	Well Base Level (mbgl)	pH (pH Units)	Temperature (C)	Conductivity (uS/cm)	Total dissolved solids (ppm)	Salinity (PSU)	Oxygen Reduction Potential (mV)	Disolved Oxygen (%)	Comments
										Semi Slow Recharge Fast Recharge Slow Recharge
BH 1	3.72	12.90	7.50	12.43	1144	604	0.62	-78.2	16.4	
BH 2	4.32	13.00	7.42	13.09	5581	2847	3.11	-68.2	14.2	
BH 3	2.86	6.80	7.41	12.42	838	336	0.33	-61.2	12.4	
Notes:										
1. Instrument Used: HI Multiparameter 2. Typical Accuracy: Water										
		Temperature +/- 0.15 °C		DO +/- 1%		PSU +/- 2% or +/- 0.01 PSU				
		pH +/- 0.01 pH		Conductivity +/- 1% or +/- 1uS/cm		Resistivity +/- 1% or +/- 1mg/L				
		ORP +/- 1mV								
3. N/R = No Reading Taken										
Intégral Géotechnique										

APPENDIX J

IN-SITU GAS MONITORING RESULTS

Field Gas Monitoring Results												
Site: Hood Rd Barry			Job No: 10973									
Date: 19.03.12			Weather: Sunny									
Name of Engineer: RH			Barometric Pressure (Millibars):				On Arrival 1034	During Monitoring 1034	End of Monitoring 1034	Ambient Temp 8°C		
Borehole No.	Water level (mbgl)	Well Base Level (mbgl)	Methane (CH ₄)			Oxygen O ₂ (%)	Carbon Dioxide CO ₂ (%)	Carbon Monoxide CO (ppm)	Hydrogen Sulphide H ₂ S (ppm)	Peak Gas Flow (l/per hr)	VOC Vapours (ppm > background)	Time
			LEL (%)	Average (%)	Peak (%)							
BH 1	Dry	2.60		0.10	0.10	20.40	0.10	<1	<1	<0.3	0.20 0.60 0.30	10.50 11.00 11.10
BH 2	Dry	4.00		0.10	0.10	20.10	0.40	<1	<1	0.10		
BH 3	Dry	3.00		0.10	0.10	19.80	0.60	<1	<1	<0.3		
Notes:												
1. Instrument Used: GA 5000 Gas Analyser												
2. Typical Accuracy:												
Gas0-FS												
%CH ₄ 0 - 70% +/- 0.5%70 - 100% +/- 1.5%												
%CO ₂ 0 - 60% +/- 0.5%60 - 100% +/- 1.5%												
%O ₂ 0 - 25% +/- 1.0%												
3. LEL= Lower Explosive Limit												
4. N/R= No Reading Taken												
Flow from borehole accuracy+/- 0.3 l/hr												
Intégral Géotechnique												

Field Gas Monitoring Results												
Site: Hood Rd Barry			Job No: 10973									
Date: 28.03.12			Weather: Sunny									
Name of Engineer: RH			Barometric Pressure (Millibars):		On Arrival 1028	During Monitoring 1028	End of Monitoring 1028	Ambient Temp 22°C				
Borehole No.	Water level (mbgl)	Well Base Level (mbgl)	Methane (CH ₄)			Oxygen O ₂ (%)	Carbon Dioxide CO ₂ (%)	Carbon Monoxide CO (ppm)	Hydrogen Sulphide H ₂ S (ppm)	Peak Gas Flow (l/per hr)	VOC Vapours (ppm > background)	Time
			LEL (%)	Average (%)	Peak (%)							
BH 1	Dry	2.60		0.10	0.10	20.10	0.20	<1	<1	<0.3	0.40 0.10 0.20	15.40 15.50 16.00
BH 2	Dry	4.00		<0.1	<0.1	18.60	0.30	<1	<1	<0.3		
BH 3	Dry	3.00		0.10	0.10	19.20	0.60	<1	<1	<0.3		
Notes:												
1. Instrument Used: GA 5000 Gas Analyser												
2. Typical Accuracy:												
Gas 0-FS												
CO 0-500ppm +/- 2%FS												
H ₂ S 0-50ppm +/- 1.5%FS 0-5000ppm +/- 2.0%												
3. LEL = Lower Explosive Limit												
4. N/R = No Reading Taken												
Flow from borehole accuracy +/- 0.3 l/hr												
Intégral Géotechnique												

APPENDIX K

SUMMARY OF CHEMICAL RESULTS – MADE GROUND

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 11539
Site: Hood Road - Proposed School
Soil Type: Made Ground
Soil Organic Matter: 6%

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)
6	TP8	2.00	23.0	3.3	1.9	1.1	200.0	<0.1	2000.0	390.0	2.0	44.0	1.0	130.0	740.0
Screening Criteria Value			37.0	290.0	1.7	26.0	-	21.0	2400.0	200.0	1.2	180.0	250.0	410.0	3700.0
Source of Screening Criteria Value			C4SL	S4UL	S4UL	C4SL	-	C4SL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

INORGANIC CHEMICALS & OTHERS

Job No.: 11539
 Site: Hood Road - Proposed School
 Soil Type: Made Ground
 Soil Organic Matter: 6%

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 in Soil Identification Name	Asbestos Quantification (%)
6	TP8	2.00	<2.5	25.00	17.00	<0.5	8.00	0.19	1800.00	<7.5	<100	26.00	44.72	Detected	Amosite fibres	-
Screening Criteria Value			34.0	-	-	1100.0	-	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	-	IOM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 11539
Site: Hood Road - Proposed School
Soil Type: Made Ground
Soil Organic Matter: 6%

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)
6	TP8	2.00	0.42	0.19	1.4	5.2	4.5	6.8	3.2	2.5	4.6	0.87	9.6	0.49	3.8	0.73	5.3	7.8
Screening Criteria Value			1100.0	920.0	11000.0	13.0	5.0	3.7	350.0	100.0	27.0	0.3	890.0	860.0	41.0	13.0	440.0	2000.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

PETROLEUM HYDROCARBONS

Job No.: 11539
Site: Hood Road - Proposed School
Soil Type: Made Ground
Soil Organic Matter: 6%

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)
6	TP8	2.00	<0.12	<0.12	<0.12	<1.2	7.7	250	64	0.013	0.016	<0.12	3.7	12	41	250	110
Screening Criteria Value			160.0	530.0	150.0	760.0	4300.0	110000.0	110000.0	0.9	660.0	190.0	380.0	660.0	930.0	1700.0	1700.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 11539
 Site: Hood Road - Commercial development
 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	TP1	1.00	13.0	1.6	1.0	0.9	27.0	<0.1	160.0	210.0	2.4	36.0	0.5	30.0	780.0
2	TP2	2.00	20.0	6.8	0.7	0.7	28.0	<0.1	210.0	610.0	0.5	35.0	0.7	27.0	420.0
3	TP3	1.60	18.0	2.4	0.9	1.5	17.0	<0.1	180.0	250.0	1.3	45.0	0.5	28.0	560.0
4	TP5	1.00	4.8	2.8	3.5	<0.2	39.0	<0.1	20.0	120.0	<0.35	4.9	1.0	24.0	160.0
5	TP6	1.50	22.0	1.3	0.4	<0.2	9.6	<0.1	30.0	110.0	<0.35	24.0	0.6	12.0	68.0
7	TP10	1.00	8.7	1.8	0.9	<0.2	16.0	<0.1	39.0	55.0	<0.35	39.0	0.4	20.0	50.0
Screening Criteria Value			640.0	24000.0	12.0	410.0	-	49.0	65000.0	2330.0	56.0	980.0	12000.0	9000.0	730000.0
Source of Screening Criteria Value			C4SL	S4UL	S4UL	C4SL	-	C4SL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

INORGANIC CHEMICALS & OTHERS

Job No.: 11539
 Site: Hood Road - Commercial development
 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 in Soil Identification Name	Asbestos Quantification (%)
1	TP1	1.00	<2.5	8.50	14.00	0.68	8.00	<0.06	520.00	<7.5	<100	6.20	10.66	Not detected	-	-
2	TP2	2.00	<2.5	27.00	16.00	<0.5	8.10	1.20	4600.00	<7.5	<100	22.00	37.84	Detected	Chrysotile fibres	-
3	TP3	1.60	<2.5	25.00	16.00	<0.5	8.00	0.08	820.00	<7.5	<100	24.00	41.28	Not detected	-	-
4	TP5	1.00	<2.5	8.20	6.80	<0.5	9.60	0.08	310.00	280.00	300.00	8.10	13.93	Not detected	-	-
5	TP6	1.50	<2.5	4.60	9.20	<0.5	8.50	<0.06	1000.00	<7.5	<100	4.60	7.91	Not detected	-	-
7	TP10	1.00	<2.5	7.00	23.00	<0.5	7.80	0.09	280.00	<7.5	<100	1.40	2.41	Not detected	-	-
Screening Criteria Value			34.0	-	-	760.0	-	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	-	IOM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 11539
 Site: Hood Road - Commercial development
 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	TP1	1.00	0.25	0.055	0.45	2.2	2.4	3.6	1.9	1.3	2.1	0.49	3.9	0.2	2.2	0.16	1.6	3.1
2	TP2	2.00	0.58	0.15	1.6	4.1	3.6	5.3	2.5	1.9	4.5	0.62	9.5	0.67	2.9	0.91	6.7	7.7
3	TP3	1.60	0.79	0.18	1.3	4.1	3.9	5.9	3	2	3.6	0.68	7.9	0.68	3.3	4.4	5.6	7
4	TP5	1.00	5.7	0.49	20	51	43	69	33	25	49	7.3	120	3.6	39	0.55	81	89
5	TP6	1.50	0.022	0.021	0.11	0.5	0.44	0.78	0.32	0.27	0.45	0.089	0.87	0.032	0.37	0.096	0.32	0.79
7	TP10	1.00	<0.010	<0.010	0.013	0.046	0.046	0.068	0.029	0.023	0.044	<0.010	0.1	<0.010	0.032	0.013	0.057	0.091
Screening Criteria Value			84000.0	83000.0	520000.0	170.0	76.0	44.0	3900.0	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	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

PETROLEUM HYDROCARBONS

Job No.: 11539
 Site: Hood Road - Commercial development
 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	TP1	1.00	<0.12	<0.12	<0.12	<1.2	4.9	62	14	<0.012	<0.012	<0.12	<1.2	7.7	14	66	31
2	TP2	2.00	<3.0	<3.0	<3.0	<1.2	6.5	150	32	<0.30	0.35	<3.0	3.3	13	36	150	56
3	TP3	1.60	<0.12	<0.12	<0.12	<1.2	5	210	40	0.012	0.017	<0.12	<1.2	9.3	20	130	48
4	TP5	1.00	<0.11	<0.11	<0.11	8.6	62	520	57	<0.011	<0.011	<0.11	2.8	35	240	820	250
5	TP6	1.50	<0.11	<0.11	<0.11	<1.1	4.1	26	<1.1	<0.011	<0.011	<0.11	<1.1	<1.1	6.6	21	3
7	TP10	1.00	<0.13	<0.13	<0.13	<1.3	<1.3	<1.3	<1.3	<0.013	<0.013	<0.13	<1.3	<1.3	<1.3	14	2.6
Screening Criteria Value			3200.0	7800.0	2000.0	9700.0	59000.0	1600000.0	1600000.0	98.0	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	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

APPENDIX L

SUMMARY OF LEACHATE TEST RESULTS

Determinand	Unit	Location					Guideline Value	
		TP1	TP3	TP6	TP7	TP10	EQS	UKDWS
		1.0m	1.6m	1.5m	0.4m	1.0m		
Boron, Filtered as B	mg/l	<0.23	<0.23	<0.23	<0.23	<0.23	7	1
Cadmium, Total as Cd	mg/l	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0025	0.005
Cadmium, Filtered as Cd	mg/l	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0025	0.005
Calcium, Total as Ca	mg/l	40	40.4	27.8	59.2	52.9	-	250
Chromium, Filtered as Cr	mg/l	<0.0020	0.0101	<0.0020	0.008	<0.0020	0.015	0.05
Copper, Filtered as Cu	mg/l	0.063	0.051	0.011	0.02	<0.009	0.005	2
Lead, Filtered as Pb	mg/l	0.007	<0.006	<0.006	<0.006	<0.006	0.025	0.025
Magnesium, Total as Mg	mg/l	2.5	3.3	5.94	1.39	2.91	-	50
Mercury, Total as Hg	mg/l	<0.0001	<0.0001	0.0003	0.0001	<0.0001	0.0003	0.001
Nickel, Filtered as Ni	mg/l	0.005	0.003	0.004	0.006	<0.003	0.03	0.02
Vanadium, Filtered as V	mg/l	<0.004	0.009	<0.004	0.034	<0.004	0.1	-
Zinc, Total as Zn	mg/l	<0.018	<0.018	<0.018	<0.018	<0.018	-	5
pH	pH units	8	8.4	8.1	9.8	8.5	6-9	-
Total Hardness as CaCO3	mg/l	110	115	94.2	154	144	-	-
Sulphate as SO4	mg/l	25.6	63.5	18.4	50.1	23.4	250	250
Cyanide, Total as CN	mg/l	<0.009	<0.009	<0.009	<0.009	<0.009	-	0.05
Phenols Mono (Phenol Index)	mg/l	<0.15	<0.15	<0.15	<0.15	<0.15	0.03	0.0005
Sulphide as S	mg/l	<0.029	<0.029	<0.029	<0.029	<0.029	-	-
EH >C6 - C40	ug/l	19	40	71	25	16	30*	10
EH >C6 - C8	ug/l	<10	<10	<10	<20	<10		
EH >C8 - C10	ug/l	19	18	40	25	16		
EH >C16 - C24	ug/l	<10	<10	<10	<20	<10		
EH >C24 - C40	ug/l	<10	<10	21	<20	<10		
EH >C10 - C16	ug/l	<10	22	10	<20	<10	10#	0.1
Acenaphthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Acenaphthylene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Anthracene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo (a) anthracene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo (g,h,i) perylene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo (a) pyrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo (b) fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Benzo (k) fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Chrysene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Dibenz (a,h) anthracene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Fluorene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Indeno (1,2,3) cd pyrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Naphthalene	ug/l	<0.01	<0.01	<0.04	<0.02	<0.01		
Phenanthrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
Pyrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01		
PAH, Total	ug/l	<0.01	<0.01	<0.04	<0.02	<0.01		
Arsenic, Filtered as As	mg/l	0.003	0.009	0.0016	0.026	<0.0014	0.025	0.01
Selenium, Total as Se	mg/l	0.002	0.002	0.0017	0.005	0.006	-	0.01

* EQS for Benzene used for VPH/EPH compounds in the absence of specific guideline values.

EQS for Naphthalene used for all PAH compounds in the absence of specific guideline values.

The Applied Guideline Value is taken from the lowest of the Estuarine/Marine EQS or UKDWS.

Results exceeding the most conservative guideline value are in **red bold type**.

APPENDIX M

SUMMARY OF GROUNDWATER TEST RESULTS

Determinand	Unit	Borehole			Guideline Value	
		BH1	BH2	BH3	EQS	UKDWS
		19/03/2012	19/03/2012	19/03/2012		
Boron, Filtered as B	mg/l	1.01	1.02	0.24	7	1
Cadmium, Filtered as Cd	mg/l	<0.0006	<0.0006	<0.0006	0.0025	0.005
Calcium, Total as Ca	mg/l	996	105	621	-	250
Chromium, Filtered as Cr	mg/l	<0.0020	<0.0020	<0.0020	0.015	0.05
Copper, Filtered as Cu	mg/l	<0.009	<0.009	<0.009	0.005	2
Lead, Filtered as Pb	mg/l	<0.006	<0.006	<0.006	0.025	0.025
Magnesium, Total as Mg	mg/l	249	201	16.7	-	50
Mercury, Total as Hg	mg/l	0.0003	<0.0001	<0.0001	0.0003	0.001
Nickel, Filtered as Ni	mg/l	0.005	<0.003	0.004	0.03	0.02
Vanadium, Filtered as V	mg/l	<0.004	<0.004	<0.004	0.1	-
Zinc, Total as Zn	mg/l	1.22	<0.018	0.07	-	5
pH	pH units	8.1	7.9	7.6	6-9	-
Total Hardness as CaCO3	mg/l	3520	1100	1620	-	-
Sulphate as SO4	mg/l	197	525	76.1	250	250
Cyanide, Total as CN	mg/l	<0.009	<0.009	<0.009	-	0.05
Phenols Mono (Phenol Index)	mg/l	<0.15	<0.15	<0.15	0.03	0.0005
Sulphide as S	mg/l	<0.029	<0.029	0.301	-	-
Aliphatic VPH >C5 - C6	ug/l	<10	<10	<10	30*	10
Aliphatic VPH >C6 - C8	ug/l	<10	<10	<10		
Aliphatic VPH >C8 - C10	ug/l	<10	<10	<10		
Aliphatic VPH >C5 - C10	ug/l	<10	<10	<10		
Aromatic VPH >C5 - C7	ug/l	<10	<10	<10		
Aromatic VPH >C7 - C8	ug/l	<10	<10	<10		
Aromatic VPH >C8 - C10	ug/l	<10	<10	<10		
Aromatic VPH >C5 - C10	ug/l	<10	<10	<10		
VPH >C5 - C10	ug/l	<10	<10	<10		
Aliphatic EPH >C10 - C12	ug/l	<20	<10	<20		
Aliphatic EPH >C12 - C16	ug/l	<20	<10	<20		
Aliphatic EPH >C16 - C35	ug/l	<20	<10	<20		
Aliphatic EPH >C35 - C44	ug/l	<20	<10	<20		
Aliphatic EPH >C10 - C44	ug/l	<20	<10	<20		
Aromatic EPH >C10 - C12	ug/l	<20	<10	<20		
Aromatic EPH >C12 - C16	ug/l	<20	<10	<20		
Aromatic EPH >C16 - C21	ug/l	<20	<10	<20		
Aromatic EPH >C21 - C35	ug/l	<20	<10	<20		
Aromatic EPH >C35 - C44	ug/l	<20	<10	<20		
Aromatic EPH >C10 - C44	ug/l	<20	<10	<20		
EPH >C10 - C44	ug/l	<20	<10	<20		
Aliphatic VPH/EPH >C5 - C44	ug/l	<20	<10	<20	10#	0.1
Aromatic VPH/EPH >C5 - C44	ug/l	<20	<10	<20		
VPH/EPH >C5 - C44	ug/l	<20	<10	<20		
Acenaphthene	ug/l	0.024	<0.01	<0.01		
Acenaphthylene	ug/l	<0.01	<0.01	<0.01		
Anthracene	ug/l	<0.01	<0.01	<0.01		
Benzo (a) anthracene	ug/l	<0.01	<0.01	<0.01		
Benzo (g,h,i) perylene	ug/l	<0.01	<0.01	<0.01		
Benzo (a) pyrene	ug/l	<0.01	<0.01	<0.01		
Benzo (b) fluoranthene	ug/l	<0.01	<0.01	<0.01		
Benzo (k) fluoranthene	ug/l	<0.01	<0.01	<0.01		
Chrysene	ug/l	<0.01	<0.01	<0.01		
Dibenz (a,h) anthracene	ug/l	<0.01	<0.01	<0.01		
Fluoranthene	ug/l	<0.01	<0.01	<0.01		
Fluorene	ug/l	0.011	<0.01	<0.01		
Indeno (1,2,3) cd pyrene	ug/l	<0.01	<0.01	<0.01		
Naphthalene	ug/l	0.018	<0.01	<0.01		
Phenanthrene	ug/l	0.016	<0.01	<0.01		
Pyrene	ug/l	<0.01	<0.01	<0.01		
PAH, Total	ug/l	0.069	<0.01	<0.01		
Carbon Tetrachloride	ug/l	<1.0	<1.0	1.5	12	3
Nitrobenzene	ug/l	10.9	<1.0	<1.0	30*	1*
Arsenic, Filtered as As	mg/l	<0.0014	0.0015	<0.0014	0.025	0.01
Selenium, Total as Se	mg/l	0.0051	<0.0016	0.0025	-	0.01

* EQS for Benzene used for VPH/EPH compounds and Nitrobenzene in the absence of specific guideline values.

EQS for Naphthalene used for all PAH compounds in the absence of specific guideline values.

VOCs/SVOCs not detected unless shown above.

The Applied Guideline Value is taken from the lowest of the Estuarine/Marine EQS or UKDWS.

Results exceeding the most conservative guideline value are in **red bold type**.

FIGURES



Figure 1: Site Location

Project: Hood Road, Barry

Job no.: 11539

Client: Vale of Glamorgan Council

Scale: 1:10,000 at A4

Intégral
Géotechnique

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

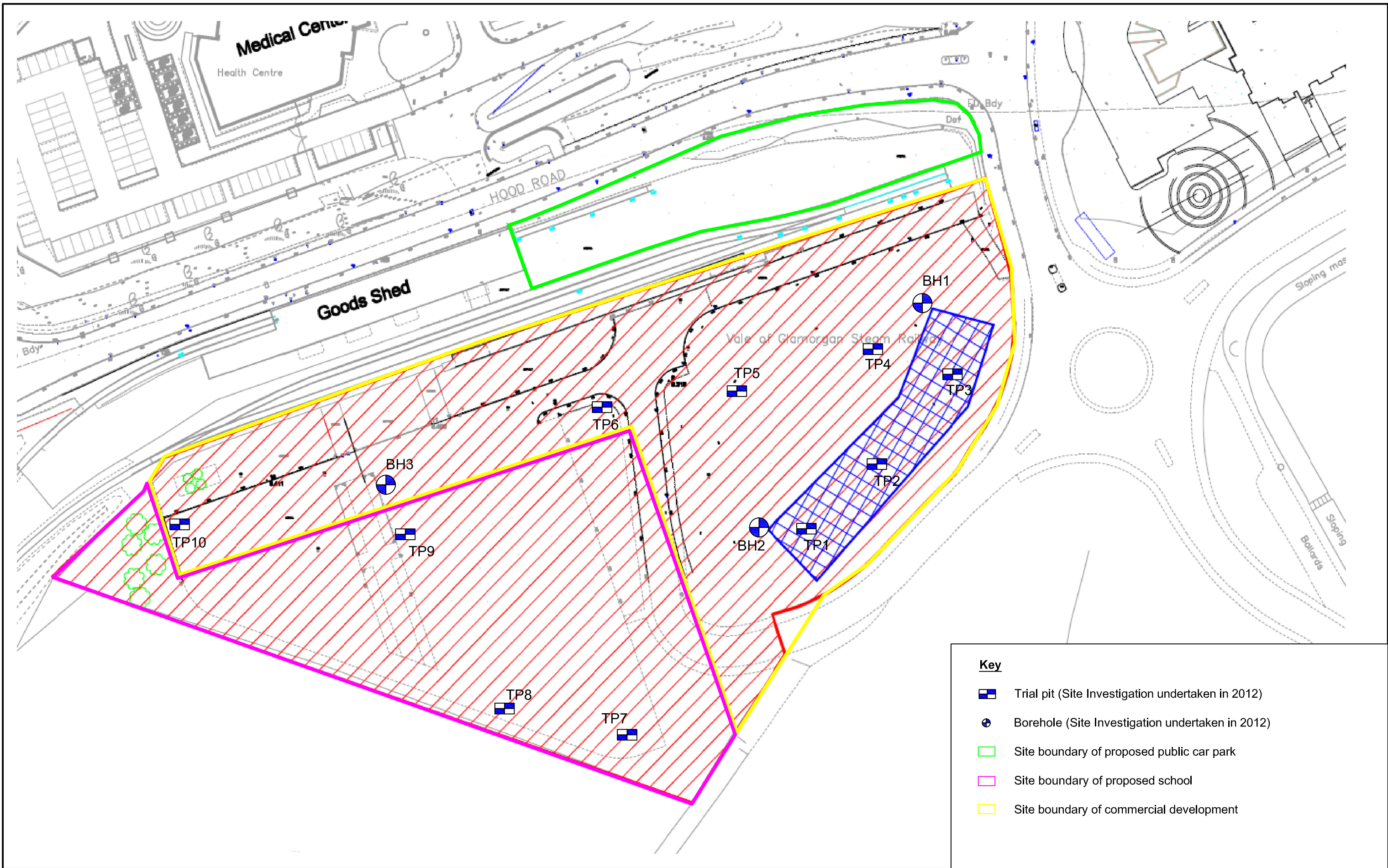


Figure 2: Site plan

Project: Hood Road, Barry

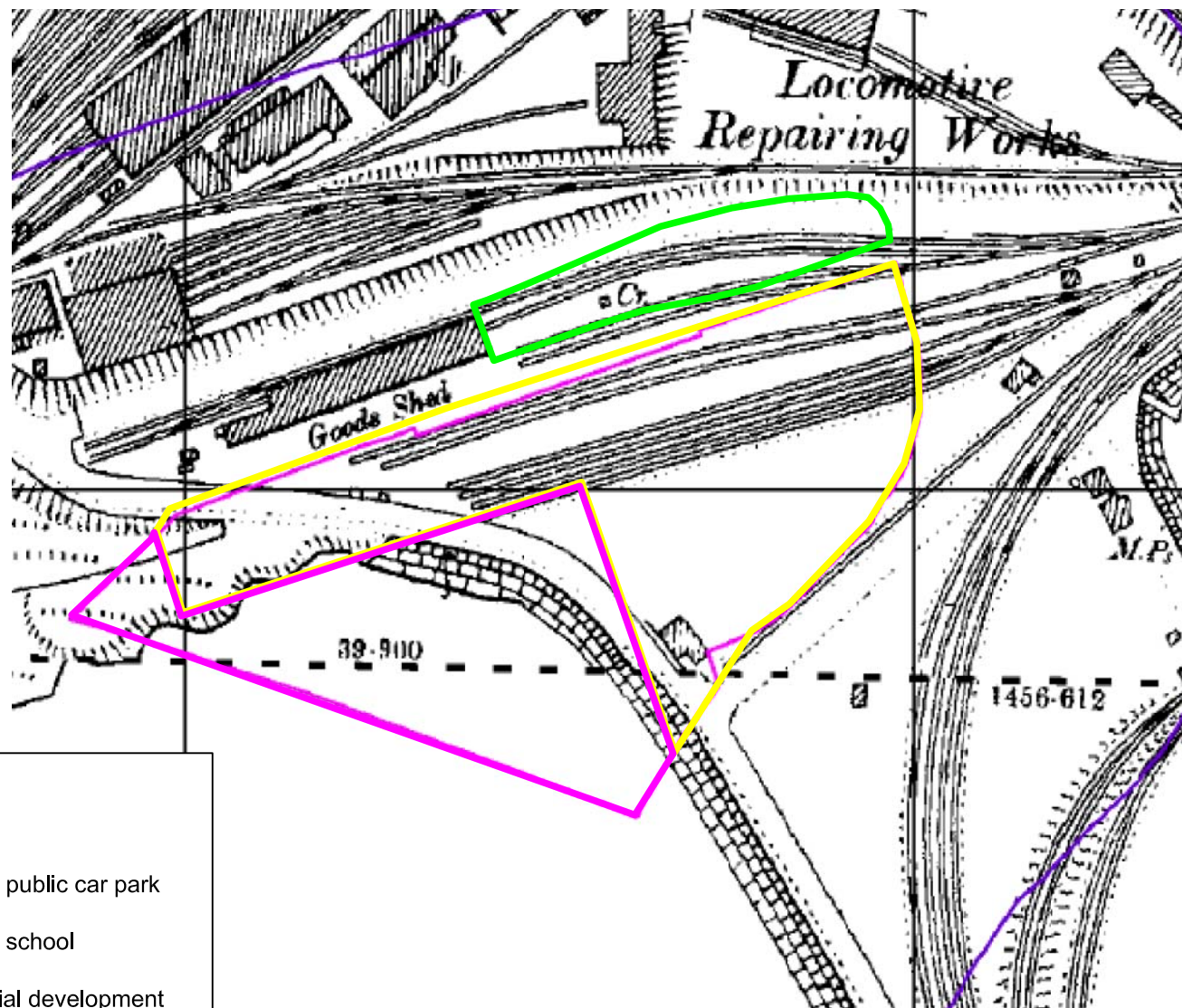
Client: Vale of Glamorgan Council

Job No.: 11539

Not to scale

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Key

- Site boundary of proposed public car park
- Site boundary of proposed school
- Site boundary of commercial development

Figure 3: Site History Overlay

Project: Hood Road, Barry

Client: Vale of Glamorgan Council

Job No.: 11539

Not to scale

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