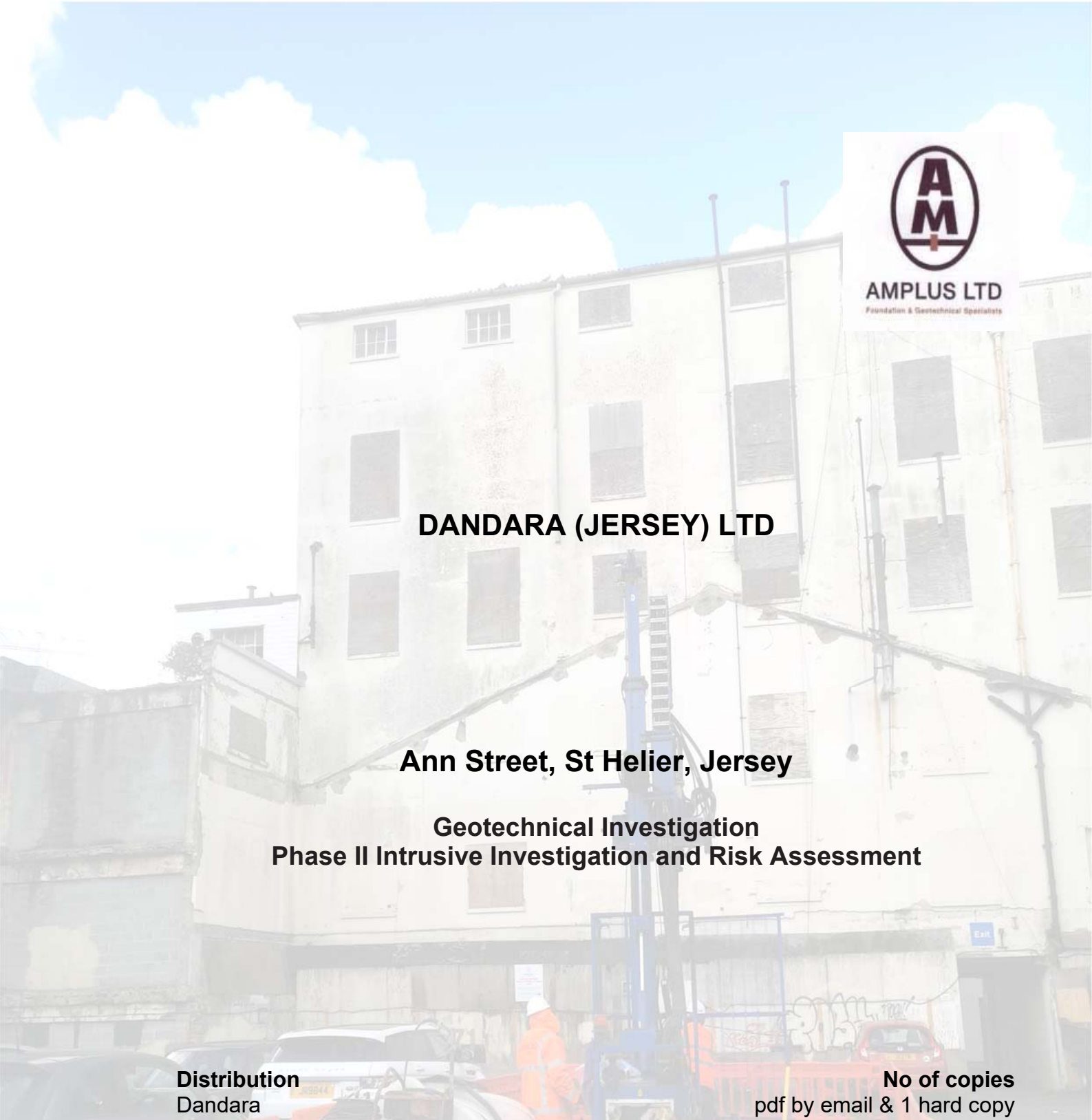

DANDARA (JERSEY) LTD

Ann Street, St Helier, Jersey

Geotechnical Investigation
Phase II Intrusive Investigation and Risk Assessment

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PROJECT NO: 1920

November 2020

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Signed:

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Ann Street, St Helier, Jersey
Phase II Intrusive investigation and risk assessment
Component and Objectives Relevant Information

TABLE OF CONTENTS

Ann Street, St Helier, Jersey
Phase II Intrusive Investigation and Risk Assessment
Component and Objectives Relevant Information

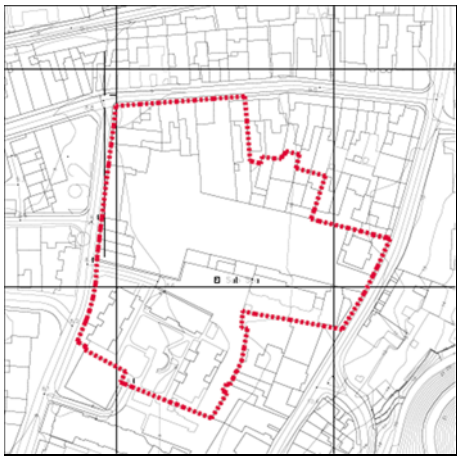
1 DESIGN OF INVESTIGATION

Objective - to ensure that sufficient information is gathered from the site or site areas identified in Phase I to carry out the risk assessment.

1.1 Background

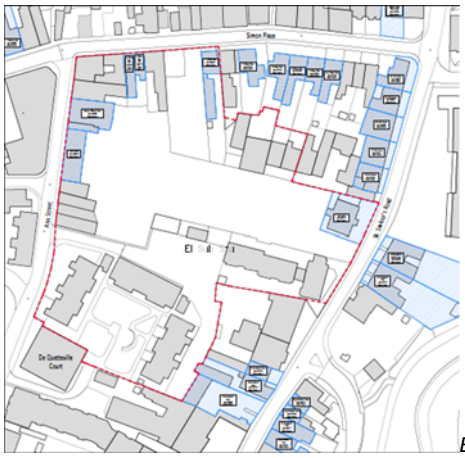
Planning Application Number RC/2019/0753.

Application Address:
58-60 Ann Street, St Helier, Jersey, JE2 4SE.



Extract from Site Location Plan, JY94-DA-100-P01/F1

Description of Work:
It is proposed to redevelop the Site for a mixed residential and commercial land use.



Extract from Existing Site Plan, JY94-DA-100-P02/F1

In summary, the proposals comprise:

- 271 new residential units located in an area comprising an existing surface car park (including new basement parking).
- Refurbishment of the former Ann Street Brewery listed building as commercial unit.
- Refurbishment and extension of the listed building at No. 72 St. Saviours Road (Sans Souci) as facilities for Autism Jersey.
- Demolition of existing buildings including Nos. 4/4a Simon Place and the retention of 12 Simon Place to create new residential buildings; and,
- Public realm improvements including new pedestrian routes through the site and new public green open space.

Extract from Proposed Site Plan, JY94-DA-100-P03/F2

Conditions relevant to this report:
Built-Up Area, Footpath Enhancement, Listed Building, Primary Route Network. Regeneration Zone, Town of St. Helier.

1.2 Extent of proposed work

The Site is situated at approximate Grid Reference 42659.6 E, 65726.2 N within the town of St Helier, on the eastern outskirts of the Central Business District. The overall Site is approximately 1.2 ha in plan area.

Google Maps, 07/03/2019

The Site comprises the former Ann Street Brewery with adjoining residential properties, present across the northern site areas, with solely residential land uses present across the southern parts of the site, De Quetteville Court. A large part of the former Brewery footprint is current utilised as a car park.

1.3 Details of sampling and testing programme based on findings phase I data

The following report was provided: Phase 1 Geoenvironmental Ground Condition Assessment Former Ann Street Brewery, St Helier, Jersey by Stantec, Ref:47648/3501, r00, June 2020,

Sampling and testing programme:

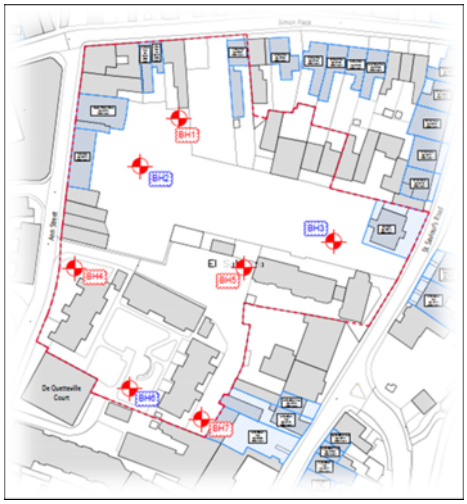
The original scope of the intrusive investigation was specified by Dandara and comprised:

Summary of Exploratory Holes

Ref.	Type	Depth (m bgl)	Sampling and Testing	Instrumentation	Laboratory Testing
01	BH	11.96	Rotary coring & sampling, SPT	None	Geo
02	BH	11.48	Rotary coring & sampling, SPT	Gas & Water	Geo Contam Water
03	BH	11.70	Rotary coring & sampling, SPT	Water	Geo Contam
04	BH	11.35	Rotary coring & sampling, SPT	None	Geo
05	BH	11.03	Rotary coring & sampling, SPT	None	Geo
06	BH	11.04	Rotary coring & sampling, SPT	Gas & Water	Geo Contam Water
07	BH	10.75	Rotary coring & sampling, SPT	None	Geo

BH: vertical borehole
WS: window sampling
DCP: dynamic cone penetration test
SPT: standard penetration test

Geo: Geotechnical testing
Contam: Contamination testing



Extract from JY94 SI Mark Up BH only

The programme for the post-fieldwork monitoring was as follows:

20th October 2020
Gas readings BH2 & 6, water levels BH2, 3 & 6, purge BH2 & 6

3rd November 2020
Gas readings BH2 & 6, water levels BH2, 3 & 6, water samples BH2 & 6

16th November 2020
Gas readings BH2 & 6, water levels BH2, 3 & 6

The gas readings were taken using a GFM-436 Landfill Gas Monitor (CH4, LEL, CO2, O2, H2S, CO, Hexane, PID CF, Datalogging) and the results are given in Appendix 4.

Amplus drillers, who are trained in accordance with the British Drilling Association and CITB guidelines, carried out all drilling and all recovered samples were logged by a Geotechnical Engineer.

Geotechnical and analytical testing was carried out using UKAS and MCERTS laboratories in the UK. The testing regime on samples recovered from the investigation.

1.4 Details of potential contamination migration or potential risks of performing the intrusive investigation.

Aspects to be considered during the investigation of potentially contaminated sites are given in Appendix 1.

1.5 Indication of Health and Safety implications of proposed works.

BS 5930:2015 - Code of practice for site investigations and CIRIA (Construction Industry Research and Information Association) report 132 A Guide for Safe Working on Contaminated Sites were used for technical guidance.

The implications of the works are given due consideration by the attention of the following procedures carried out during the intrusive site investigation, namely:

- Health and safety procedures
- Controlled entry
- Site zoning
- Good hygiene
- Monitoring
- Appropriate disposal of wastes
- Safe handling, storage, and transport of hazardous samples
- Control of nuisance
- Emergency procedures
- Provision of appropriate training
- Need for routine health surveillance

Health and Safety implications of proposed works considered during the investigation of potentially contaminated sites are also given in more detail in Appendix 1.

2 INTRUSIVE INVESTIGATION

Objective - to provide high quality information for the Phase II environmental risk assessment.

2.1 Appropriate supervision by a suitably qualified engineer

Amplus is a member of the Association of Geotechnical and Geoenvironmental Specialists.

The investigation was supervised by Matthew Warner, a Chartered Engineer and UK Registered Ground Engineering Advisor.

Amplus drillers are trained in accordance with the British Drilling Association and CITB guidelines.

2.2 Measures to stop cross-contamination

Chain of custody for samples, appropriate sampling containers and storage/dispatch times.

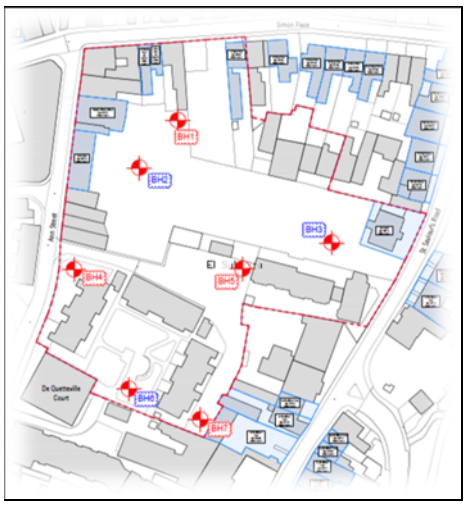
The works were carried out in accordance with AGS Guide to Environmental Sampling, 2010, which provides practical guidance on the mechanics of the environmental sampling of soils, liquids, and gasses to improve consistency in approach across the industry and summarise current best industry practice on:

Laboratory involved and whether accredited, methods used.

Analytical testing was undertaken by Geotechnical Engineering Ltd and ALS; UKAS and MCERTS laboratories respectively in the UK.

Borehole logs, ground water levels, and location plan.

Borehole logs and ground water levels in Appendix 2. A site location plan and exploratory hole positions are shown below.



Extract from JY94 SI Mark Up BH only

Site has been left in a safe and secure state.

The site was left in a safe and secure state.

3 REPORTING

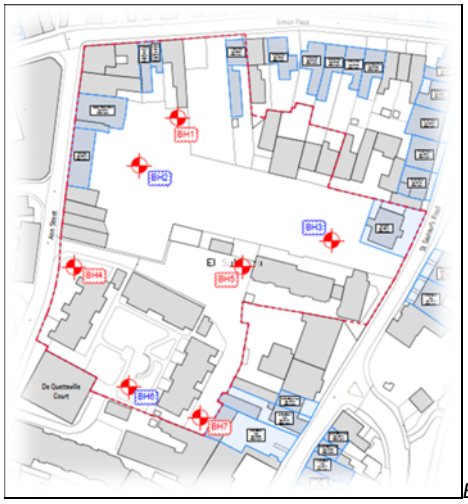
Objective - to present full and accurate information for risk assessment.

3.1 Details of all sampling points, depths, methodology and procedures.

The physical number, location and spacing of sampling and monitoring points across the site and within an exploratory hole were guided by the project specification.

The investigation was carried out with reference to BS 5930:2015 Code of practice for site investigations and BS 10175: +A1:2013 - Investigation of potentially contaminated sites. Code of practice.

A location plan is given below with exploratory hole positions.



Extract from JY94 SI Mark Up BH only

3.2 Monitoring and all results (see Appendices for details).

Borehole logs of exploratory holes and ground water levels are in Appendix 2.

The laboratory tests are given in Appendix 3.

3.3 Reference to any earlier site investigation reports.

An earlier investigation included Phase 1 Geoenvironmental Ground Condition Assessment Former Ann Street Brewery, St Helier, Jersey by Stantec, Ref:47648/3501, r00, June 2020.

The desk study identified potential sources of contamination as:

PSC	Type	Location, distance, and orientation with respect to Site	Potential contaminants
On-site PSC			
PSC 1	Remaining brewery infrastructure	Pipe lagging and pipework in main brewery building, Ann Street. Tank cleaning agents, refrigerants, fuels, and fuel oils.	Asbestos, metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs) and solvents.
PSC 2	Made Ground	Car park area and beneath buildings	Metals, petroleum hydrocarbons, PAHs, asbestos and ground gas.

These issues were explored in this Phase II study.

3.4 Long term monitoring for gases and groundwater - that may also be ongoing.

Standpipe piezometers were installed in BH2 (50mm; gas & water), 3 (20mm; water) and 6 (50mm; gas & water). The gas readings are given in Appendix 4.

4 ENVIRONMENTAL RISK ASSESSMENTS

Objective - to identify if any source pathway- receptor Significant Pollutant Linkages (SPL) are present on site and establish if Phase III remediation/risk management is required.

4.1 Perform site-specific risk assessment (refine the Conceptual Model).

Conceptual Site Model:
Source Pathway Receptor Risk and Comment

1 Organics from previous car parking
Pathway - Ingestion / Dermal Contact
Receptor - Human Health
Risk - Low – made ground will be removed as part of new construction.

Pathway - Inhalation of Vapour
Receptor - Human Health
Risk - Low – Petrol vapour evaporates, diesel vapour is of low toxicity but nuisance from odour is possible.

Pathway - Vertical / lateral migration of contaminants in soils
Receptor - Controlled waters
Risk – Low to Medium – Where the cars are parked, there is a variety of surface coverings.

2 Asbestos from previous building
Pathway - Ingestion / Dermal Contact
Receptor - Human Health
Risk – Moderate to Low – made ground will be removed as part of new construction – carry out asbestos survey and monitoring (not part of this investigation).

3 Sulphate –naturally occurring soils, made ground, or imported soils
Pathway - Direct Contact
Receptor - Built Structures
Risk - Low –Sulphate contents not anticipated to be abnormal in natural strata.

4 Ground Gas (Radon)
Pathway - Emission though soils
Receptor - Human Health
Risk - Low – Naturally occurring radon might be present at the site, but residential building codes require its presence to be militated against.

CIRIA (Construction Industry Research and Information Association) report 132 and A Guide for Safe Working on Contaminated Sites 2 refers.

4.2 Detail all methods used, the assumptions made and references.

The analytical laboratory tests included WAC testing, Asbestos screen, BRE Suite, CLEA metals, EPH and PAH.

The laboratory teste results are contained in Appendix 3 and the ground gas readings are given in Appendix 4.

The results are intended to give baseline readings for the risk assessment.

4.3 Provide full discussion of conclusions reached referenced to the "suitable for use" approach to development and site utilisation.

In general, the soil results show only a mild presence pf anthropogenic material identified as potential contaminants by the desk study. The laboratory indicate that no asbestos is present in the samples tested. This study is not an asbestos survey.

Soil Samples

A hydrocarbon odour was reported in borehole BH3 at approximately 1 m bgl. Samples collected from this location show the presence of poly aromatic hydrocarbons consistent with petrogenic deposition. This would normally be associated with automotive fuels and lubricants.

There is a change in the pattern of occurrence of constituent PHA compounds with depth indicating that those of lower water solubility are still prevalent in BH3 at 0.5m bgl with the compounds of greater solubility accumulating at 1.0 m bgl. There is a measurable trace of Fluorene and Phenanthrene at 2.0 m bgl consistent with water recharge into the ground at that location.

The apparent absence of the more water-soluble PAH compounds indicate that the origin of the hydrocarbon mass is historic in the 0.5 m bgl sample and that they have washed to lower levels via groundwater recharge.

Overall, the apparent gradation with depth suggests that the material is mobile indicative of a downward migration with water. The separation of the components also suggests that mobility is prevalent for those components exhibiting a greater water solubility relative to the overall mass detected.

Ground Gas

The readings did not record any above average gas concentrations.

Water Samples – Organic Parameters

The quantity of PAHs found in samples of ground water from boreholes BH2 and BH6, understood to be down gradient from BH3 are consistent with mobilisation in localised groundwater recharge from a car park or land used for similar purposes. There is also potential for some contribution from natural organics observed in BH2 and BH6 at depths around 2 and 6 m bgl. The relative concentrations of PAHs in these water samples suggest that BH6 is downgradient from BH2 and that trace amounts are being absorbed on soil particulates as water flows across the site.

Water Samples - Inorganic Parameters

Of the two water samples taken the dissolved metals concentrations indicate that the water local to the boreholes is not of Arsenic and Nickel relative to potable requirements. The other inorganic constituents were within potable requirements at the time of sampling.

Leachate Generation Testing

The leachate samples derived from the BH 3 sample at 1.0 m bgl does not indicate any major elevation of dissolved organic carbon which is consistent with a low-level presence of petrogenic materials.

There are no breaches of indicated limit values referenced in BS EN 12457-3 except for antimony in the sample from BH 3 at 1.0 m bgl. The presence of mobile antimony may be indicative of hardened bearing metal wear being shed into vehicle lubricants, components of automotive grease.

This sample also showed a breach of acceptance criteria for inert waste relative mineral oil content and total organic carbon. This is consistent with vehicle maintenance or fuelling on the site at, or near, this location.

Material within the footprint of BH3 at a depth of 1.0 m bgl is likely to require disposal in a facility suitable for non-inert material.

5 GEOTECHNICAL RISK ASSESSMENTS

Objective - to identify if any significant geotechnical risks likely to impact on the proposed development.

5.1 Foundation considerations

This section of the report considers the foundation design aspects in relation to the ground conditions encountered at the site and the proposed development.

Foundation considerations include a discussion of the foundation systems best suited for the project, indicate allowable bearing capacities, and anticipated settlements together with construction methods and possible construction problems.

5.2 Proposed Development

It is proposed to redevelop the Site for a mixed residential and commercial land use.

Extract from Proposed Site Plan, JY94-DA-100-P03/F2

In summary, the proposals comprise:

- 271 new residential units located in an area comprising an existing surface car park (including new basement parking).
- Refurbishment of the former Ann Street Brewery listed building as commercial unit.
- Refurbishment and extension of the listed building at No. 72 St. Saviours Road (Sans Souci) as facilities for Autism Jersey.
- Demolition of existing buildings including Nos. 4/4a Simon Place and the retention of 12 Simon Place to create new residential buildings; and,
- Public realm improvements including new pedestrian routes through the site and new public green open space.

5.3 Ground Conditions

The British Geological Survey 1:25000 scale Sheet, 1989, indicates the site to lie within the Jersey Shale Formation.

The Jersey Shale Formation comprises sediments of mudstone, siltstone, greywacke and sandstone with minor grit and conglomerate. Locally the sediments are understood to consist of laminated mudstone, ripple laminated very fine-grained sandstone, graded medium to fine-grained sandstone, and cross-stratified medium-grained sandstone.

The rock is overlain by Alluvium, commonly up to 10m thick, and comprising clay, silt, and sand with layers of peat.

The British Geological Survey, Hydrological and Hydrochemical Survey of Jersey, 1991, indicates a potentiometric ground water level of less than10m.

Ground conditions are given in detail in the borehole logs in Appendix 1 and are summarised below:

Geology	Ref. no	Brief description of strata	Depth range (m bgl)						
			BH1	BH2	BH3	BH4	BH5	BH6	BH7
Made Ground	a1	Concrete, sub-base	0.50	1.00	0.10	0.60	1.00	0.60	0.90
Alluvium	b1	Silt	2.00	2.00	2.00	1.80	1.65	1.60	2.00
	b2	Organic clay	4.00	4.00	-	5.50	-	4.00	-
	b3	Gravelly silt, clay & sand	9.72	9.86	9.65	9.30	8.74	8.87	8.49
Bedrock	c1	Jersey Shale Formation	11.96*	11.48*	11.70*	11.35*	11.03*	11.04*	10.75*

* Depth off BH

Water levels are given in the borehole logs in Appendix 1 and are summarised below for 16th November 2020:-

BH	Level of water (m aD)
2	7.81
3	7.51
6	7.42

Water levels will be subject to seasonal change.

5.4 Bearing Capacity and Settlement

Working loads for CFA piles founded on the bedrock are primarily governed by the end bearing capacity considerations. 450mm dia CFA piles could be designed and installed for design actions Ed up to 900kN and 600mm dia for Ed up to 1600kN.

Predicted pile settlements are in the region of 10mm at SWL and 20mm at 150% SWL.

6 BASEMENT CONSIDERATIONS

This section of the report considers factors relating to the basement wall design and any hydrostatic pressures to be considered together with any special conditions affecting its design and construction, retention of the perimeter of the excavation, and method of excavation.

6.1 Basement retaining wall

The proposed basement covers much of the western part of the plan area of the site and avoids the old culvert that traverses the site from north to south.

Extract from JY94-DA-100-P09/F01

We understand the finished basement level is circa 6.4m aD. The ground level is approximately 8.8m aD so excavations will be up to 2.5m to 3.0m deep.

The water level in the boreholes was about 7.8m aD. The water level would some 1.4m above basement level.

Guidance on the design of retaining walls and groundwater control can be found in the following documents, (this list is far from exhaustive):

- BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design. General rules
- BS EN 1992-1-1:2004+A1:2014 Eurocode 2: Design of concrete structures. General rules and rules for buildings
- ICE Specification for Piling and Embedded Retaining Walls, 3rd ed, 2016, which offers guidance on the specification of retaining walls.
- CIRIA C760 Guidance on Embedded retaining wall design, 2017.
- CIRIA C750 Groundwater control; design and practice, 2nd ed, 2016

6.2 Basement Slab

The basement slab should be designed to resist any uplift pressures from groundwater, or these pressures must be dissipated before they become effective.

The final design of the basement slab will consider the groundwater pressure. There is much merit in considering the problem of groundwater in conjunction with the basement excavation support system and optimising the retention and cut-off characteristics.

In any event, the basement slab should resist the larger of the heave pressure or the bearing pressure. If the foundation piles are utilised as anchor piles, heave will be much reduced, but the basement slab will have to be designed to resist the bearing, groundwater, and heave pressures. Alternatively, temporary anchors can be installed to cope with uplift forces during construction.

Calculations can give an approximate indication of the long-term basement heave below the new basement excavation.

6.3 Basement excavation

Basement excavation is expected to be in open cut.

Locally around the existing brewery building and close to the culvert, vertical soil retention may be needed using sheet or bored piles.

Excavations will be in Made Ground and Alluvium and should be possible using conventional earthmoving equipment. It is anticipated that most old foundations or walls will also be able to be removed with this equipment. However, it is possible that locally hydraulic/pneumatic breakers will be required for thicker concrete slabs and for the buried structures.

Careful consideration must be given to the effect of the basement excavation on neighbouring properties, the culvert, roads, and services.

The principal considerations are:

- The minimisation of ground movements and damage to adjacent buildings, culvert and any mains services including gas, water, electricity, and sewerage.
- The minimisation of noise pollution and vibrations to sensitive structures and services.
- The maintenance of existing water levels outside the site.
- The effect of water pressures on basement stability in the short and long term.

Generally, all excavations must be carried out in accordance with the Current Health & Safety at Work Regulations.

Temporary works should be designed to minimise ground movements and damage to adjacent buildings and services during excavation.

The study has not revealed any extensive past potentially contaminated land use at the site. Notwithstanding these findings and in accordance with general good practice, a watching brief should be maintained during all excavations.

7 GROUND WATER CONSIDERATIONS

This section of the report discusses systems to control ground water both during construction and for the completed project as well as site drainage, soakaways, and contamination.

7.1 Control of groundwater

We understand the finished basement level is circa 6.4m aD. The ground level is approximately 8.8m aD so excavations will be up to 2.5m to 3.0m deep.

The water level in the boreholes was about 7.8m aD. The water level would some 1.4m above basement level.

Any de-watering would have to be carried out cautiously to avoid the risk of settlement arising from groundwater lowering.

The amount of groundwater likely to flow into an excavation will be a function of the ground permeability, the head of water and the cross-sectional area of the part of the excavation being considered.

The former brewery well should be located and decommissioned to prevent unnecessary water inflow and to avoid the risk of cross contamination.

7.2 Site drainage

We understand the site is currently on mains drains.

8 EARTHWORKS

This section of the report considers excavations, filling, and compaction at the site.

All excavations, filling and compaction must be carried out in accordance with the current Health & Safety at Work regulations. All excavations into which personnel may enter must be supported or the sides battered back to a safe angle.

The extraction of the soils themselves should not pose any unusable mechanical problem but careful consideration will have to be given to the effect of the excavation on the neighbouring properties, roads, and services. Hydraulic breakers may be needed to excavate buried concrete.

All excavations must be carried out in accordance with current Health and Safety at Work Legislation.

9 GROUND AGGRESSIVITY

This section considers the procedure or systems to control or circumvent the problem of corrosion of foundation elements and buried utilities.

The principal cause of concrete degradation in foundations is considered attack by sulphates present in the soil and ground water.

The results of geochemical tests carried out on samples taken during the ground investigation indicate that the site can be classified as class DS-1 and ACEC. Class AC-1 in accordance with BRE Special Digest 1:2005.

APPENDIX 1

ASPECTS TO BE CONSIDERED DURING THE INVESTIGATION OF POTENTIALLY CONTAMINATED SITES

- Contamination
- Geology
- Hydrology
- Pathways and targets

Examples of Phases and activities associated with site investigation

Phase of investigation	Typical activities
Preliminary Investigation	Literature review (Desk Study) Consultation (e.g. site owners, neighbours, regulatory authorities) Site visits
Exploratory investigation	Preliminary sampling (e.g. surface deposits, vegetation) Preliminary monitoring (e.g. gas composition and groundwater quality, flora, and fauna)
Detailed investigation	Comprehensive investigation of ground (e.g. using trial pits, trenches, boreholes) Monitoring (e.g. gas composition and water quality, flora, and fauna)
Supplementary investigation	Further ground investigation and monitoring Treatability testing
Investigation for compliance and performance	Post-treatment validation and monitoring as appropriate

Examples of generic reference data for assessment purposes

Medium	Dedicated	Non-dedicated
Soils	Defra Soil Guideline Values (SGV) Dutch standards Canadian guidelines Australian/New Zealand guidelines	Application of sewage sludge to land
Water	Dutch, Canadian guidelines	Drinking water standards and water quality objectives
Air Soil gas	- WMP No. 27 on landfill gas BRE guidance ICRCL guidance on the development and after-use of landfill sites CIRIA guidance on methane Institute of Petroleum guidance	Air quality standards Occupational Exposure Standards and Maximum Exposure Limits -

Typical objectives for investigation of contamination

- Contamination of soils and ground water on the site
- Contamination migrating off the site
- Other hazards and features on the site
- Potential targets and likely pathways
- Alternative remedial strategies
- Monitoring and maintenance
- Safe site working practices during remedial works
- Contingencies for any emergency action

NOTE:

Remember there may be conflict between the objective of a site investigation for foundation design and a site investigation for contamination assessment.

Health and Safety issues

Health and safety procedures
Controlled entry
Site zoning
Good hygiene
Monitoring
Appropriate disposal of wastes
Safe handling, storage, and transport of hazardous samples
Control of nuisance
Emergency procedures
Provision of appropriate training
Need for routine health surveillance

QA/QC for site investigation and risk assessment

1. Compliance with all relevant legal requirements
2. Review of documentary evidence during desk study
3. Location and recording of observations during site reconnaissance
4. Procedures used to identify potential hazard-pathway-target relationships and to
5. select "plausible" scenarios for further assessment
6. Siting and installation of exploratory excavations
7. Establishment and performance of environmental protection measures
8. Waste disposal arrangements (Duty of Care etc.)
9. Implementation of health and safety procedures
10. Collection and handling of samples

11. Storage and preparation of samples
12. Methods of analysis and testing
13. On-site recording protocols
14. Reporting of data
15. Reporting procedures used in estimation of risks
16. Input to, and use of any models to aid interpretation of the data
17. Participation by contracting parties in appropriate accreditation schemes (e.g. BS 5750 for quality management, NAMAS for analytical and testing service, CONTEST * for analytical proficiency
18. Scheme operated by the laboratory of the Government Chemist under the DTI's
19. 'Validity of Analytical Measurement' Initiative.

Objectives of risk assessment

The purpose of risk assessment is to determine:

Whether the observed levels of contamination are likely to pose unacceptable risks to defined targets now or in the future.

Whether measures should be taken to reduce risks to an acceptable level.

Hazard identification and assessment

Comparison of observed concentrations with published data

Assessment of hazard-pathway-target scenarios

Comparison of observed concentrations with reference data indicative of negligible risk under defined conditions of exposure

APPENDIX 2

Borehole logs and ground water levels

BH1-7

Nominal Sections

BH3-5-2
BH7-6-4
BH1-2-4

SPT Summary Table

SPT vs. Depth Profile

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH1

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 9.52m	8.77	Andium Homes	1920
	Location (Observed measurements) 42635 E 65758 N	**Dates** 21/09/2020- 23/09/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					8.69	0.08	MADE GROUND - Hoggin		
					8.59	0.18			
					8.52	(0.15)	MADE GROUND - Tarmac		
					8.37	0.40			
				Starter Pit	8.27	0.50	MADE GROUND - Concrete layer 1		
							MADE GROUND - Concrete layer 2		
							MADE GROUND - Sub base		
1.20-2.00	WS1 0.75					(1.50)	Greyish brown slightly sandy slightly gravelly clayey SILT		
2.00-2.45	J2			Water Flush set up 21/09/2020:1.91m	6.77	2.00	Stiff dark brown slightly gravelly slightly sandy silty organic CLAY		
2.00-3.00	WS3 0.13	2.50							
2.00-2.45	SPT N=15	1.52	1.46	22/09/2020:1.46m 1,1/3,7,4,1					
3.00-4.00	WS4 1.00					(2.00)			
4.00	J5				4.77	4.00	Very soft bown slightly gravelly slightly sandy CLAY		
4.00-4.45	SPT N=3	4.02	2.01	1,0/0,1,1,1					
4.00-5.00	WS6 0.73	5.00							
5.00-6.00	WS7 1.00					(2.00)			
6.00	J8				2.77	6.00	Dense brown slightly gravelly very clayey SAND		
6.00-6.45	SPT N=32	6.02	1.77	2,5/7,10,8,7					
6.00-6.57	WS9 0.50								
6.57-7.35	X10 0.78	7.01				(2.22)			
7.35-8.22	X11 0.50								
8.22-8.67	J12 0.20				0.55	8.22	Stiff light brown slightly sandy slightly gravelly silty CLAY		
8.22-8.67	SPT N=43	8.02	2.84	4,5/8,10,9,16					
8.22-8.94	X13 1.03								
8.94-9.48	X14 0.54	9.05				(1.50)			
9.48-9.72	X15 0.24			25,0/0,20,0,0 20/15					
9.72-9.76	SPT(C) 25*/20				-0.95	9.72	Weak grey slightly weathered MUDSTONE (Jersey Shale Formation)		
9.72	C 0.43								

TCR	SCR	RQD	FI
100	60	10	10

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 6.57mbgl
Dry drilling 6.57 - 9.72mbgl
Rotary coring 9.72 - 11.96mbgl
Borehole backfilled and reinstated

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH1

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH1
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 9.52m	**Ground Level (mOD)** 8.77	**Client** Andium Homes	**Job Number** 1920
	Location (Observed measurements) 42635 E 65758 N	**Dates** 21/09/2020-23/09/2020	**Engineer** Dandara	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					22/09/2020:1.48m C 0.72			Weak grey slightly weathered MUDSTONE (Jersey Shale Formation)		
10.15	100	95	90	5	23/09/2020:1.52m					
10.87	100	85	60	8	C 1.09		(2.24)			
11.96					23/09/2020:1.25m	-3.19	11.96	Complete at 11.96m		

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 6.57mbgl
Dry drilling 6.57 - 9.72mbgl
Rotary coring 9.72 - 11.96mbgl
Borehole backfilled and reinstated

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH1

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 9.00m	8.80	Andium Homes	1920
	Location (Observed measurements) 42615 E 65742 N	**Dates** 23/09/2020-25/09/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					8.76	0.04				
						(0.16)	MADE GROUND - Tarmac			
					8.60	0.20				
							MADE GROUND - Concrete layer 1 Reinforced			
					8.55	0.25				
							MADE GROUND - Hoggin			
					8.50	0.30				
				Starter Pit		(0.70)	MADE GROUND - Concrete layer 2			
					7.80	1.00				
1.00	S1					(0.20)	MADE GROUND - Sub base			
					7.60	1.20				
1.20-2.00	WS2 0.80						SILT			
							Soft dark brown peaty SILT			
						(0.80)				
					6.80	2.00				
2.00	J3			23/09/2020:DRY			Very soft brown slightly gravelly slightly sandy organic CLAY			
2.00-3.00	WS4 1.00	2.51	DRY	24/09/2020:DRY						
2.00-2.45	SPT N=2	1.52	DRY	1,0/0,1,0,1						
						(2.00)				
3.00-4.00	WS5 1.00									
4.00	J6				4.80	4.00				
4.00-4.45	SPT N=4	3.50	DRY	0,1/1,1,1,1			Very soft Grey and brown slightly gravelly slightly sandy clayey SILT			
4.00-5.00	WS7 1.00	4.52								
						(1.50)				
5.00-6.00	WS8 1.00									
					3.30	5.50				
							Light brown and grey sandy gravelly CLAY			
6.00-7.00	WS10 0.90	7.01								
6.00	J9			Water Flush set up						
6.00-6.45	SPT N=30	6.00	1.60	2,5/7,7,8,8		(1.50)				
					1.80	7.00				
7.00-8.00	X11 1.00						Firm brown gravelly SILT			
						(1.00)				
8.00	J12									
8.00-8.45	SPT N=30	8.00	5.47	2,5/5,7,9,9	0.80	8.00	Stiff brown slightly sandy slightly gravelly CLAY			
8.00-8.86	X13 0.86									
						(0.86)				
8.86-9.23	X14 0.37	9.00			-0.06	8.86	Weathered MUDSTONE (Jersey Shale Formation)			
						(0.43)				
9.23-9.29	**TCR** / **SCR**	**RQD**	**FI**	X15 0.06						
9.29				C 0.99	-0.49	9.29	Very weak grey slightly weathered closely bedded MUDSTONE (Jersey Shale Formation)			
	100 / 40	15	10+							

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 6.00mbgl
Dry drilling 6.0 - 9.29mbgl
Rotary coring 9.29 - 11.48mbgl
Slotted pipe installed from GL to 4mbgl response zone 4.00 - 1.00mbgl
Flush cover installed

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH2

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH2
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 9.00m **Location** (Observed measurements) 42615 E 65742 N	**Ground Level (mOD)** 8.80 **Dates** 23/09/2020-25/09/2020	**Client** Andium Homes **Engineer** Dandara	**Job Number** 1920 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.28	100	50	10	10	C 0.60		(2.19)	Very weak grey slightly weathered closely bedded MUDSTONE (Jersey Shale Formation)			
10.88	100	60	20	10	24/09/2020:1.50m C 0.22						
11.10	100	95	90	5	25/09/2020:1.51m C 0.38						
11.48					25/09/2020:1.15m	-2.68	11.48	Complete at 11.48m			

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 6.00mbgl
Dry drilling 6.0 - 9.29mbgl
Rotary coring 9.29 - 11.48mbgl
Slotted pipe installed from GL to 4mbgl response zone 4.00 - 1.00mbgl
Flush cover installed

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH2

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH3

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 8.52m	9.86	Andium Homes	1920
	Location (Observed measurements) 42692 E 65714 N	**Dates** 29/09/2020-30/09/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					9.76	0.10	MADE GROUND - Tarmac			
							Dark brown SILT with hydrocarbon smell			
0.50	S1					(0.90)				
				Starter Pit						
					8.86	1.00				
						(0.20)	Dark grey SILT			
					8.66	1.20				
1.20	S2						Firm dark brown sandy SILT			
1.20	WS3					(0.80)				
2.00	J5				7.86	2.00				
2.00-2.45	SPT N=8	1.50	DRY	1,2/2,2,2,2			Firm Greyish brown slightly gravelly slightly sandy CLAY			
2.00-2.00	S4 0.8									
2.00-3.00	WS6 1.0	2.53								
3.00-4.00	WS7 0.85					(2.00)				
4.00	J8				5.86	4.00				
4.00-4.45	SPT N=10	3.52	DRY	1,2/3,2,2,3			Firm orangish brown slightly gravelly slightly sandy clayey SILT			
4.00-5.00	WS9 1.00	4.50								
5.00-6.00	WS10 1.00					(2.00)				
6.00-7.00	WS12 1.00									
6.00	J11			Water Flush set up	3.86	6.00				
6.00-6.45	SPT N=19	6.00	DRY	4,4/4,5,5,5			Stiff light brown slightly gravelly slightly sandy silty CLAY			
7.00-7.72	WS13 0.72					(1.72)				
7.72-7.87	WS14 0.15			29/09/2020:4.26m	2.14	7.72				
7.87-8.63	X15 .25			30/09/2020:3.06m C 0.25			Very dense brown gravelly SILT			
7.87-8.35	SPT(C) 115/325	7.53	3.71	14,17/19,21,25,50						
8.63-9.03	NR			C NR		(1.93)				
9.03-9.65	X16 0.62	8.52								
	TCR / **SCR** / **RQD** / **FI**									
9.65	100 / 10 / 0 / _			C 0.39 C 0.87	0.21	9.65	Very weak grey slightly weathered MUDSTONE (Jersey Shale Formation)			
10.04										

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.87mbgl
Dry drilling 7.87 - 9.65mbgl
Rotary coring 9.65 - 11.70mbgl
Piezometer installed response zone 11.70 - 8.00mbgl
Flush cover installed

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH3

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH3
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 8.52m **Location** (Observed measurements) 42692 E 65714 N	**Ground Level (mOD)** 9.86 **Dates** 29/09/2020-30/09/2020	**Client** Andium Homes **Engineer** Dandara	**Job Number** 1920 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	40	10	10			(2.05)	Very weak grey slightly weathered MUDSTONE (Jersey Shale Formation)			
10.91	100	60	30	10	C 0.79						
					30/09/2020:2.02m	-1.84	11.70				
11.70								Complete at 11.70m			

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.87mbgl
Dry drilling 7.87 - 9.65mbgl
Rotary coring 9.65 - 11.70mbgl
Piezometer installed response zone 11.70 - 8.00mbgl
Flush cover installed

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH3

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH4

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 9.02m	8.55	Andium Homes	1920
	Location (Observed measurements) 42597 E 65701 N	**Dates** 02/10/2020- 05/10/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					8.45	0.10	MADE GROUND - Top Soil		
						(0.20)			
					8.25	0.30	MADE GROUND - Silty Sub-base		
						(0.30)			
					7.95	0.60	MADE GROUND - Backfill		
				Starter Pit			Soft dark grey SILT		
						(0.60)			
1.20-2.00	WS1 0.80				7.35	1.20	Soft grey SILT		
						(0.60)			
2.00	J2				6.75	1.80	Soft dark brown slightly sandy clayey PEAT		
2.00-2.45	SPT N=3	1.52	DRY	0,1/0,0,1,2		(0.60)			
2.00-3.00	WS3 1.00	2.50							
					6.15	2.40	Soft grey SILT		
					6.05	2.50	Soft PEAT		
						(0.30)			
					5.75	2.80	Soft grey SILT		
						(0.20)			
3.00-4.00	WS4 1.00				5.55	3.00	Soft brown SILT		
						(1.00)			
4.00	J5			Water Flush set up 01/10/2020:DRY	4.55	4.00	Very soft brown slightly gravelly slightly sandy organic CLAY		
4.00-5.00	WS6 1.00	5.00							
				02/10/2020:DRY					
4.00-4.45	SPT N=2	3.52	DRY	1,0/0,1,0,1		(1.50)			
5.00-6.00	WS7 1.00	6.00							
					3.05	5.50	Medium dense fine gravelly sandy SILT		
						(0.50)			
6.00	J8				2.55	6.00	Medium dense light brown slightly sandy very clayey GRAVEL		
6.00-6.45	SPT N=23		GL	5,5/5,6,7,5					
6.00-7.00	WS9 0.58	7.00				(1.70)			
7.00-7.48	X10 0.48								
7.48-8.48	X11 1.00	8.02							
7.48-7.93	SPT(C) N=46			6,12/17,15,8,6	0.85	7.70	Dense SILT with fragments of bedrock		
						(1.60)			
8.48-9.10	X12 0.52	8.51							
9.10-9.30	X13 0.20	9.02							

TCR	SCR	RQD	FI
100	20	0	_

9.30				C 0.46	-0.75	9.30	Very weak grey slightly weathered closely banded MUDSTONE (Jersey Shale Formation)		
				02/10/2020:1.23m					
9.76				C 0.48					

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.00mbgl
Dry drilling 7.00 - 9.30mbgl
Rotary coring 9.30 - 11.35mbgl

Scale (approx)	Logged By
1:50	MFW

Figure No.
1920.BH4

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH4
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 9.02m	**Ground Level (mOD)** 8.55	**Client** Andium Homes	**Job Number** 1920
	Location (Observed measurements) 42597 E 65701 N	**Dates** 02/10/2020-05/10/2020	**Engineer** Dandara	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	100	65	20	10				grey slightly weathered closely banded MUDSTONE (Jersey Shale Formation)		
10.24	100	85	10	10	C 0.51		(2.05)			
10.75	100	80	15	10	C 0.60					
11.35					05/10/2020:1.25m	-2.80	11.35	Complete at 11.35m		

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.00mbgl
Dry drilling 7.00 - 9.30mbgl
Rotary coring 9.30 - 11.35mbgl

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH4

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH5

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 8.52m	9.39	Andium Homes	1920
	Location (Observed measurements) 42659 E 65702 N	**Dates** 05/10/2020- 07/10/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					9.34	0.05			
						(0.15)	MADE GROUND - Tarmac, 2 layers		
					9.19	0.20			
							MADE GROUND - Sub-base Hoggin with stones		
						(0.80)	MADE GROUND - Dark grey backfill with bricks and stones		
				Starter Pit					
					8.39	1.00			
						(0.20)	Soft dark grey SILT		
1.20	J1				8.19	1.20			
1.20-1.65	SPT N=6		DRY	1,1/1,1,2,2			Dark grey SILT with layer of gravel		
1.20-2.00	WS2 0.80	1.52				(0.45)			
					7.74	1.65			
							Soft orangish brown and grey slightly gravelly slightly sandy SILT		
2.00-3.00	WS3 1.00								
						(1.35)			
3.00	J4				6.39	3.00			
3.00-3.45	SPT N=6	2.50	DRY	1,2/2,1,2,1			Soft brown slightly sandy clayey SILT		
3.00-4.00	WS5 1.00	3.50				(1.00)			
4.00-5.00	WS6 1.00			05/10/2020:DRY	5.39	4.00			
				06/10/2020:DRY			Very stiff orangish brown and grey slightly sandy gravelly CLAY		
5.00-6.00	WS8 0.90								
5.00	J7			Water Flush set up					
5.00-5.45	SPT N=10	5.00	DRY	2,2/2,3,2,2,3					
						(3.00)			
6.00-7.00	WS9 0.87								
7.00	J10				2.39	7.00			
7.00-7.45	SPT N=50	7.00	4.02	5,6/6,9,15,20			Soft brown sandy SILT		
7.00-8.02	X11 0.99	8.00				(1.00)			
8.02-8.46	X12 0.44				1.39	8.00			
							Dense gravelly SILT (fragments of JSF)		
				25,0/50,0,0,0					
8.46-8.74	X13 0.28			50/15		(0.74)			
8.74-8.80	**TCR** / **SCR** / **RQD** / **FI**			SPT(C) 25*/45					
8.74	100 / 20 / 0 / _			C 0.47	0.65	8.74			
							Weak sligthly weathered closely bedded MUDSTONE (Jersey Shale Formation)		
9.21	100 / 40 / 20 / 10			C 0.55					
9.76				C 0.59					

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.00mbgl
Dry drilling 7.00 - 8.74mbgl
Rotary coring 8.74 - 11.03mbgl
Reinstated with backfill

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH5

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH5
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 8.52m	**Ground Level (mOD)** 9.39	**Client** Andium Homes	**Job Number** 1920
	Location (Observed measurements) 42659 E 65702 N	**Dates** 05/10/2020-07/10/2020	**Engineer** Dandara	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	100	50	20	10			(2.29)			
10.35	100	75	10	10	C 0.68 06/10/2020:1.80m	-1.64	11.03	sligthly weathered closely bedded MUDSTONE (Jersey Shale Formation)		
11.03								Complete at 11.03m		

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.00mbgl
Dry drilling 7.00 - 8.74mbgl
Rotary coring 8.74 - 11.03mbgl
Reinstated with backfill

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH5

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH6

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 8.50m	8.71	Andium Homes	1920
	Location (Observed measurements) 42617 E 65655 N	**Dates** 07/10/2020- 09/10/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					8.51	(0.20) 0.20	MADE GROUND - Top soil			
						(0.40)	MADE GROUND - Sub-base			
					8.11	0.60	Soft brown SILT			
				Starter Pit		(0.50)				
					7.61	1.10	Soft grey SILT			
1.20-2.00	WS1 0.80					(0.50)				
					7.11	1.60	Soft brown slightly sandy clayey organic SILT			
2.00	J2					(0.80)				
2.00-2.45	SPT N=9	1.52	DRY	1,0/1,1,3,4						
2.00-3.00	WS3 1.00	2.51	DRY							
					6.31	2.40	Soft grey SILT			
						(0.60)				
3.00-4.00	WS4 1.00			07/10/2020:DRY	5.71	3.00	Soft to firm dark brown slightly sandy silty organic CLAY			
				08/10/2020:DRY						
						(1.00)				
4.00-5.00	WS6 1.00	4.52								
4.00	J5			Water Flush set up	4.71	4.00	Stiff orangish brown slightly sandy clayey SILT			
4.00-4.45	SPT N=22	3.51	DRY	2,3/4,6,7,5						
						(2.00)				
5.00-6.00	WS7 0.90									
6.00	J8				2.71	6.00	Medium dense orangish brown slightly gravelly slightly sandy CLAY			
6.00-6.45	SPT N=19	6.00	2.05	2,4/3,4,6,6						
6.00-7.00	WS9 1.00	7.00				(0.40)				
					2.31	6.40	Firm brown sandy SILT			
						(0.60)				
7.07-8.03	X11 0.96	8.00			1.71	7.00	COBBLES			
7.00-7.07	WS10 0.07				1.64	7.07				
7.07-7.52	SPT(C) N=34		1.90	8,9/10,9,8,7			Stiff brown fine to coarse SILT			
						(1.63)				
8.03-8.70	X12 0.67									
				25,0/50,0,0,0 50/25						
8.70-8.83	TCR / SCR / RQD / FI			X13 0.13	0.01	8.70 (0.17)	Dense grey SILT with rock fragments			
8.83-8.88				SPT(C) 25*/25	-0.16	8.87				
8.83	100 / 80 / 70 / 5			C 0.88			Weak grey slightly weathered MUDSTONE (Jersey Shale Formation)			
9.71				C 0.69						

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 -7.07mbgl
Dry drilling 7.07 8.83mbgl
Rotary coring 8.83 - 11.04mbgl
Reinstated with backfill

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH6

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH6
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 8.50m	**Ground Level (mOD)** 8.71	**Client** Andium Homes	**Job Number** 1920
	Location (Observed measurements) 42617 E 65655 N	**Dates** 07/10/2020-09/10/2020	**Engineer** Dandara	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	80	75	5			(2.17)	Weak grey slightly weathered MUDSTONE (Jersey Shale Formation)			
10.40	100	60	40	7	08/10/2020:1.30m C 0.64 09/10/2020:1.40m 09/10/2020:1.35m						
11.04						-2.33	11.04	Complete at 11.04m			

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 -7.07mbgl
Dry drilling 7.07 8.83mbgl
Rotary coring 8.83 - 11.04mbgl
Reinstated with backfill

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH6

AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH7

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Starter pit excavated by hand Dry Drilling & Rotary Coring using Fraste Rig	113mm cased to 8.00m	8.83	Andium Homes	1920
	Location (Observed measurements) 42640 E 65644 N	**Dates** 09/10/2020-13/10/2020	**Engineer** Dandara	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					8.78	0.05	MADE GROUND - Tarmac			
						(0.45)	MADE GROUND - Hoggin			
0.50	W1				8.33	0.50	MADE GROUND - Backfill - sandy with cobbles			
						(0.40)				
				Starter Pit	7.93	0.90	Soft brown sandy SILT			
1.00	W2									
1.20-2.00	WS3 0.80			09/10/2020:DRY		(1.10)				
				12/10/2020:1.10m						
2.00	J4				6.83	2.00	Very soft light brown slightly gravelly slightly sandy silty CLAY			
2.00-2.45	SPT N=2	1.51	1.85	1,0/1,0,1,0						
2.00-3.00	WS5 1.00									
						(1.50)				
3.00-4.00	WS6 1.00									
					5.33	3.50	Firm brown sandy SILT			
						(0.50)				
4.00-5.00	WS8 1.00				4.83	4.00	Firm light brown slightly sandy clayey SILT			
4.00	J7			Water Flush set up						
4.00-4.45	SPT N=12	3.51	DRY	2,2/2,3,3,4						
						(2.00)				
5.00-6.00	WS9 1.00									
6.00	J10				2.83	6.00	Firm light brown slightly sandy slightly gravelly silty CLAY			
6.00-6.45	SPT N=10	6.00	3.54	2,3/2,2,3,3						
6.00-7.00	WS11 1.00					(1.00)				
7.00-7.18	WS12 0.18				1.83	7.00	Medium dense fine gravelly SILT with rock fragments			
7.18-8.00	X13 0.82									
						(1.00)				
8.00	J14				0.83	8.00	Very stiff orangish brown slightly sandy gravelly CLAY			
8.00-8.43	SPT 74/280	8.00	1.62	9,17/16,15,18,25						
8.00-8.49	X15 0.49					(0.49)				
	TCR / **SCR** / **RQD** / **FI**				0.34	8.49	Very weak grey slightly weathered very closely bedded iron stainded little solid core recovery MUDSTONE (Jersey Shale Formation)			
8.49	100 / 0 / 0 / _			C 0.50						
8.99	100 / 0 / 0 / _			C 0.53						
9.52	100 / 0 / 0 / _			C 0.72		(2.26)				

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.18mbgl
Dry drilling 7.18 - 8.49mbgl
Rotary coring 8.49 - 10.75mbgl

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH7

AMPLUS LTD

Foundation & Geotechnical Specialists

Site Ann Street Brewery, St Helier			**Borehole Number** BH7
Machine : Fraste PL **Flush :** **Core Dia :** mm **Method :** Cable Percussion	**Casing Diameter** 113mm cased to 8.00m	**Ground Level (mOD)** 8.83	**Client** Andium Homes	**Job Number** 1920
	Location (Observed measurements) 42640 E 65644 N	**Dates** 09/10/2020-13/10/2020	**Engineer** Dandara	**Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.24	100	20	10	10	C 0.51 12/10/2020:1.58m	-1.92	10.75	Very weak grey slightly weathered very closely bedded iron stainded little solid core recovery MUDSTONE (Jersey Shale Formation)			
10.75								Complete at 10.75m			

Remarks
Starter Pit Excavated to 1.20mbgl
Window sampling from 1.20 - 7.18mbgl
Dry drilling 7.18 - 8.49mbgl
Rotary coring 8.49 - 10.75mbgl

Scale (approx)	Logged By
1:50	MFW

Figure No. 1920.BH7

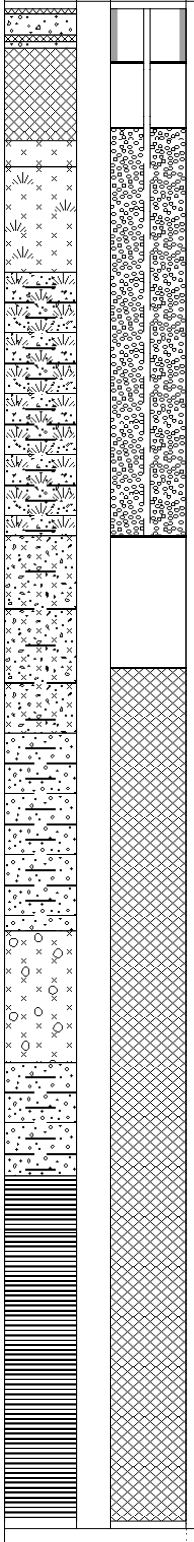
AMPLUS LTD

Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH2

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Andium Homes	1920

Location	Ground Level (mOD)	Engineer	Sheet
42615 E 65742 N	8.80	Dandara	1/1



Level (mOD)	Depth (m)	Description
8.40	0.40	Pipe in Chamber
		Bentonite Seal
7.90	0.90	
7.80	1.00	Gravel Filter
		Slotted Standpipe
4.80	4.00	
		Bentonite Seal
3.80	5.00	
		General Backfill
-2.68	11.48	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
23/09/20	08.00					17.00	2.00	1.52	DRY	
24/09/20	08.00	2.00	1.52	DRY		17.00	10.88	9.00	1.50	7.30
25/09/20	08.00	10.88	9.00	1.51	7.29	12.00	11.48		1.15	7.65

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks
29/09/20	08:00	1.15	7.65	
29/09/20	17:00	1.17	7.63	
30/09/20	08:00	1.19	7.61	
30/09/20	17:00	1.20	7.60	
01/10/20	08:00	0.98	7.82	
01/10/20	17:00	1.00	7.80	
02/10/20	17:00	0.85	7.95	No access in morning
05/10/20	08:00	0.99	7.81	
05/10/20	17:00	0.97	7.83	
06/10/20	08:00	1.01	7.79	
06/10/20	17:00	1.03	7.77	
07/10/20	08:00	1.08	7.72	
07/10/20	17:00	1.09	7.71	
08/10/20	08:00	1.12	7.68	
08/10/20	17:00	1.07	7.73	
09/10/20	08:00	1.08	7.72	
09/10/20	17:00	1.10	7.70	
12/10/20	08:00	1.19	7.61	
12/10/20	17:00	1.18	7.62	
13/10/20	08:00	1.17	7.63	
13/10/20	17:00	1.17	7.63	
14/10/20	08:00	1.12	7.68	
20/10/20	08:00	1.19	7.61	
03/11/20	08:00	1.12	7.68	
16/11/20	08:00	0.99	7.81	

Remarks

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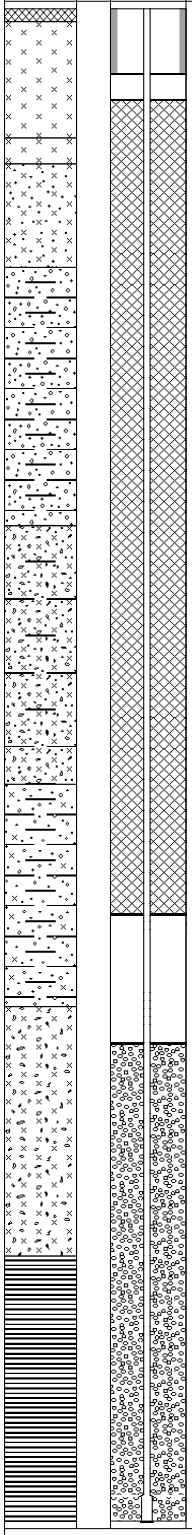
Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH3

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 20 mm	Andium Homes	1920

Location	Ground Level (mOD)	Engineer	Sheet
42692 E 65714 N	9.86	Dandara	1/1



Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			9.36	0.50	Pipe in Chamber
			9.16	0.70	Bentonite Seal
			2.86	7.00	General Backfill
			1.86	8.00	Bentonite Seal
			-1.64	11.50	Gravel Filter
			-1.84	11.70	Piezometer Tip

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
29/09/20	08.00					17.00	7.72	6.00	4.26	5.60
30/09/20	08.00	7.72	6.00	3.06	6.80	17.00	11.70		2.02	7.84

Instrument Groundwater Observations

Inst. [A] Type : Standpipe Piezometer

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks
01/10/20	08:00	2.38	7.48	
01/10/20	17:00	2.50	7.36	
02/10/20	08:00	2.33	7.53	
02/10/20	17:00	2.37	7.49	
05/10/20	08:00	2.36	7.50	
05/10/20	17:00	2.35	7.51	
06/10/20	08:00	2.36	7.50	
06/10/20	17:00	2.43	7.43	
07/10/20	08:00	2.40	7.46	
07/10/20	17:00	2.41	7.45	
08/10/20	08:00	2.42	7.44	
08/10/20	17:00	0.77	9.09	Manhole flooded
09/10/20	08:00	0.98	8.88	Manhole flooded
09/10/20	17:00	2.28	7.58	
12/10/20	08:00	2.36	7.50	
12/10/20	17:00	2.40	7.46	
13/10/20	08:00	2.40	7.46	
13/10/20	17:00	2.40	7.46	
14/10/20	08:00	2.40	7.46	
20/10/20	08:00	2.46	7.40	
03/11/20	08:00	2.35	7.51	
16/11/20	08:00	2.35	7.51	

Remarks

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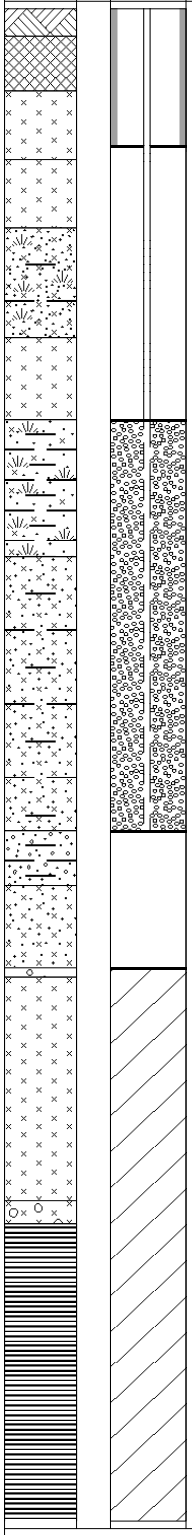
Foundation & Geotechnical Specialists

Site	Borehole Number
Ann Street Brewery, St Helier	BH6

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Andium Homes	1920

Location	Ground Level (mOD)	Engineer	Sheet
42617 E 65655 N	8.71	Dandara	1/1



Level (mOD)	Depth (m)	Description
7.71	1.00	Pipe in Chamber
		Bentonite Seal
5.71	3.00	
		Slotted Standpipe
2.71	6.00	
		Bentonite Seal
1.71	7.00	
		Bottom Fill
-2.33	11.04	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)

Groundwater Observations During Drilling

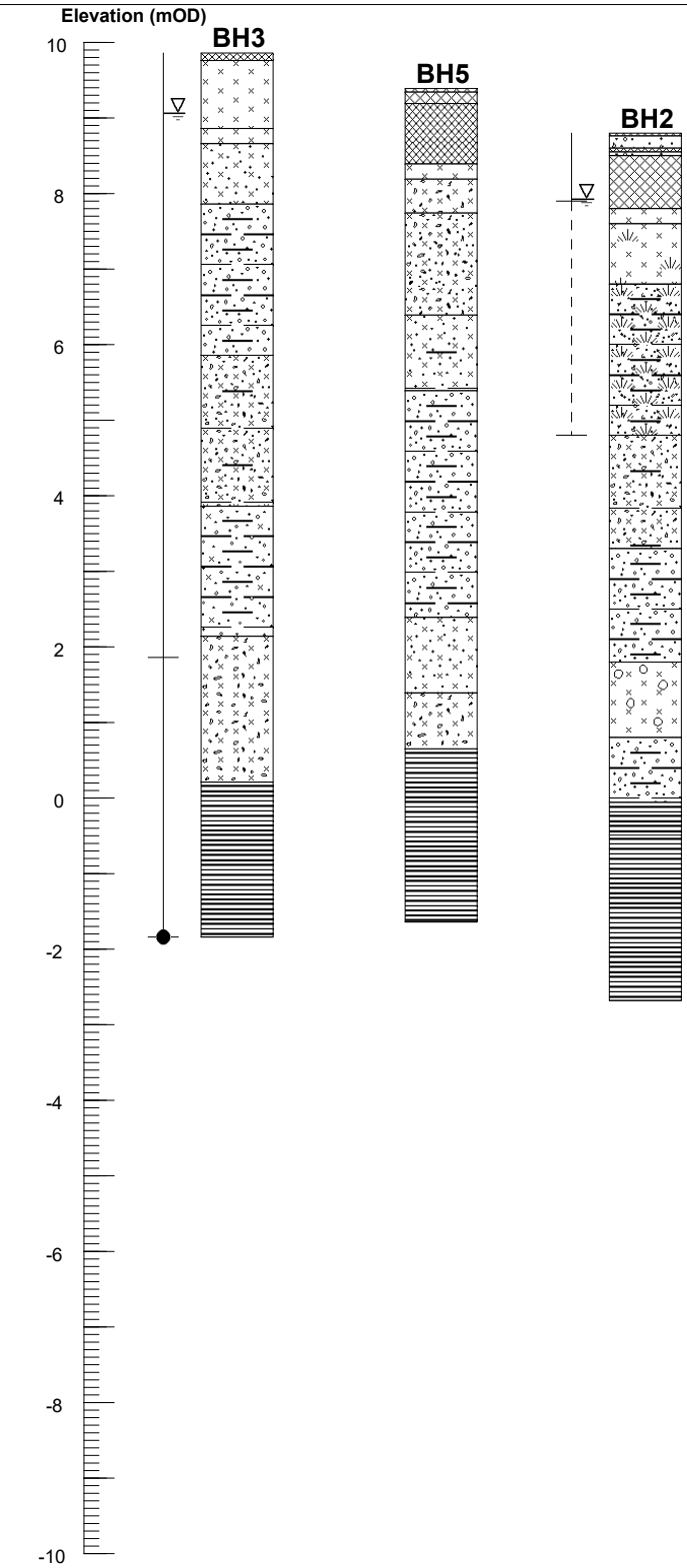
Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
07/10/20						17.00	3.00	2.51	DRY	
08/10/20	08.00	3.00	2.51	DRY		17.00	10.40	8.50	1.30	7.41
09/10/20	08.00	10.40	8.50	1.40	7.31	12.00	11.04		1.35	7.36

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks
12/10/20	08:00	1.37	7.34	
12/10/20	17:00	1.38	7.33	
13/10/20	08:00	1.37	7.34	
13/10/20	17:00	1.36	7.35	
14/10/20	08:00	1.37	7.34	
20/10/20	08:00	1.47	7.24	
03/11/20	08:00	1.30	7.41	
16/11/20	08:00	1.29	7.42	

Remarks



Key

- Groundwater Strike
- Strike Rise Level
- Highest recorded piezo level
- Piezometer Tip
- Slotted Standpipe
- MADE GROUND
- MADE GROUND
- CONCRETE
- Silty sandy gravelly CLAY
- Sandy gravelly CLAY
- Sandy gravelly organic CLAY
- SILT
- Sandy SILT
- Gravelly SILT
- Organic / peaty SILT
- Clayey sandy SILT
- Sandy gravelly SILT
- Clayey sandy gravelly SILT
- Cobbly SILT
- MUDSTONE

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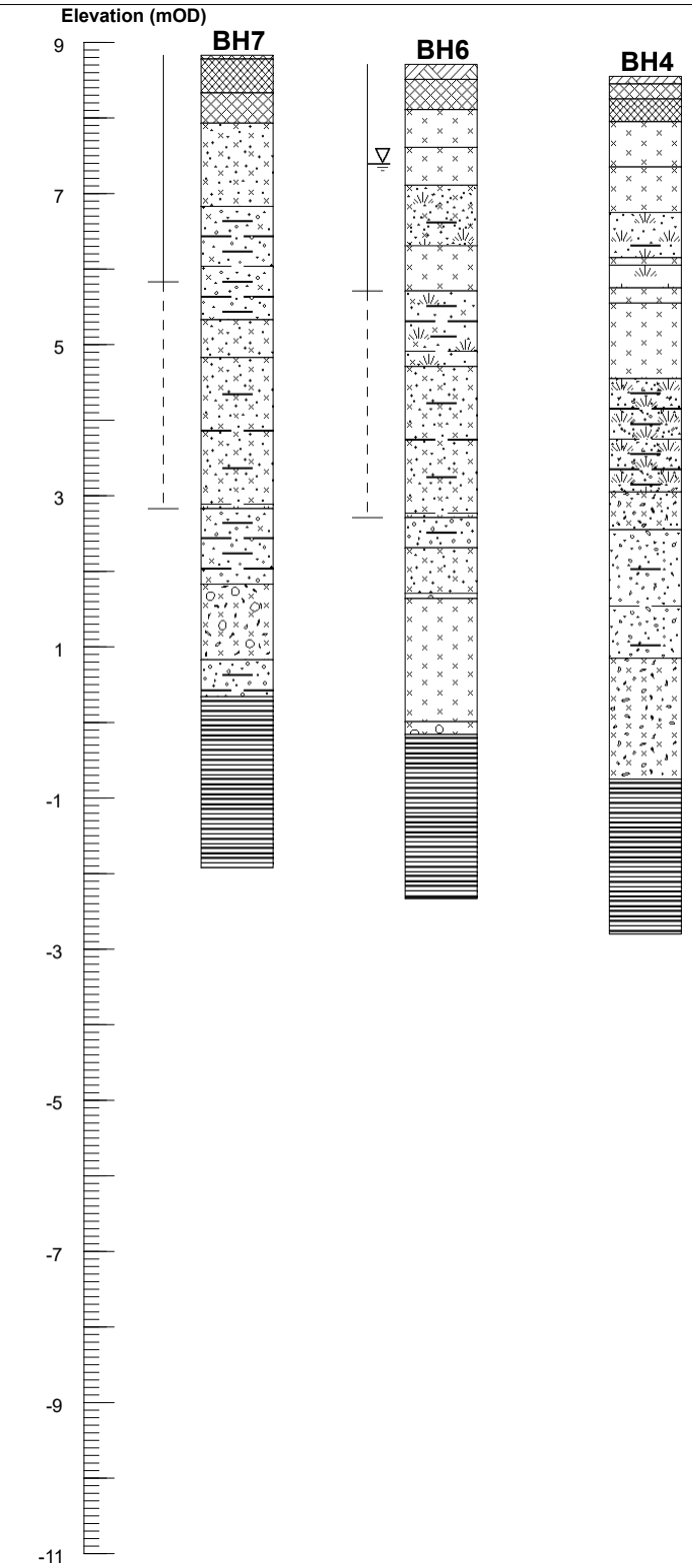
Foundation & Geotechnical Specialists

Nominal Section - BH 3 - 5 - 2

Site	Date Drawn	Date Checked	Sheet	Job Number
Ann Street Brewery, St Helier	19/11/2020	19.11.20	1/1	1920
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
Andium Homes	DDT	MFW	1:100[V]	1920.1



Key

- Groundwater Strike
- Strike Rise Level
- Highest recorded piezo level
- Piezometer Tip
- Slotted Standpipe
- TOPSOIL
- MADE GROUND
- MADE GROUND
- Silty sandy gravelly CLAY
- Silty sandy organic / peaty CLAY
- Sandy gravelly CLAY
- Sandy gravelly organic CLAY
- SILT
- Sandy SILT
- Gravelly SILT
- Clayey sandy SILT
- Sandy gravelly SILT
- Gravelly cobbly SILT
- Cobbly SILT
- Sandy clayey organic / peaty SILT

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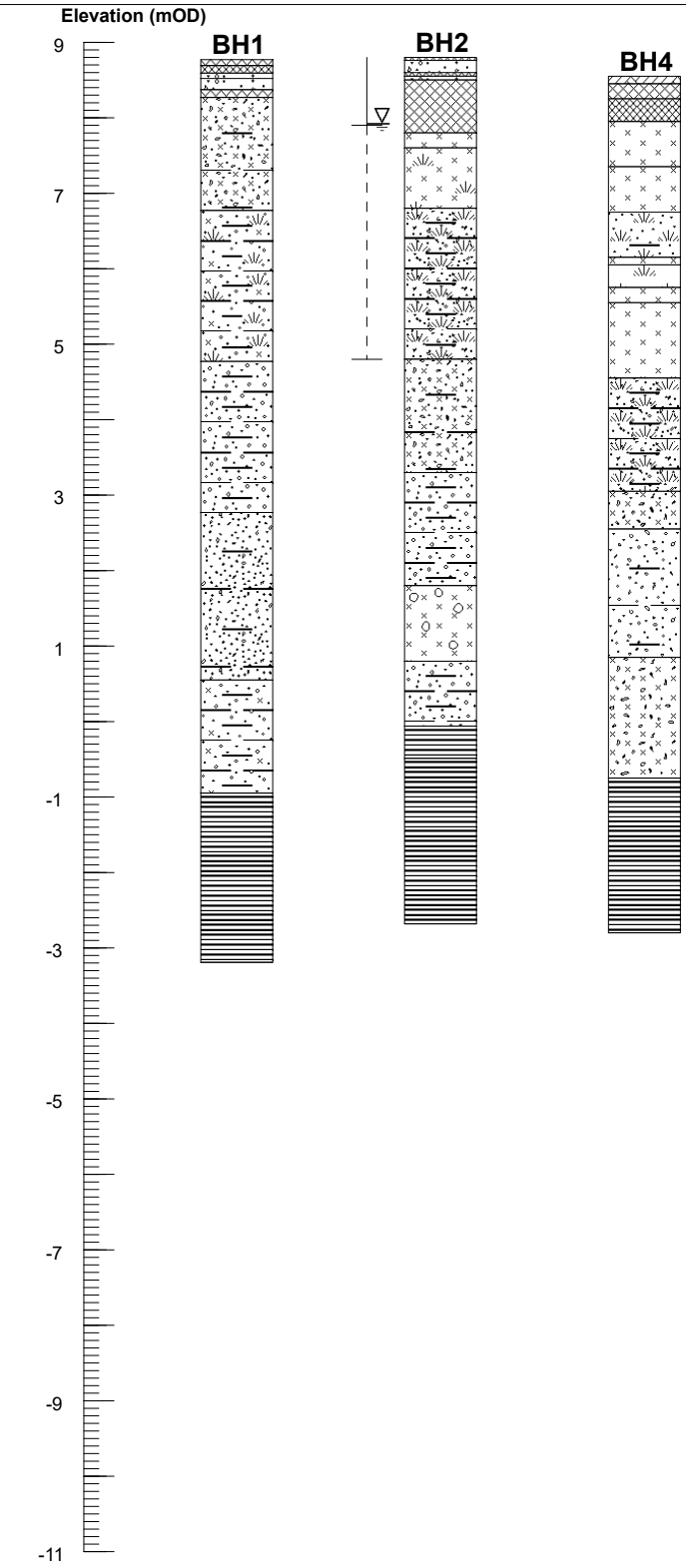
Foundation & Geotechnical Specialists

Nominal Section - 7 - 6 - 4

Site	Date Drawn	Date Checked	Sheet	Job Number
Ann Street Brewery, St Helier	19/11/2020	19.11.20	1/1	1920
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
Andium Homes	DDT	MFW	1:100[V]	1920.1



Key

- Groundwater Strike
- Strike Rise Level
- Highest recorded piezo level
- Piezometer Tip
- Slotted Standpipe
- TOPSOIL
- MADE GROUND
- MADE GROUND
- CONCRETE
- Silty sandy gravelly CLAY
- Silty sandy gravelly organic / peaty CLAY
- Sandy gravelly CLAY
- Sandy gravelly organic CLAY
- SILT
- Gravelly SILT
- Organic / peaty SILT
- Sandy gravelly SILT
- Clayey sandy gravelly SILT
- Cobbly SILT
- Clayey gravelly SAND

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Foundation & Geotechnical Specialists

Nominal Section - 1 - 2 - 4

Site	Date Drawn	Date Checked	Sheet	Job Number
Ann Street Brewery, St Helier	19/11/2020	19.11.20	1/1	1920
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
Andium Homes	DDT	MFW	1:100[V]	1920.1

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Foundation & Geotechnical Specialists

Standard Penetration Test Results

Site : Ann Street Brewery, St Helier

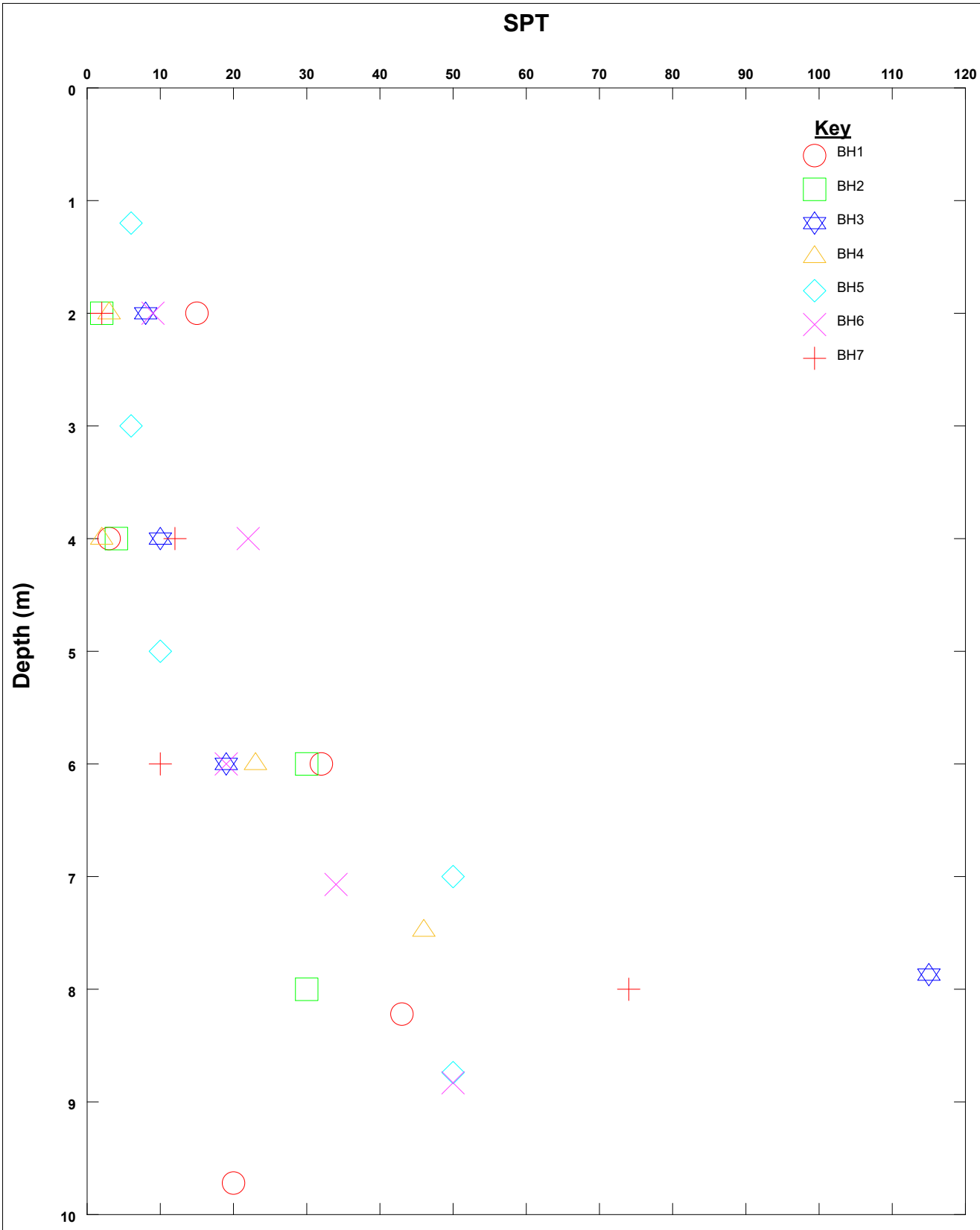
Client : Andium Homes

Engineer : Dandara

Job Number 1920

Sheet 1 / 1

Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH1	2.00	2.15	2.45	SPT	1	1	3	7	4	1	N=15	0.24 Recovered
BH1	4.00	4.15	4.45	SPT	1	0	0	1	1	1	N=3	0.32 Recovered
BH1	6.00	6.15	6.45	SPT	2	5	7	10	8	7	N=32	0.36 Recovered
BH1	8.22	8.37	8.67	SPT	4	5	8	10	9	16	N=43	0.20 Recovered
BH1	9.72	9.74	9.76	CPT	25	0	0	20	0	0	25*/20mm 20/15mm	No Recovery
BH2	2.00	2.15	2.45	SPT	1	0	0	1	0	1	N=2	0.32 Recovered
BH2	4.00	4.15	4.45	SPT	0	1	1	1	1	1	N=4	0.28 Recovered
BH2	6.00	6.15	6.45	SPT	2	5	7	7	8	8	N=30	0.40 Recovered
BH2	8.00	8.15	8.45	SPT	2	5	5	7	9	9	N=30	0.16 Recovered
BH3	2.00	2.15	2.45	SPT	1	2	2	2	2	2	N=8	0.35 Recovered
BH3	4.00	4.15	4.45	SPT	1	2	3	2	2	3	N=10	0.38 Recovered
BH3	6.00	6.15	6.45	SPT	4	4	4	5	5	5	N=19	0.45 Recovered
BH3	7.87	8.02	8.35	CPT	14	17	19	21	25	50	115/325mm	No Recovery
BH4	2.00	2.15	2.45	SPT	0	1	0	0	1	2	N=3	0.45 Recovered
BH4	4.00	4.15	4.45	SPT	1	0	0	1	0	1	N=2	0.25 Recovered
BH4	6.00	6.15	6.45	SPT	5	5	5	6	7	5	N=23	0.28 Recovered
BH4	7.48	7.63	7.93	CPT	6	12	17	15	8	6	N=46	
BH5	1.20	1.35	1.65	SPT	1	1	1	1	2	2	N=6	0.4 Recovered
BH5	3.00	3.15	3.45	SPT	1	2	2	1	2	1	N=6	0.45 Recovered
BH5	5.00	5.15	5.45	SPT	2	2	2	3	2	3	N=10	No Recovery
BH5	7.00	7.15	7.45	SPT	5	6	6	9	15	20	N=50	0.40 Recovery
BH5	8.74	8.79	8.80	CPT	25	0	50	0	0	0	25*/45mm 50/15mm	No Recovery
BH6	2.00	2.15	2.45	SPT	1	0	1	1	3	4	N=9	0.4 Recovered
BH6	4.00	4.15	4.45	SPT	2	3	4	6	7	5	N=22	0.40 Recovered
BH6	6.00	6.15	6.45	SPT	2	4	3	4	6	6	N=19	0.31 Recovered
BH6	7.07	7.22	7.52	CPT	8	9	10	9	8	7	N=34	No Recovery
BH6	8.83	8.86	8.88	CPT	25	0	50	0	0	0	25*/25mm 50/25mm	No Recovery
BH7	2.00	2.15	2.45	SPT	1	0	1	0	1	0	N=2	0.39 Recovered
BH7	4.00	4.15	4.45	SPT	2	2	2	3	3	4	N=12	0.37 Recovered
BH7	6.00	6.15	6.45	SPT	2	3	2	2	3	3	N=10	0.30 Recovered
BH7	8.00	8.15	8.43	SPT	9	17	16	15	18	25	74/280mm	0.27 Recovered



AMPLUS LTD

Foundation & Geotechnical Specialists

Title
SPT vs Depth (m)

Site	Date Drawn	Date Checked	Sheet	Job Number
Ann Street Brewery, St Helier	19/11/2020	19.11.20	1 / 1	1920
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
Andium Homes	DDT	MFW	N/A	1920_01

APPENDIX 3

Laboratory Test Results

GEL:

Report No. 36131
BH1-7 Soils
Atterberg Limits Water Contents Particle Size Distributions

ALS:

Report No. 576210
BH3 - Soils
Waste Acceptance Criteria BRE Suite CLEA Metals PAH

Report No. 572723
BH7 - Soils
Waste Acceptance Criteria BRE Suite CLEA Metals PAH

Report No. 571737
BH2 - Soils
Waste Acceptance Criteria BRE Suite CLEA Metals PAH

Report No. 576419
BH2 & 6 – Waters
Water Suite

2718

Amplus Ltd
Unit 1, Thistle Grove
St Lawrence
Jersey
JE3 1NN

For the attention of [redacted]

Version No. 1
Page No. 1 of 7
Date of Issue 14/11/2020

TEST REPORT

PROJECT/SITE	Ann Street Brewery, St Helier	Samples received	19/10/2020
GEL REPORT NUMBER	36131	Schedule received	19/10/2020
Your ref/PO:	1920	Testing commenced	19/10/2020
Test report refers to	Schedule 1	Status	Final

SUMMARY OF RESULTS ATTACHED

TEST METHOD & DESCRIPTION	QUANTITY	ACCREDITED TEST
BS EN ISO 17892-1: 2014:5. Water Content	26	YES
BS1377: Part 2: 1990:4.2-4.4&5.2-5.4, Liquid & Plastic Limits	2	YES
BS EN ISO 17892-4: 2016: 5.2, Particle Size Distribution - Wet Sieve	2	YES
BS EN ISO 17892-4: 2016: 5.4, Particle Size Distribution - Pipette	2	YES
ISRM: 2007: Point Load Strength Test	7	YES

Remarks
This report may not be partially reproduced without written permission from this laboratory.

The results reported relate to samples received in the laboratory

Approved Signatories:
[redacted] **(Deputy Laboratory Manager)** [redacted] (Senior Engineer)
[redacted] (Director) [redacted] (Director)
[redacted]

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Payments: Geotechnical Engineering Limited
Sort code: 16-22-11 **Bank account:** 11125135

Geotechnical Engineering Limited

WATER CONTENT

BS EN ISO 17892 - 1 : 2014 : 5

CLIENT AMPLUS LTD

SITE ANN STREET BREWERY, ST HELIER

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	specimen preparation	natural water content (%)	description and remarks
BH1	L	1.20	1.20	E	20.2	Greyish brown slightly sandy slightly gravelly clayey SILT
BH1	D	2.00	2.00	D	61.5	Dark brown slightly gravelly slightly sandy silty organic CLAY
BH1	D	4.00	4.00	E	29.3	Brown slightly gravelly slightly sandy CLAY
BH1	D	6.00	6.00	E	26.9	Brown slightly gravelly very clayey SAND
BH1	D	8.22	8.22	E	13.4	Light brown slightly sandy slightly gravelly silty CLAY
BH2	D	2.00	2.00	D	99.2	Brown slightly gravelly slightly sandy organic CLAY
BH2	D	4.00	4.00	E	32.8	Grey and brown slightly gravelly slightly sandy clayey SILT
BH2	D	6.00	6.00	E	14.8	Light brown and grey sandy gravelly CLAY
BH2	D	8.00	8.00	E	17.2	Brown slightly sandy slightly gravelly CLAY
BH3	D	2.00	2.00	E	19.9	Greyish brown slightly gravelly slightly sandy CLAY
BH3	D	4.00	4.00	E	23.9	Orangish brown slightly gravelly slightly sandy clayey SILT
BH3	D	6.00	6.00	E	20.3	Light brown slightly gravelly slightly sandy silty CLAY
BH4	D	2.00	2.00	D	146	Dark brown slightly sandy clayey PEAT
BH4	D	4.00	4.00	D	101	Brown slightly gravelly slightly sandy organic CLAY
BH4	D	6.00	6.00	E	16	Light brown slightly sandy very clayey GRAVEL
BH5	D	1.20	1.20	E	24.2	Orangish brown and grey slightly gravelly slightly sandy SILT
BH5	D	3.00	3.00	E	23.1	Brown slightly sandy clayey SILT
BH5	D	7.00	7.00	E	14.8	Orangish brown and grey slightly sandy gravelly CLAY
BH6	D	2.00	2.00	D	46.5	Brown slightly sandy clayey organic SILT

general remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN ISO 17892 - 1 : 2014 Table 1

test method

D - oven drying method at 60°C
E - oven drying method at 105°C

CONTRACT	CHECKED
36131	**TB**

Geotechnical Engineering Limited

WATER CONTENT

BS EN ISO 17892 - 1 : 2014 : 5

CLIENT AMPLUS LTD

SITE ANN STREET BREWERY, ST HELIER

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	specimen preparation	natural water content (%)	description and remarks
BH6	L	3.00	3.00	D	104	Dark brown slightly sandy silty organic CLAY
BH6	D	4.00	4.00	E	23.2	Orangish brown slightly sandy clayey SILT
BH6	D	6.00	6.00	E	24.5	Orangish brown slightly gravelly slightly sandy CLAY
BH7	D	2.00	2.00	E	21.6	Light brown slightly gravelly slightly sandy silty CLAY
BH7	D	4.00	4.00	E	22.9	Light brown slightly sandy clayey SILT
BH7	D	6.00	6.00	E	18.9	Light brown slightly sandy slightly gravelly silty CLAY
BH7	D	8.00	8.00	E	10.9	Orangish brown slightly sandy gravelly CLAY

general remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN ISO 17892 - 1 : 2014 Table 1

test method

D - oven drying method at 60°C
E - oven drying method at 105°C

CONTRACT	CHECKED
36131	**TB**

Geotechnical Engineering Limited

LIQUID AND PLASTIC LIMITS

BS.1377 : PART 2 : 1990 : 4 and 5

CLIENT AMPLUS LTD

SITE ANN STREET BREWERY, ST HELIER

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	natural water content (%)	specimen preparation and test method	fraction >0.425 mm (%)	liquid limit (%)	plastic limit (%)	plasticity index (%)	description and remarks
BH1	L	1.20	1.70	20.2	BXE	35	30	20	10	Grey and brown slightly sandy slightly gravelly clayey SILT
BH6	L	3.00	3.00	104	BXD	1	125	66	59	Dark brown slightly sandy silty organic CLAY

general remarks

natural water content determined in accordance with BS EN ISO 17892 - 1 : 2014 (unless specified)

NP denotes non plastic

# denotes sample tested is smaller than that which is recommended in accordance with BS1377 or BS EN ISO 17892

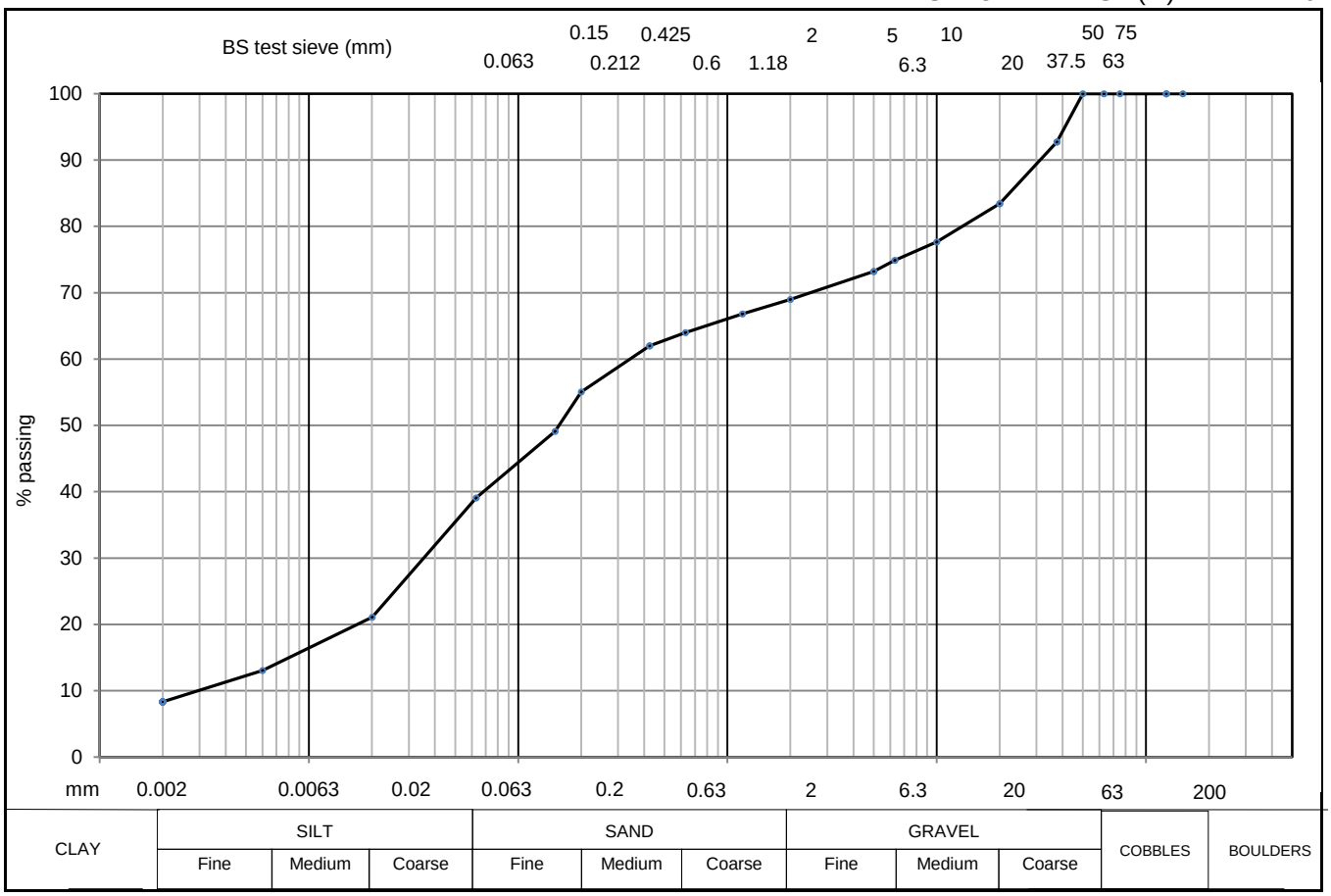
specimen preparation		test method	CONTRACT	CHECKED
A - as received	D - oven dried (60oC)	X - cone penetrometer (test 4.3)		
B - washed on 0.425mm sieve	E - oven dried (105oC)	Y - cone penetrometer (test 4.4)	**36131**	**TB**
C - air dried	F - not known	Z - casagrande apparatus (test 4.5)		

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	AMPLUS LTD	BH/TP No.	BH1
SITE	ANN STREET BREWERY, ST HELIER	SAMPLE No./TYPE	L
		SAMPLE DEPTH (m)	1.20
DESCRIPTION	Grey and brown slightly sandy slightly gravelly clayey SILT	SPECIMEN TOP (m)	1.20
		SPECIMEN BASE (m)	1.70



soil type	% fraction
CLAY	8
SILT	31
SILT & CLAY	39
SAND	30
GRAVEL	31
COBBLE & BOULDER	0
test method(s)	5.2# & 5.4
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	73	20	21
75		2	69	6	13
63		1.18	67	2	8
50	100	0.63	64		
37.5	93	0.425	62		
20	83	0.2	55		
10	78	0.15	49		
6.3	75	0.063	39		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

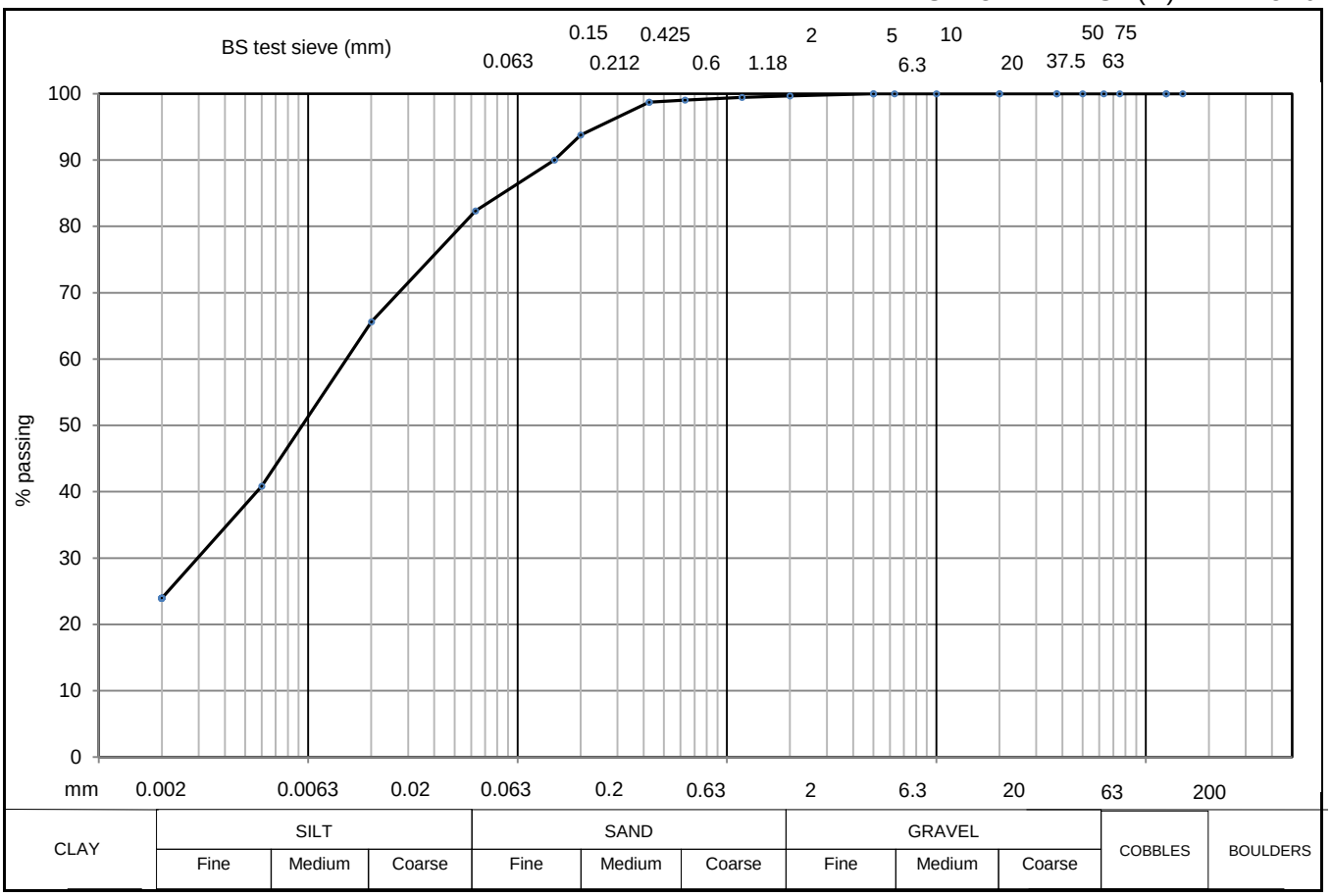
CONTRACT	CHECKED
36131	**TB**

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	AMPLUS LTD	BH/TP No.	BH6
SITE	ANN STREET BREWERY, ST HELIER	SAMPLE No./TYPE	L
		SAMPLE DEPTH (m)	3.00
DESCRIPTION	Dark brown slightly sandy silty organic CLAY	SPECIMEN TOP (m)	3.00
		SPECIMEN BASE (m)	3.20



soil type	% fraction
CLAY	24
SILT	58
SILT & CLAY	82
SAND	17
GRAVEL	0
COBBLE & BOULDER	0
test method(s)	5.2# & 5.4
test method	
5.2 - sieving	
5.3 - sedimentation by hydrometer	
5.4 - sedimentation by pipette	

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	
20	
10	
6.3	

BS test sieve (mm)	% passing
5	100
2	100
1.18	99
0.63	99
0.425	99
0.2	94
0.15	90
0.063	82

BS test sieve (µm)	% finer
20	66
6	41
2	24

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

CONTRACT	CHECKED
36131	**TB**

Geotechnical Engineering Limited

POINT LOAD STRENGTH TEST

I.S.R.M. Suggested Methods : 2007 Edition

CLIENT AMPLUS LTD

SITE ANN STREET BREWERY, ST HELIER

borehole /trial pit no.	sample depth (m)	test type	test orien-tation	moisture condition	width W (mm)	length L (mm)	platen sep. D (mm)	failure load P (kN)	equiv. diam. De (mm)	Is (MPa)	size factor	Is(50) (MPa)	description and remarks
BH1	11.30	D	Y	P		60	85	3.25	85.00	0.45	1.27	0.57	Grey and brown SANDSTONE
BH2	11.48	I	Y	P	80	70	40	0.70	63.83	0.17	1.12	0.19	Grey and brown SANDSTONE
BH3	11.60	D	Y	P		45	85	0.30	85.00	0.04	1.27	0.05	Grey and brown SANDSTONE
BH4	10.50	A	X	P	75		45	0.02	65.55	0.00	1.13	0.01	Grey and brown SANDSTONE
BH4	11.10	D	Y	P		50	85	0.31	85.00	0.04	1.27	0.05	Brown SANDSTONE
BH6	10.00	D	Y	P		60	85	2.21	85.00	0.31	1.27	0.39	Grey and brown SANDSTONE
BH7	10.30	D	Y	P		60	85	0.40	85.00	0.06	1.27	0.07	Grey and brown SANDSTONE

general remarks

tests carried out in accordance with I.S.R.M.(2007): Suggested Methods for Determining Point Load Strength

test machine PLM02

test type	test orientation relative to discontinuities		moisture condition	CONTRACT	CHECKED
A - axial	X - perpendicular	U - unknown	N - natural moisture content		
D - diametral	Y - parallel		P - partially air dried	**36131**	**TB**
I - irregular lump	Z - oblique		S - soaked		

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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

AMPLUS Ltd
Unit 1 Thistle Grove
St. Lawrence
Jersey
Jersey
JE3 1NN

Attention: [redacted]

CERTIFICATE OF ANALYSIS

Date of report Generation:	19 November 2020
Customer:	AMPLUS Ltd
Sample Delivery Group (SDG):	201001-50
Your Reference:	
Location:	1920- Ann Street, St Helier
Report No:	576210

This report has been revised and directly supersedes 571202 in its entirety.

We received 3 samples on Wednesday September 30, 2020 and 3 of these samples were scheduled for analysis which was completed on Thursday October 15, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

[redacted]

Operations Manager

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22932651	BH3		0.50	29/09/2020
22932652	BH3		1.00	29/09/2020
22932653	BH3		2.00	29/09/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)				
			22932651		22932652		22932653
			Customer Sample Reference				
			BH3		BH3		BH3
			AGS Reference				
			Depth (m)				
			0.50		1.00		2.00
			Container				
			250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)
			Sample Type				
			S	S	S	S	S
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 1			X		
Anions by Kone (w)	All	NDPs: 0 Tests: 1		X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1		X			
Boron Water Soluble	All	NDPs: 0 Tests: 1			X		
CEN 2:1 Readings	All	NDPs: 0 Tests: 1		X			
CEN 8:1 Readings	All	NDPs: 0 Tests: 1		X			
Coronene	All	NDPs: 0 Tests: 1			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1		X			
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 1		X			
EPH by GCxGC-FID	All	NDPs: 0 Tests: 3	X		X		X
Fluoride	All	NDPs: 0 Tests: 1		X			
Loss on Ignition in soils	All	NDPs: 0 Tests: 1			X		
Mercury Dissolved	All	NDPs: 0 Tests: 1		X			
Metals in solid samples by OES	All	NDPs: 0 Tests: 1			X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1			X		

CERTIFICATE OF ANALYSIS

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)				
			22932651			22932652	22932653
			Customer Sample Reference				
			BH3			BH3	BH3
			AGS Reference				
			Depth (m)				
			0.50			1.00	2.00
			Container				
			250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)
			Sample Type				
			S	S	S	S	S
PAH by GCMS	All	NDPs: 0 Tests: 3	X		X		X
PCBs by GCMS	All	NDPs: 0 Tests: 1			X		
pH	All	NDPs: 0 Tests: 1			X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1		X			
Sample description	All	NDPs: 0 Tests: 3	X		X		X
Total Dissolved Solids	All	NDPs: 0 Tests: 1		X			
Total Organic Carbon	All	NDPs: 0 Tests: 1			X		
Total Sulphate	All	NDPs: 0 Tests: 1			X		
Total Sulphur	All	NDPs: 0 Tests: 1			X		
VOC MS (S)	All	NDPs: 0 Tests: 1				X	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
22932651	BH3	0.50	Dark Brown	Sandy Loam	Stones	None
22932652	BH3	1.00	Dark Brown	Silty Clay Loam	Stones	None
22932653	BH3	2.00	Light Brown	Loamy Sand	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.					
			BH3	BH3	BH3			
Depth (m)			0.50	1.00	2.00			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			29/09/2020	29/09/2020	29/09/2020			
Sampled Time			.	.	.			
Date Received			30/09/2020	30/09/2020	30/09/2020			
SDG Ref			201001-50	201001-50	201001-50			
Lab Sample No.(s)			22932651	22932652	22932653			
AGS Reference								
Moisture Content Ratio (% of as received sample)	%	PM024	16	17	15			
Loss on ignition	<0.7 %	TM018		2.83 M				
Organic Carbon, Total	<0.2 %	TM132		0.566 M				
Sulphur, Total	<0.02 %	TM132		<0.02				
Sulphate, Total potential	<0.06 %	TM132		0.06				
pH	1 pH Units	TM133		7.49 M				
PCB congener 28	<3 µg/kg	TM168		<3 M				
PCB congener 52	<3 µg/kg	TM168		<3 M				
PCB congener 101	<3 µg/kg	TM168		<3 M				
PCB congener 118	<3 µg/kg	TM168		<3 M				
PCB congener 138	<3 µg/kg	TM168		<3 M				
PCB congener 153	<3 µg/kg	TM168		<3 M				
PCB congener 180	<3 µg/kg	TM168		<3 M				
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21				
Arsenic	<0.6 mg/kg	TM181		9.09 M				
Barium	<0.6 mg/kg	TM181		39.5 #				
Beryllium	<0.01 mg/kg	TM181		0.317 M				
Cadmium	<0.02 mg/kg	TM181		0.0878 M				
Chromium	<0.9 mg/kg	TM181		15.9 M				
Copper	<1.4 mg/kg	TM181		13.5 M				
Lead	<0.7 mg/kg	TM181		34.2 M				
Mercury	<0.14 mg/kg	TM181		<0.14 M				
Nickel	<0.2 mg/kg	TM181		11 M				
Selenium	<1 mg/kg	TM181		<1 #				
Vanadium	<0.2 mg/kg	TM181		21 #				
Zinc	<1.9 mg/kg	TM181		38.2 M				
ANC @ pH 4	<0.03 mol/kg	TM182		0.0693				
ANC @ pH 6	<0.03 mol/kg	TM182		<0.03				
Sulphate, acid soluble (total)	<0.02 %	TM221		<0.02				
Boron, water soluble	<1 mg/kg	TM222		<1 M				
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410		<10				
Coronene	<200 µg/kg	TM410		<200				

CERTIFICATE OF ANALYSIS

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3	BH3	BH3			
			Depth (m)	0.50	1.00	2.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	29/09/2020	29/09/2020	29/09/2020			
			Sampled Time	.	.	.			
			Date Received	30/09/2020	30/09/2020	30/09/2020			
			SDG Ref	201001-50	201001-50	201001-50			
			Lab Sample No.(s)	22932651	22932652	22932653			
			AGS Reference						
EPH Surrogate % recovery**	%	TM415		108	107	106			
EPH >C10-C40	<35 mg/kg	TM415		<35 M	4140 M	367 M			
Mineral Oil >C10-C40	<5 mg/kg	TM415			3630				

CERTIFICATE OF ANALYSIS

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3	BH3	BH3			
			Depth (m)	0.50	1.00	2.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	29/09/2020	29/09/2020	29/09/2020			
			Sampled Time	.	.	.			
			Date Received	30/09/2020	30/09/2020	30/09/2020			
			SDG Ref	201001-50	201001-50	201001-50			
			Lab Sample No.(s)	22932651	22932652	22932653			
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		77.3	85.3	86.4			
Acenaphthene-d10 % recovery**	%	TM218		79.8	85.4	91.9			
Phenanthrene-d10 % recovery**	%	TM218		85.3	81	95.6			
Chrysene-d12 % recovery**	%	TM218		83.3	76.3	91.2			
Perylene-d12 % recovery**	%	TM218		79.1	76.3	89.1			
Naphthalene	<9 µg/kg	TM218		<9 M	61.1 M	<9 M			
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M			
Acenaphthene	<8 µg/kg	TM218		<8 M	19.7 M	<8 M			
Fluorene	<10 µg/kg	TM218		<10 M	132 M	100 M			
Phenanthrene	<15 µg/kg	TM218		<15 M	142 M	177 M			
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M			
Fluoranthene	<17 µg/kg	TM218		38.9 M	<17 M	<17 M			
Pyrene	<15 µg/kg	TM218		34 M	<15 M	<15 M			
Benz(a)anthracene	<14 µg/kg	TM218		27.4 M	<14 M	<14 M			
Chrysene	<10 µg/kg	TM218		27.7 M	<10 M	<10 M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		41.5 M	<15 M	<15 M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M			
Benzo(a)pyrene	<15 µg/kg	TM218		25.3 M	<15 M	<15 M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		195	355	277			

CERTIFICATE OF ANALYSIS

SDG: 201001-50 Client Reference:
Location: 1920- Ann Street, St H Order Number: 5007
Report Number: 576210
Superseded Report: 571202

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH3
Depth (m)			1.00
Sample Type			Soil/Solid (S)
Date Sampled			29/09/2020
Sampled Time			-
Date Received			30/09/2020
SDG Ref			201001-50
Lab Sample No.(s)			22932652
AGS Reference			
Component	**LOD/Units**	**Method**	
Dibromofluoromethane**	%	TM116	137
Toluene-d8**	%	TM116	76
4-Bromofluorobenzene**	%	TM116	70.6
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M
Benzene	<9 µg/kg	TM116	<9 M
Toluene	<7 µg/kg	TM116	<7 M
Ethylbenzene	<4 µg/kg	TM116	24.3 M
p/m-Xylene	<10 µg/kg	TM116	38.7 #
o-Xylene	<10 µg/kg	TM116	<10 M
Sum of BTEX	<40 µg/kg	TM116	63.1

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦$@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref.	BH3	09/10/2020	[redacted]	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	1.00										
Sample Type	SOLID										
Date Sampled	29/09/2020 00:00:00										
Date Receieved	30/09/2020 09:30:00										
SDG	201001-50										
Original Sample	22932652										
Method Number	TM048										

CERTIFICATE OF ANALYSIS

Validated

SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

CEN 10:1 CUMULATIVE TWO STAGE BATCH TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/3

Client Reference		**Site Location**	1920- Ann Street, St Helier
Mass Sample taken (kg)	0.211	**Natural Moisture Content (%)**	20.9
Mass of dry sample (kg)	0.175	**Dry Matter Content (%)**	82.7
Particle Size <4mm	>95%		

Case	
SDG	201001-50
Lab Sample Number(s)	22932652
Sampled Date	29-Sep-2020
Customer Sample Ref.	BH3
Depth (m)	1.00

Solid Waste Analysis

		Landfill Waste Acceptance Criteria Limits		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	0.566	3	5	6
Loss on Ignition (%)	2.83	-	-	10
Sum of BTEX (mg/kg)	0.0631	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	3630	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.49	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0693	-	-	-

Eluate Analysis

	C_2 Concⁿ in 2:1 eluate	C_8 Concⁿ in 8:1 eluate	A_2 2:1 concⁿ leached	$A_{2\text{-}10}$ Cumulative concⁿ leached	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	mg/l		mg/kg				
Arsenic	0.027	0.0118	0.054	0.133	0.5	2	25
Barium	0.00891	0.097	0.0178	0.879	20	100	300
Cadmium	<0.00008	<0.00008	<0.00016	<0.0008	0.04	1	5
Chromium	<0.001	0.00113	<0.002	0.0102	0.5	10	70
Copper	0.00519	0.00617	0.0104	0.0606	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	0.01	0.2	2
Molybdenum	0.0431	0.0099	0.0862	0.133	0.5	10	30
Nickel	0.00137	0.00107	0.00273	0.011	0.4	10	40
Lead	0.000975	0.00145	0.00195	0.014	0.5	10	50
Antimony	0.016	0.00821	0.032	0.0901	0.06	0.7	5
Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	0.00152	0.0243	0.00304	0.22	4	50	200
Chloride	4.2	<2	8.4	<20	800	15000	25000
Fluoride	<0.5	<0.5	<1	<5	10	150	500
Sulphate (soluble)	<2	<2	<4	<20	1000	20000	50000
Total Dissolved Solids	100	26.2	201	338	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.032	<0.16	1	-	-
Dissolved Organic Carbon	29.6	7.99	59.1	102	500	800	1000

Leach Test Information

	2:1	8:1
Date Prepared	06-Oct-2020	07-Oct-2020
pH (pH Units)	6.779	7.365
Conductivity (µS/cm)	118.20	29.40
Temperature (°C)	19.30	19.60
Volume Leachant (Litres)	0.314	1.400
Volume of Eluate VE1 (Litres)	0.180	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
19/11/2020 11:29:15

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM114		Leaching Procedure for CEN Two Stage BatchTest 2:1/8:1 Cumulative
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Test Completion Dates

Lab Sample No(s)	22932651	22932652	22932653
Customer Sample Ref.	BH3	BH3	BH3
AGS Ref.			
Depth	0.50	1.00	2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6		08-Oct-2020	
Anions by Kone (w)		12-Oct-2020	
Asbestos ID in Solid Samples		09-Oct-2020	
Boron Water Soluble		09-Oct-2020	
CEN 2:1 Leachate (2 Stage)		07-Oct-2020	
CEN 2:1 Readings		09-Oct-2020	
CEN 8:1 Leachate (2 Stage)		09-Oct-2020	
CEN 8:1 Readings		11-Oct-2020	
Coronene		08-Oct-2020	
Dissolved Metals by ICP-MS		12-Oct-2020	
Dissolved Organic/Inorganic Carbon		13-Oct-2020	
EPH by GCxGC-FID	08-Oct-2020	08-Oct-2020	08-Oct-2020
Fluoride		12-Oct-2020	
Loss on Ignition in soils		08-Oct-2020	
Mercury Dissolved		15-Oct-2020	
Metals in solid samples by OES		09-Oct-2020	
Moisture at 105C		06-Oct-2020	
PAH 16 & 17 Calc		08-Oct-2020	
PAH by GCMS	08-Oct-2020	08-Oct-2020	08-Oct-2020
PCBs by GCMS		09-Oct-2020	
pH		08-Oct-2020	
Phenols by HPLC (W)		12-Oct-2020	
Sample description	06-Oct-2020	06-Oct-2020	06-Oct-2020
Total Dissolved Solids		12-Oct-2020	
Total Organic Carbon		09-Oct-2020	
Total Sulphate		08-Oct-2020	
Total Sulphur		08-Oct-2020	
VOC MS (S)		08-Oct-2020	

CERTIFICATE OF ANALYSIS

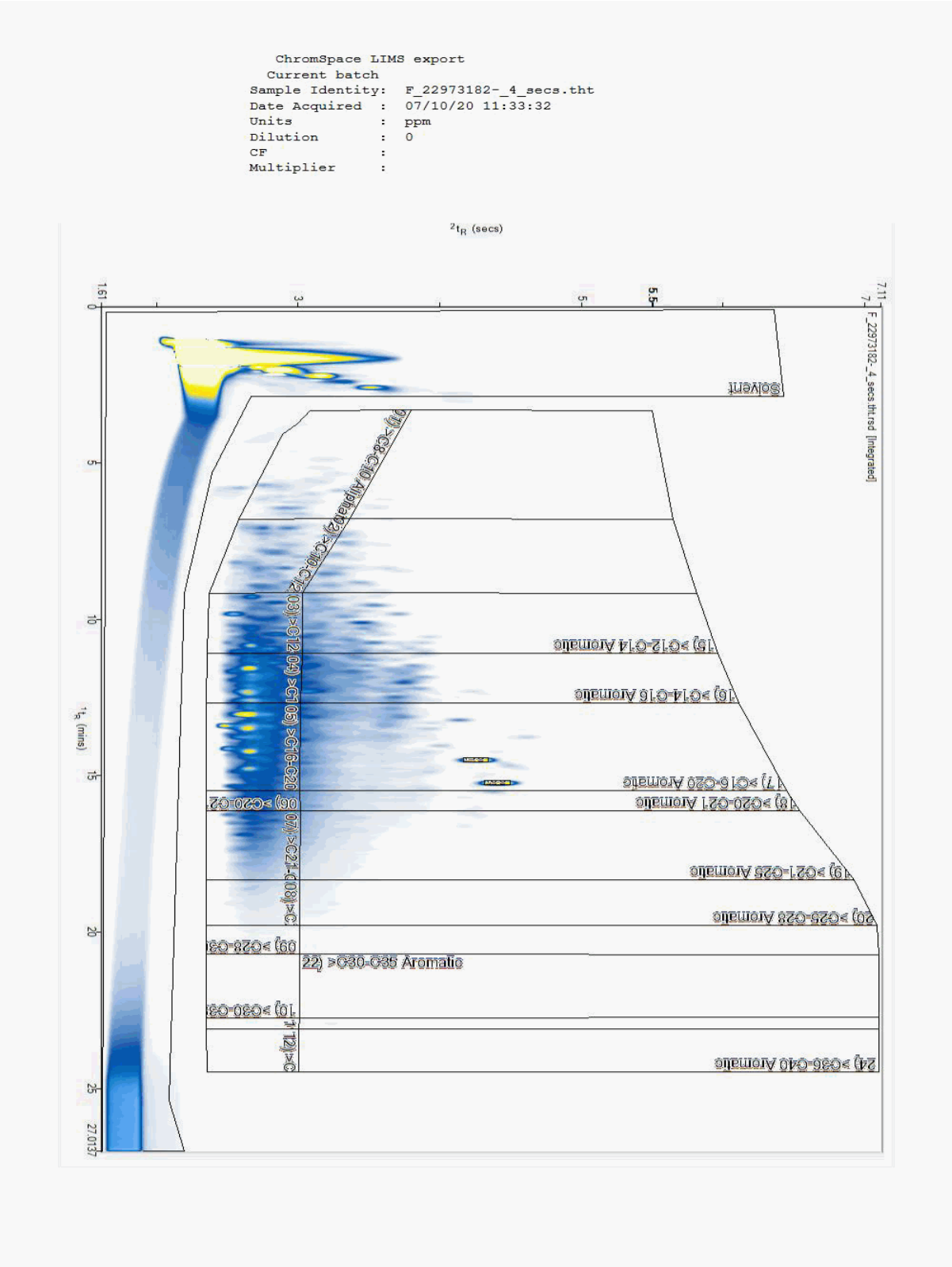
SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Chromatogram

Analysis: EPH by GCxGC-FID

Sample No : 22973182
Sample ID : BH3

Depth : 2.00



CERTIFICATE OF ANALYSIS

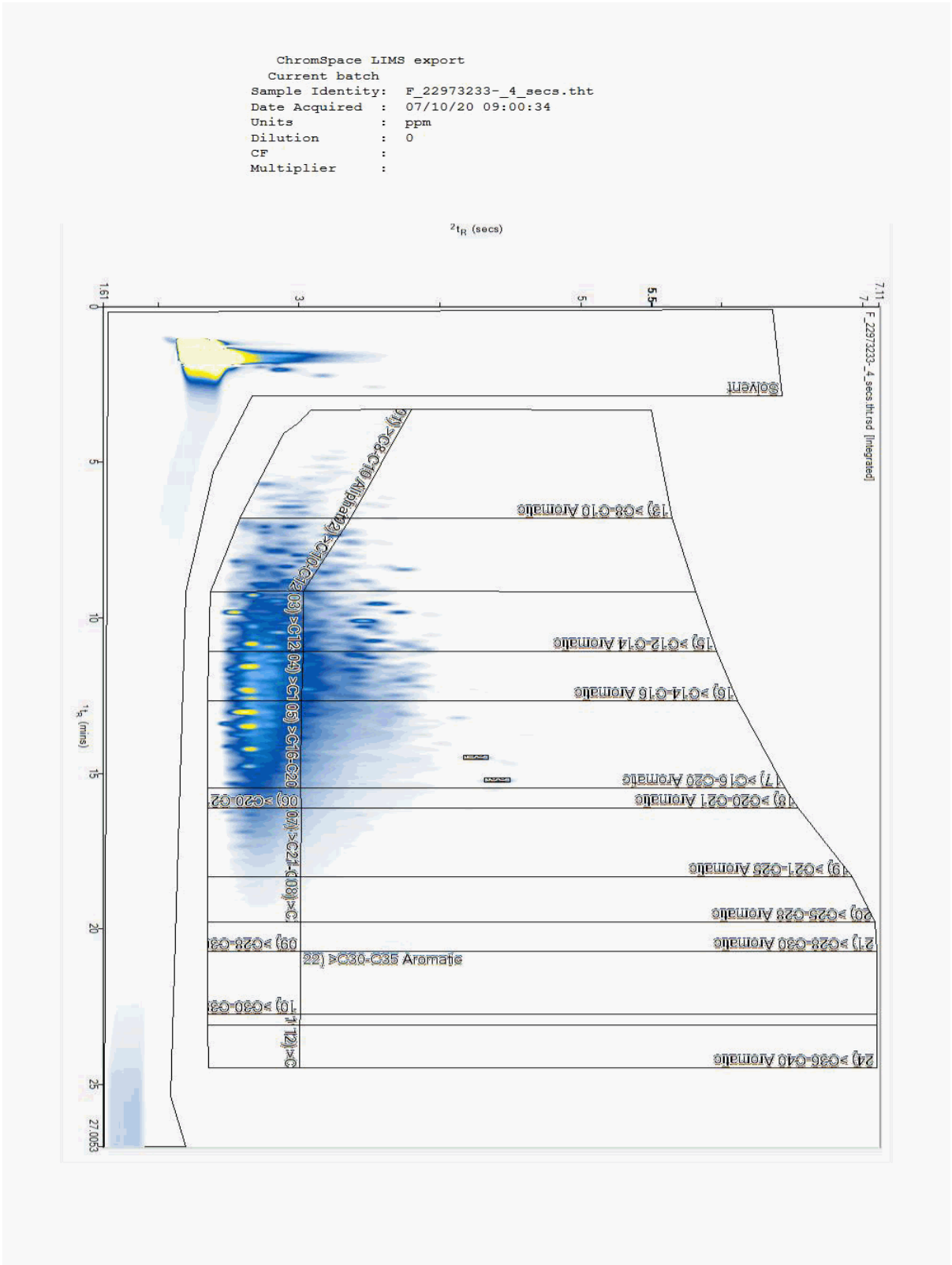
SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Chromatogram

Analysis: EPH by GCxGC-FID

Sample No : 22973233
Sample ID : BH3

Depth : 1.00



CERTIFICATE OF ANALYSIS

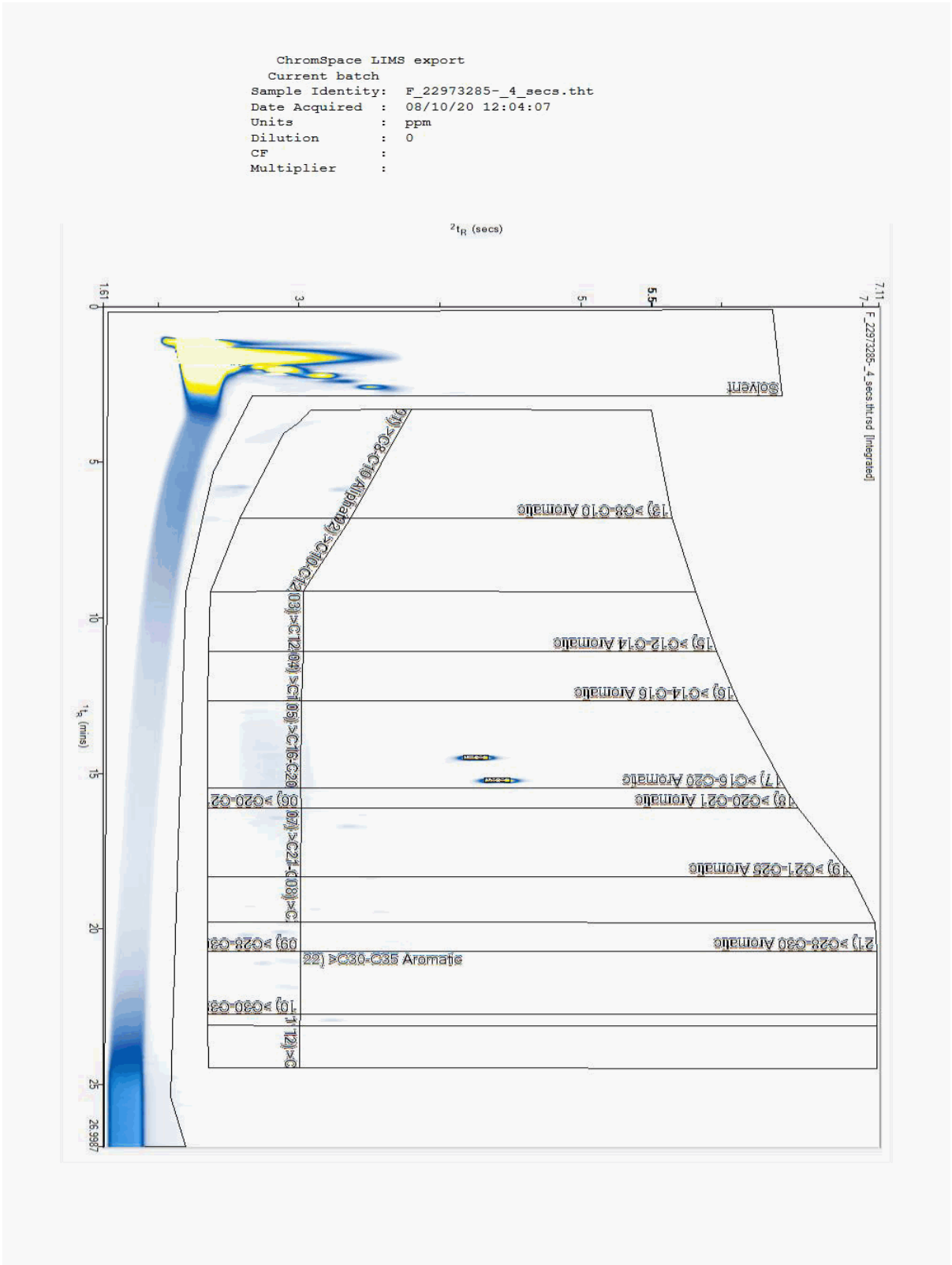
SDG:	201001-50	**Client Reference:**		**Report Number:**	576210
Location:	1920- Ann Street, St H	**Order Number:**	5007	**Superseded Report:**	571202

Chromatogram

Analysis: EPH by GCxGC-FID

Sample No : 22973285
Sample ID : BH3

Depth : 0.50



ALS Environmental, Land	QF.7.5.1 Data Amendments Form (Issue No. 3)
	Date: 10/01/2020
	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Previous Reference	New Reference	Supercedes Report
201001-50	22932651	BH3	19/11/2020	Sample Depth Change		0.50	571202
	22932652	BH3				1.00	
	22932653	BH3				2.00	

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

AMPLUS Ltd
Unit 1 Thistle Grove
St. Lawrence
Jersey
Jersey
JE3 1NN

Attention: Matthew Warner

CERTIFICATE OF ANALYSIS

Date of report Generation:	27 October 2020
Customer:	AMPLUS Ltd
Sample Delivery Group (SDG):	201012-36
Your Reference:	
Location:	1920- Ann Street, St Helier
Report No:	572723

We received 2 samples on Monday October 12, 2020 and 2 of these samples were scheduled for analysis which was completed on Tuesday October 27, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

[redacted]
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23015080	BH7		0.50	09/10/2020
23015081	BH7		1.00	09/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23015080			23015081			
Customer Sample Reference			BH7			BH7			
AGS Reference									
Depth (m)			0.50			1.00			
Container			1kg TUB	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)		
Sample Type			S	S	S	S	S		
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 1				X			
Anions by Kone (w)	All	NDPs: 0 Tests: 1			X				
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X		X				
Boron Water Soluble	All	NDPs: 0 Tests: 2		X		X			
CEN Readings	All	NDPs: 0 Tests: 1			X				
Coronene	All	NDPs: 0 Tests: 1				X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1			X				
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 1			X				
EPH by GCxGC-FID	All	NDPs: 0 Tests: 2		X		X			
Fluoride	All	NDPs: 0 Tests: 1			X				
Loss on Ignition in soils	All	NDPs: 0 Tests: 1				X			
Mercury Dissolved	All	NDPs: 0 Tests: 1			X				
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X		X			
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1				X			
PAH by GCMS	All	NDPs: 0 Tests: 2		X		X			

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23015080				23015081		
Customer Sample Reference			BH7				BH7		
AGS Reference									
Depth (m)			0.50				1.00		
Container			1kg TUB	250g Amber Jar (ALE210)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)		
Sample Type			S	S	S	S	S		
PCBs by GCMS	All	NDPs: 0 Tests: 1				X			
pH	All	NDPs: 0 Tests: 1				X			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1			X				
Sample description	All	NDPs: 0 Tests: 2		X		X			
Total Dissolved Solids	All	NDPs: 0 Tests: 1			X				
Total Organic Carbon	All	NDPs: 0 Tests: 1				X			
Total Sulphate	All	NDPs: 0 Tests: 1				X			
Total Sulphur	All	NDPs: 0 Tests: 1				X			
VOC MS (S)	All	NDPs: 0 Tests: 1					X		

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
23015080	BH7	0.50	Dark Brown	Loamy Sand	Stones	None
23015081	BH7	1.00	Light Brown	Silt Loam	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH7	BH7				
			Depth (m)	0.50	1.00				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	09/10/2020	09/10/2020				
			Sampled Time	.	.				
			Date Received	12/10/2020	12/10/2020				
			SDG Ref	201012-36	201012-36				
			Lab Sample No.(s)	23015080	23015081				
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		8.9	19				
Loss on ignition	<0.7 % TM018				1.82 M				
Organic Carbon, Total	<0.2 % TM132				0.288 M				
Sulphur, Total	<0.02 % TM132				0.0403				
Sulphate, Total potential	<0.06 % TM132				0.121				
pH	1 pH Units TM133				7.67 M				
PCB congener 28	<3 µg/kg TM168				<3 M				
PCB congener 52	<3 µg/kg TM168				<3 M				
PCB congener 101	<3 µg/kg TM168				<3 M				
PCB congener 118	<3 µg/kg TM168				<3 M				
PCB congener 138	<3 µg/kg TM168				<3 M				
PCB congener 153	<3 µg/kg TM168				<3 M				
PCB congener 180	<3 µg/kg TM168				<3 M				
Sum of detected PCB 7 Congeners	<21 µg/kg TM168				<21				
Arsenic	<0.6 mg/kg TM181			7.5 M	5.38 M				
Barium	<0.6 mg/kg TM181			26.1 #	41.2 #				
Beryllium	<0.01 mg/kg TM181			1.13 M	0.579 M				
Cadmium	<0.02 mg/kg TM181			0.0941 M	0.0792 M				
Chromium	<0.9 mg/kg TM181			9.59 M	10.3 M				
Copper	<1.4 mg/kg TM181			14.5 M	7.7 M				
Lead	<0.7 mg/kg TM181			37.4 M	11.5 M				
Mercury	<0.14 mg/kg TM181			<0.14 M	<0.14 M				
Nickel	<0.2 mg/kg TM181			9.02 M	6.75 M				
Selenium	<1 mg/kg TM181			<1 #	<1 #				
Vanadium	<0.2 mg/kg TM181			32.2 #	18.9 #				
Zinc	<1.9 mg/kg TM181			36.2 M	21.6 M				
ANC @ pH 4	<0.03 mol/kg TM182				0.0313				
ANC @ pH 6	<0.03 mol/kg TM182				<0.03				
Sulphate, acid soluble (total)	<0.02 % TM221				<0.02				
Boron, water soluble	<1 mg/kg TM222			<1 M	<1 M				
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg TM410				<10				
Coronene	<200 µg/kg TM410				<200				

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH7	BH7
Depth (m)	0.50	1.00
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	09/10/2020	09/10/2020
Sampled Time	.	.
Date Received	12/10/2020	12/10/2020
SDG Ref	201012-36	201012-36
Lab Sample No.(s)	23015080	23015081
AGS Reference		

Component	LOD/Units	Method		
EPH Surrogate % recovery**	%	TM415	90.4	93.6
EPH >C10-C40	<35 mg/kg	TM415	<35 M	<35 M
Mineral Oil >C10-C40	<5 mg/kg	TM415		<5

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH7	BH7				
			Depth (m)	0.50	1.00				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	09/10/2020	09/10/2020				
			Sampled Time	.	.				
			Date Received	12/10/2020	12/10/2020				
			SDG Ref	201012-36	201012-36				
			Lab Sample No.(s)	23015080	23015081				
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		70.6	72.7				
Acenaphthene-d10 % recovery**	%	TM218		71.2	71.3				
Phenanthrene-d10 % recovery**	%	TM218		78.3	71.1				
Chrysene-d12 % recovery**	%	TM218		94.1	85.4				
Perylene-d12 % recovery**	%	TM218		88.4	82.6				
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M				
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M				
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M				
Fluorene	<10 µg/kg	TM218		<10 M	<10 M				
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M				
Anthracene	<16 µg/kg	TM218		<16 M	<16 M				
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M				
Pyrene	<15 µg/kg	TM218		<15 M	<15 M				
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M				
Chrysene	<10 µg/kg	TM218		<10 M	<10 M				
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M				
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M				
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M				
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M				
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M				
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M				
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118				

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH7							
Depth (m)	1.00							
Sample Type	Soil/Solid (S)							
Date Sampled	09/10/2020							
Sampled Time	.							
Date Received	12/10/2020							
SDG Ref	201012-36							
Lab Sample No.(s)	23015081							
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	102					
Toluene-d8**	%	TM116	100					
4-Bromofluorobenzene**	%	TM116	94.1					
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M					
Benzene	<9 µg/kg	TM116	<9 M					
Toluene	<7 µg/kg	TM116	<7 M					
Ethylbenzene	<4 µg/kg	TM116	<4 M					
p/m-Xylene	<10 µg/kg	TM116	<10 #					
o-Xylene	<10 µg/kg	TM116	<10 M					
Sum of BTEX	<40 µg/kg	TM116	<40					

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	BH7 0.50 SOLID 09/10/2020 00:00:00 12/10/2020 11:55:00 201012-36 23015080 TM048	26/10/2020	[redacted]	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	BH7 1.00 SOLID 09/10/2020 00:00:00 12/10/2020 11:55:00 201012-36 23015081 TM048	26/10/2020	[redacted]	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	1920- Ann Street, St Helier
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	25.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79.4
Particle Size <4mm	>95%		

Case	
SDG	201012-36
Lab Sample Number(s)	23015081
Sampled Date	09-Oct-2020
Customer Sample Ref.	BH7
Depth (m)	1.00

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.288	3	5	6
Loss on Ignition (%)	1.82	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.67	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0313	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00171	<0.0005	0.0171	<0.005	0.5	2	25
Barium	0.0214	<0.0002	0.214	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00106	<0.001	0.0106	<0.01	0.5	10	70
Copper	0.0011	<0.0003	0.011	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000101	<0.00001	0.000101	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00073	<0.0004	0.0073	<0.004	0.4	10	40
Lead	0.00157	<0.0002	0.0157	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00939	<0.001	0.0939	<0.01	4	50	200
Chloride	2.4	<2	24	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	26	<5	260	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.09	<3	30.9	<30	500	800	1000

Leach Test Information

Date Prepared	21-Oct-2020
pH (pH Units)	8.47
Conductivity (µS/cm)	29.30
Temperature (°C)	20.50
Volume Leachant (Litres)	0.876

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

27/10/2020 09:32:00

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23015080	23015081
Customer Sample Ref.	BH7	BH7
AGS Ref.		
Depth	0.50	1.00
Type	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6		26-Oct-2020
Anions by Kone (w)		25-Oct-2020
Asbestos ID in Solid Samples	26-Oct-2020	26-Oct-2020
Boron Water Soluble	24-Oct-2020	24-Oct-2020
CEN 10:1 Leachate (1 Stage)		22-Oct-2020
CEN Readings		25-Oct-2020
Coronene		23-Oct-2020
Dissolved Metals by ICP-MS		27-Oct-2020
Dissolved Organic/Inorganic Carbon		26-Oct-2020
EPH by GCxGC-FID	23-Oct-2020	23-Oct-2020
Fluoride		26-Oct-2020
Loss on Ignition in soils		26-Oct-2020
Mercury Dissolved		26-Oct-2020
Metals in solid samples by OES	24-Oct-2020	26-Oct-2020
Moisture at 105C		21-Oct-2020
PAH 16 & 17 Calc		23-Oct-2020
PAH by GCMS	23-Oct-2020	23-Oct-2020
PCBs by GCMS		23-Oct-2020
pH		23-Oct-2020
Phenols by HPLC (W)		27-Oct-2020
Sample description	21-Oct-2020	21-Oct-2020
Total Dissolved Solids		26-Oct-2020
Total Organic Carbon		26-Oct-2020
Total Sulphate		26-Oct-2020
Total Sulphur		26-Oct-2020
VOC MS (S)		23-Oct-2020

CERTIFICATE OF ANALYSIS

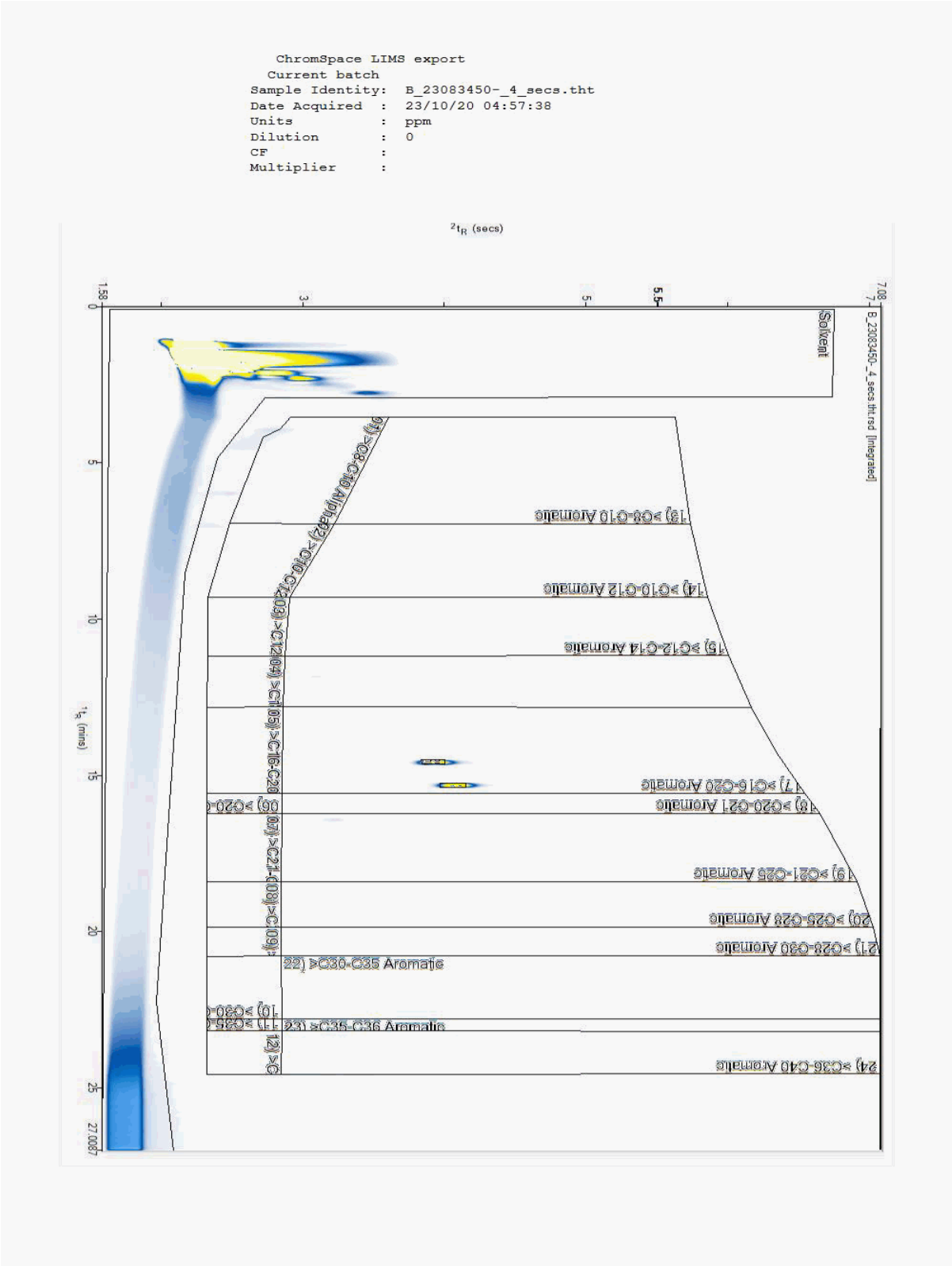
SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Chromatogram

Analysis: EPH by GCxGC-FID

Sample No : 23083450
Sample ID : BH7

Depth : 0.50



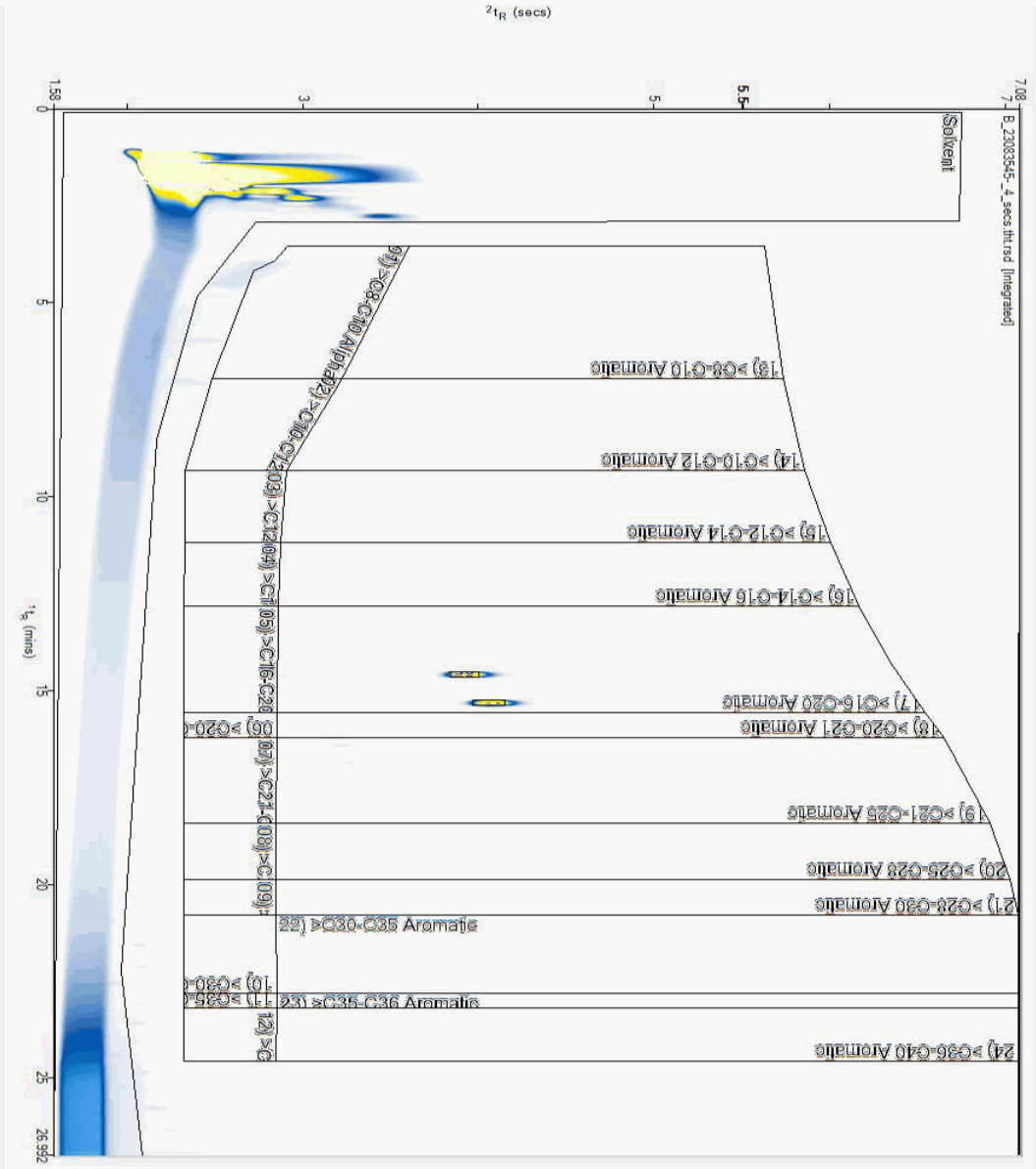
CERTIFICATE OF ANALYSIS

SDG:	201012-36	**Client Reference:**		**Report Number:**	572723
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	

Chromatogram

Analysis: EPH by GCxGC-FID **Sample No :** 23083545 **Depth :** 1.00
Sample ID : BH7

```
  ChromSpace LIMS export
 Current batch
Sample Identity:  B_23083545-_4_secs.tht
Date Acquired   :  23/10/20 03:07:57
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Hawarden
Deeside
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Website: www.alsenvironmental.co.uk

AMPLUS Ltd
Unit 1 Thistle Grove
St. Lawrence
Jersey
Jersey
JE3 1NN

Attention: [redacted]

CERTIFICATE OF ANALYSIS

Date of report Generation:	19 October 2020
Customer:	AMPLUS Ltd
Sample Delivery Group (SDG):	200928-15
Your Reference:	
Location:	1920- Ann Street, St Helier
Report No:	571737

This report has been revised and directly supersedes 571198 in its entirety.

We received 1 sample on Monday September 28, 2020 and 1 of these samples were scheduled for analysis which was completed on Thursday October 15, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

[redacted]

[redacted]
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22914336	BH2		1.00	23/09/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22914336			
Customer Sample Reference			BH2			
AGS Reference						
Depth (m)			1.00			
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type			S	S	S	
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 1		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 1	X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X			
Boron Water Soluble	All	NDPs: 0 Tests: 1		X		
CEN Readings	All	NDPs: 0 Tests: 1	X			
Coronene	All	NDPs: 0 Tests: 1		X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X			
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 1	X			
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 1	X			
EPH by GCxGC-FID	All	NDPs: 0 Tests: 1		X		
Fluoride	All	NDPs: 0 Tests: 1	X			
Loss on Ignition in soils	All	NDPs: 0 Tests: 1		X		
Mercury Dissolved	All	NDPs: 0 Tests: 1	X			
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1		X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22914336			
Customer Sample Reference			BH2			
AGS Reference						
Depth (m)			1.00			
Container			1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type			S	S	S	
PAH by GCMS	All	NDPs: 0 Tests: 1		X		
PCBs by GCMS	All	NDPs: 0 Tests: 1		X		
pH	All	NDPs: 0 Tests: 1		X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1	X			
Sample description	All	NDPs: 0 Tests: 1		X		
Total Dissolved Solids	All	NDPs: 0 Tests: 1	X			
Total Organic Carbon	All	NDPs: 0 Tests: 1		X		
Total Sulphate	All	NDPs: 0 Tests: 1		X		
Total Sulphur	All	NDPs: 0 Tests: 1		X		
VOC MS (S)	All	NDPs: 0 Tests: 1			X	

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
22914336	BH2	1.00	Dark Brown	Sandy Silt Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH2							
Depth (m)	1.00							
Sample Type	Soil/Solid (S)							
Date Sampled	23/09/2020							
Sampled Time	.							
Date Received	28/09/2020							
SDG Ref	200928-15							
Lab Sample No.(s)	22914336							
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	21					
Loss on ignition	<0.7 % M	TM018	4.74					
Organic Carbon, Total	<0.2 % M	TM132	0.863					
Sulphur, Total	<0.02 %	TM132	0.0201					
Sulphate, Total potential	<0.06 %	TM132	0.0603					
pH	1 pH Units M	TM133	7.92					
PCB congener 28	<3 µg/kg M	TM168	<3					
PCB congener 52	<3 µg/kg M	TM168	<3					
PCB congener 101	<3 µg/kg M	TM168	<3					
PCB congener 118	<3 µg/kg M	TM168	<3					
PCB congener 138	<3 µg/kg M	TM168	<3					
PCB congener 153	<3 µg/kg M	TM168	<3					
PCB congener 180	<3 µg/kg M	TM168	<3					
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21					
Arsenic	<0.6 mg/kg M	TM181	10.7					
Barium	<0.6 mg/kg #	TM181	73.9					
Beryllium	<0.01 mg/kg M	TM181	0.722					
Cadmium	<0.02 mg/kg M	TM181	0.176					
Chromium	<0.9 mg/kg M	TM181	12.8					
Copper	<1.4 mg/kg M	TM181	23.7					
Lead	<0.7 mg/kg M	TM181	44.7					
Mercury	<0.14 mg/kg M	TM181	<0.14					
Nickel	<0.2 mg/kg M	TM181	10.6					
Selenium	<1 mg/kg #	TM181	<1					
Vanadium	<0.2 mg/kg #	TM181	23.9					
Zinc	<1.9 mg/kg M	TM181	49.7					
ANC @ pH 4	<0.03 mol/kg	TM182	0.102					
ANC @ pH 6	<0.03 mol/kg	TM182	0.0413					
Sulphate, acid soluble (total)	<0.02 %	TM221	<0.02					
Boron, water soluble	<1 mg/kg M	TM222	<1					
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410	<10					
Coronene	<200 µg/kg	TM410	<200					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH2
Depth (m)	1.00
Sample Type	Soil/Solid (S)
Date Sampled	23/09/2020
Sampled Time	.
Date Received	28/09/2020
SDG Ref	200928-15
Lab Sample No.(s)	22914336
AGS Reference	

Component	LOD/Units	Method	
EPH Surrogate % recovery**	%	TM415	99.8
EPH >C10-C40	<35 mg/kg	TM415	<35 @ M
Mineral Oil >C10-C40	<5 mg/kg	TM415	<5

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH2
Depth (m)	1.00
Sample Type	Soil/Solid (S)
Date Sampled	23/09/2020
Sampled Time	.
Date Received	28/09/2020
SDG Ref	200928-15
Lab Sample No.(s)	22914336
AGS Reference	

Component	LOD/Units	Method	
Naphthalene-d8 % recovery**	%	TM218	84.9
Acenaphthene-d10 % recovery**	%	TM218	85.6
Phenanthrene-d10 % recovery**	%	TM218	83.6
Chrysene-d12 % recovery**	%	TM218	92.1
Perylene-d12 % recovery**	%	TM218	89.8
Naphthalene	<9 µg/kg	TM218	<9 @ M
Acenaphthylene	<12 µg/kg	TM218	<12 @ M
Acenaphthene	<8 µg/kg	TM218	<8 @ M
Fluorene	<10 µg/kg	TM218	<10 @ M
Phenanthrene	<15 µg/kg	TM218	<15 @ M
Anthracene	<16 µg/kg	TM218	<16 @ M
Fluoranthene	<17 µg/kg	TM218	<17 @ M
Pyrene	<15 µg/kg	TM218	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M
Chrysene	<10 µg/kg	TM218	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH2
Depth (m)	1.00
Sample Type	Soil/Solid (S)
Date Sampled	23/09/2020
Sampled Time	.
Date Received	28/09/2020
SDG Ref	200928-15
Lab Sample No.(s)	22914336
AGS Reference	

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	112 @
Toluene-d8**	%	TM116	95.2 @
4-Bromofluorobenzene**	%	TM116	73.3 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref.	BH2	09/10/2020	[redacted]	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	1.00										
Sample Type	SOLID										
Date Sampled	23/09/2020 00:00:00										
Date Receieved	28/09/2020 11:15:00										
SDG	200928-15										
Original Sample	22914336										
Method Number	TM048										

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	1920- Ann Street, St Helier
Mass Sample taken (kg)	0.116	**Natural Moisture Content (%)**	27.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.2
Particle Size <4mm	>95%		

Case	
SDG	200928-15
Lab Sample Number(s)	22914336
Sampled Date	23-Sep-2020
Customer Sample Ref.	BH2
Depth (m)	1.00

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.863	3	5	6
Loss on Ignition (%)	4.74	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.92	-	>6	-
ANC to pH 6 (mol/kg)	0.0413	-	-	-
ANC to pH 4 (mol/kg)	0.102	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00183	<0.0005	0.0183	<0.005	0.5	2	25
Barium	0.00878	<0.0002	0.0878	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00381	<0.0003	0.0381	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.023	<0.003	0.23	<0.03	0.5	10	30
Nickel	0.00116	<0.0004	0.0116	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	0.0017	<0.001	0.017	<0.01	0.06	0.7	5
Selenium	0.00174	<0.001	0.0174	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	22.6	<2	226	<20	1000	20000	50000
Total Dissolved Solids	119	<5	1190	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	7.61	<3	76.1	<30	500	800	1000

Leach Test Information

Date Prepared	06-Oct-2020
pH (pH Units)	8.14
Conductivity (µS/cm)	152.00
Temperature (°C)	20.10
Volume Leachant (Litres)	0.875

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates

19/10/2020 16:47:20

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	1920- Ann Street, St Helier
Mass Sample taken (kg)	0.116	**Natural Moisture Content (%)**	27.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.2
Particle Size <4mm	>95%		

Case	
SDG	200928-15
Lab Sample Number(s)	22914336
Sampled Date	23-Sep-2020
Customer Sample Ref.	BH2
Depth (m)	1.00

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
EPH (DRO) (C10-C40)	<0.1	<0.1	<1	<1	-	-	-

Leach Test Information

Date Prepared	06-Oct-2020
pH (pH Units)	8.14
Conductivity (µS/cm)	152.00
Temperature (°C)	20.10
Volume Leachant (Litres)	0.875

Mcerts Certification does not apply to leachates

19/10/2020 16:47:23

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Test Completion Dates

Lab Sample No(s)	22914336
Customer Sample Ref.	BH2
AGS Ref.	
Depth	1.00
Type	Soil/Solid (S)
ANC at pH4 and ANC at pH 6	09-Oct-2020
Anions by Kone (w)	12-Oct-2020
Asbestos ID in Solid Samples	09-Oct-2020
Boron Water Soluble	09-Oct-2020
CEN 10:1 Leachate (1 Stage)	07-Oct-2020
CEN Readings	11-Oct-2020
Coronene	08-Oct-2020
Dissolved Metals by ICP-MS	12-Oct-2020
Dissolved Organic/Inorganic Carbon	13-Oct-2020
EPH (DRO) (C10-C40) Aqueous (W)	12-Oct-2020
EPH by GCxGC-FID	08-Oct-2020
Fluoride	12-Oct-2020
Loss on Ignition in soils	09-Oct-2020
Mercury Dissolved	15-Oct-2020
Metals in solid samples by OES	09-Oct-2020
Moisture at 105C	06-Oct-2020
PAH 16 & 17 Calc	08-Oct-2020
PAH by GCMS	08-Oct-2020
PCBs by GCMS	09-Oct-2020
pH	08-Oct-2020
Phenols by HPLC (W)	09-Oct-2020
Sample description	06-Oct-2020
Total Dissolved Solids	12-Oct-2020
Total Organic Carbon	09-Oct-2020
Total Sulphate	08-Oct-2020
Total Sulphur	08-Oct-2020
VOC MS (S)	08-Oct-2020

CERTIFICATE OF ANALYSIS

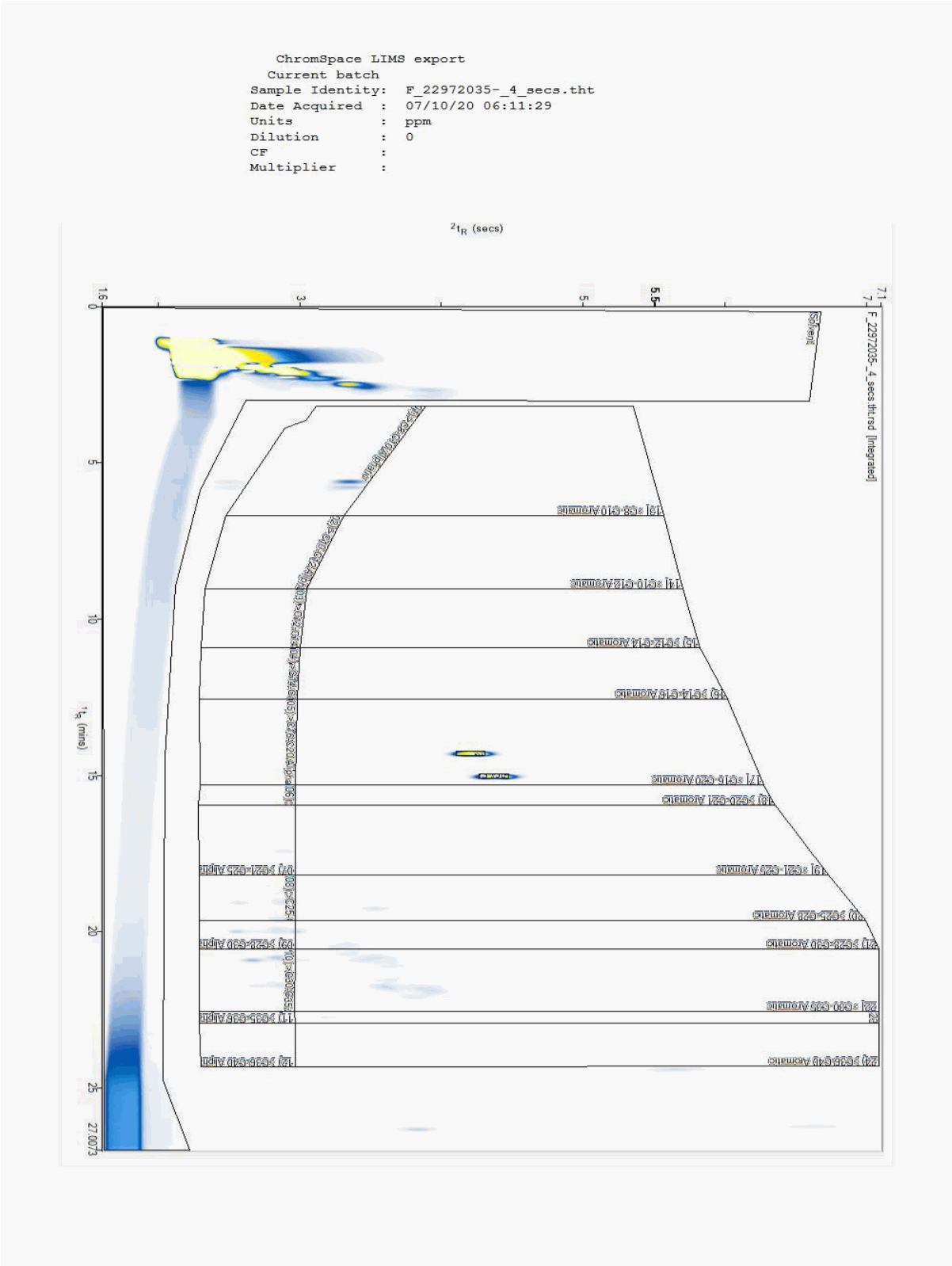
SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Chromatogram

Analysis: EPH by GCxGC-FID

Sample No : 22972035
Sample ID : BH2

Depth : 1.00



CERTIFICATE OF ANALYSIS

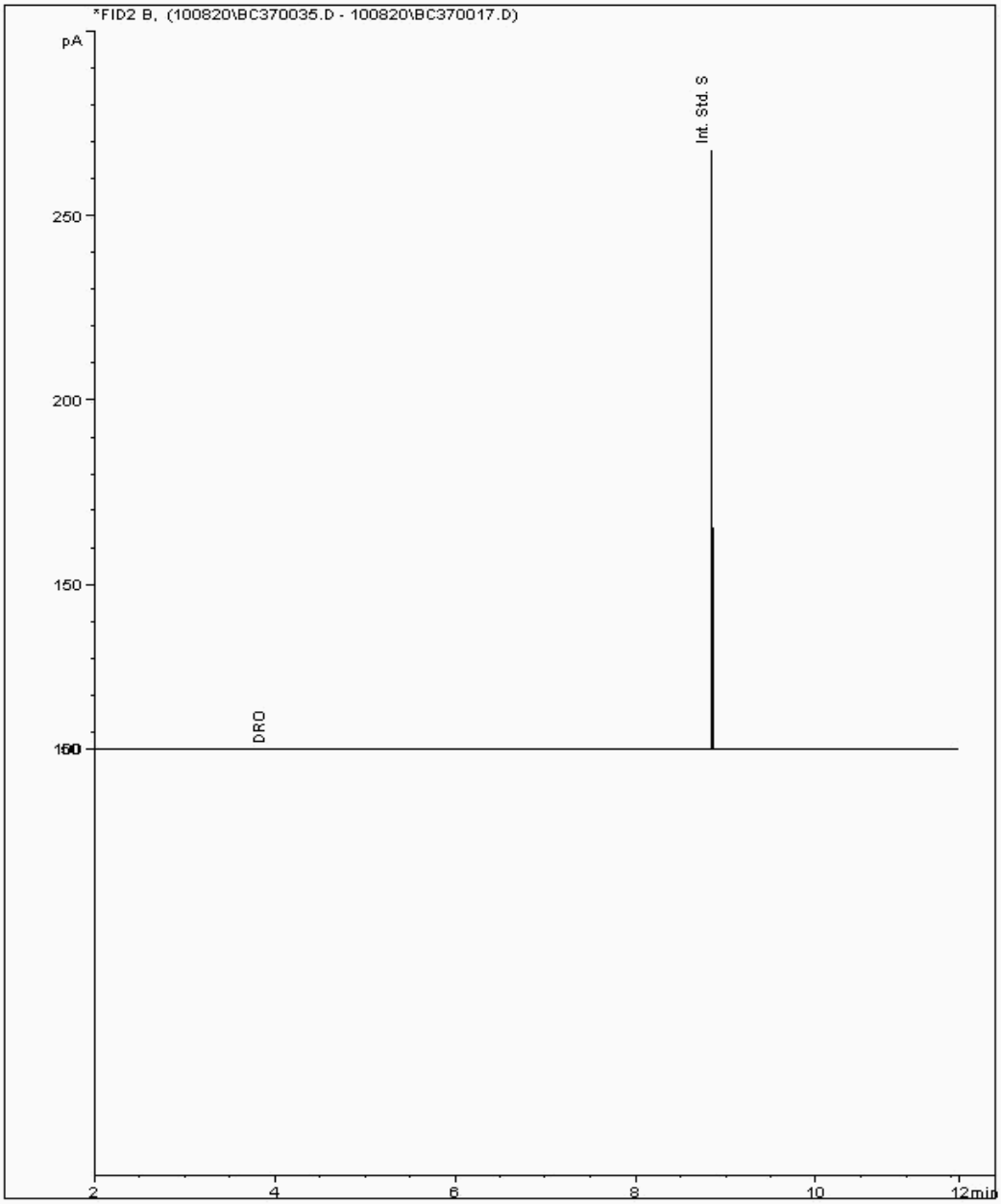
SDG:	200928-15	**Client Reference:**		**Report Number:**	571737
Location:	1920- Ann Street, St Helier	**Order Number:**	5007	**Superseded Report:**	571198

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 22997087 **Depth :** 1.00
Sample ID : BH2

EPH Range Organics (C10 - C40)

Sample Identity: 21524643-
Date Acquired : 12/10/2020 09:29:17 PM
Units : mg/l



ALS Environmental, Land	QF.7.5.1 Data Amendments Form (Issue No. 3)
	Date: 10/01/2020
	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Previous Reference	New Reference	Supercedes Report
200928-15	22914336	ANN STREET	19/10/2020	Sample ID Change	ANN STREET	BH2	571198

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH_4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

AMPLUS Ltd
Unit 1 Thistle Grove
St. Lawrence
Jersey
Jersey
JE3 1NN

Attention: [redacted]

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 November 2020
Customer:	AMPLUS Ltd
Sample Delivery Group (SDG):	201105-120
Your Reference:	
Location:	1920- Ann Street, St Helier
Report No:	576419

This report has been revised and directly supersedes 576139 in its entirety.

We received 2 samples on Thursday November 05, 2020 and 2 of these samples were scheduled for analysis which was completed on Friday November 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

[redacted]

[redacted]
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23185702	BH2		1.20	03/11/2020
23185704	BH6		1.30	03/11/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)							23185702				23185704	
Customer Sample Reference							BH2				BH6	
AGS Reference												
Depth (m)							1.20				1.30	
Container							0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	HNO3 Filtered (ALE204)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	HNO3 Filtered (ALE204)
Sample Type							UNL	UNL	UNL	UNL	UNL	UNL
Anions by Kone (w)	All	NDPs: 0 Tests: 2						X			X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2						X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2							X			X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 2					X			X		
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 2					X			X		
Fluoride	All	NDPs: 0 Tests: 2						X			X	
Mercury Dissolved	All	NDPs: 0 Tests: 2							X			X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 2					X			X		
pH Value	All	NDPs: 0 Tests: 2						X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2						X			X	
Total Dissolved Solids (Grav)	All	NDPs: 0 Tests: 2						X			X	

CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.						
			BH2	BH6					
Depth (m)			1.20	1.30					
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)					
Date Sampled			03/11/2020	03/11/2020					
Sampled Time			.	.					
Date Received			05/11/2020	05/11/2020					
SDG Ref			201105-120	201105-120					
Lab Sample No.(s)			23185702	23185704					
AGS Reference									
Dissolved solids, Total (gravimetric)	<40 mg/l	TM021	795	704					
Carbon, Organic (diss.filt)	<3 mg/l	TM090	31.6	11.7					
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5					
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	1.09	0.94					
Antimony (diss.filt)	<1 µg/l	TM152	<1	1.03					
Arsenic (diss.filt)	<0.5 µg/l	TM152	39.6	5.51					
Barium (diss.filt)	<0.2 µg/l	TM152	188	41.7					
Cadmium (diss.filt)	<0.08 µg/l	TM152	0.119	<0.08					
Chromium (diss.filt)	<1 µg/l	TM152	2.7	<1					
Copper (diss.filt)	<0.3 µg/l	TM152	2.23	2.61					
Lead (diss.filt)	<0.2 µg/l	TM152	2.93	<0.2					
Molybdenum (diss.filt)	<3 µg/l	TM152	13.4	45.9					
Nickel (diss.filt)	<0.4 µg/l	TM152	36.3	6.29					
Selenium (diss.filt)	<1 µg/l	TM152	1.22	1.72					
Zinc (diss.filt)	<1 µg/l	TM152	45.9	8.5					
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	289	443					
EPH Band >C10-C20 (aq)	<100 µg/l	TM172	109	226					
EPH Band >C20-C30 (aq)	<100 µg/l	TM172	110	140					
EPH Band >C30-C40 (aq)	<100 µg/l	TM172	<100	<100					
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01					
Sulphate	<2 mg/l	TM184	81.9	179					
Chloride	<2 mg/l	TM184	67.9	70.7					
pH	<1 pH Units	TM256	7.04	7.88					
Phenol	<0.002 mg/l	TM259	<0.002 2	<0.002 2					
Cresols	<0.006 mg/l	TM259	<0.006 2	<0.006 2					
Xylenols	<0.008 mg/l	TM259	<0.008 2	<0.008 2					
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016 2	<0.016 2					

CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH2	BH6				
			Depth (m)	1.20	1.30				
			Sample Type	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)				
			Date Sampled	03/11/2020	03/11/2020				
			Sampled Time	.	.				
			Date Received	05/11/2020	05/11/2020				
			SDG Ref	201105-120	201105-120				
			Lab Sample No.(s)	23185702	23185704				
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		0.0679	0.036				
Acenaphthene (aq)	<0.005 µg/l	TM178		0.0112	0.00658				
Acenaphthylene (aq)	<0.005 µg/l	TM178		0.00685	0.00727				
Fluoranthene (aq)	<0.005 µg/l	TM178		0.0267	0.0367				
Anthracene (aq)	<0.005 µg/l	TM178		0.00718	0.00709				
Phenanthrene (aq)	<0.005 µg/l	TM178		0.0428	0.048				
Fluorene (aq)	<0.005 µg/l	TM178		0.0237	0.0153				
Chrysene (aq)	<0.005 µg/l	TM178		0.0154	<0.005				
Pyrene (aq)	<0.005 µg/l	TM178		0.0245	0.0559				
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.0169	0.0253				
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.0261	0.0225				
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		0.0148	<0.005				
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		0.0157	0.00445				
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005	<0.005				
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.0218	<0.005				
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		0.0098	0.0146				
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.331	0.28				

Table of Results - Appendix

Method No	Reference	Description
TM021	Method 2540C, AWWA/APHA, 20th Ed., 1999	Determination of total dissolved solids in waters by gravimetry.
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

Test Completion Dates

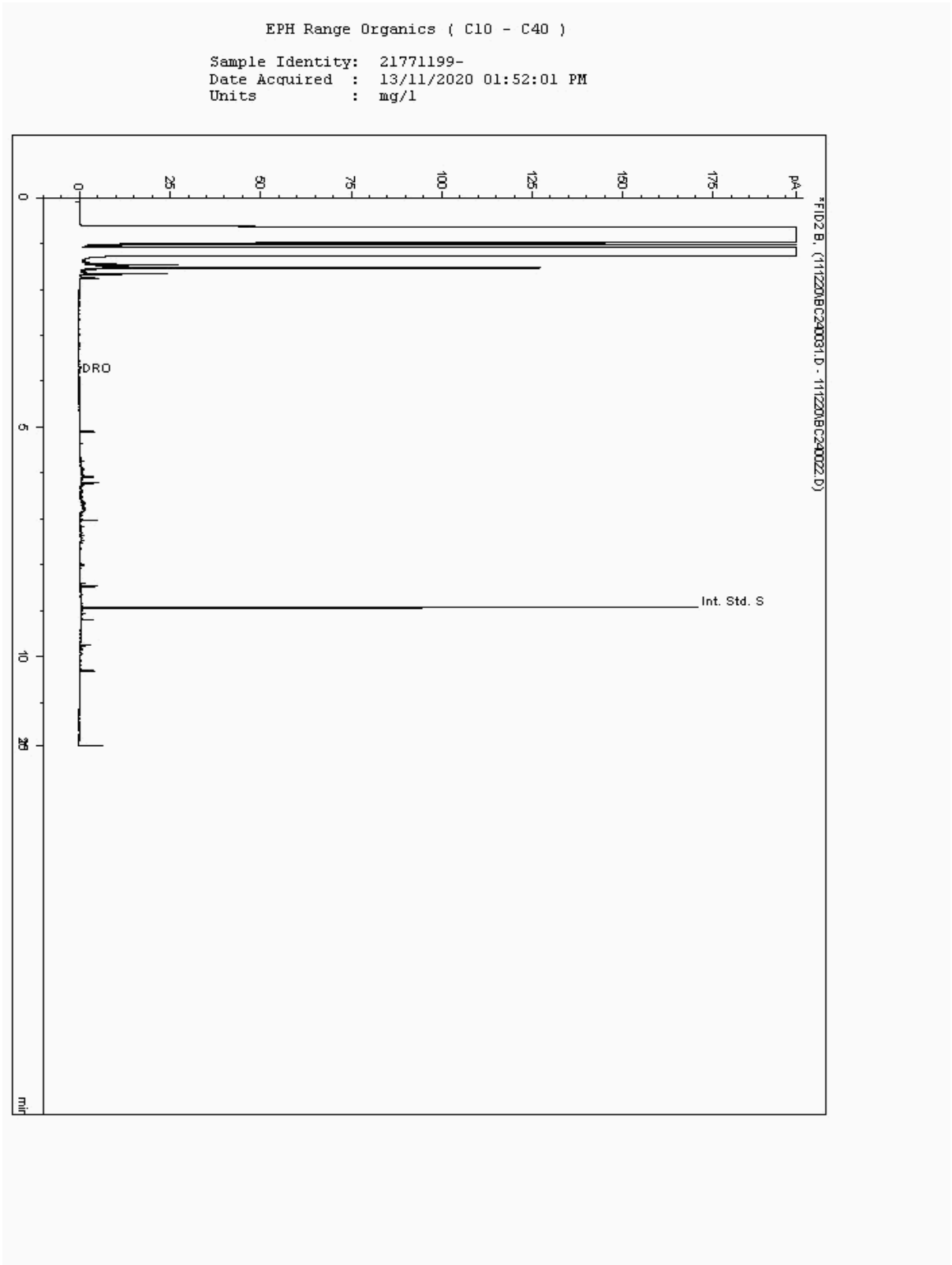
Lab Sample No(s)	23185702	23185704
Customer Sample Ref.	BH2	BH6
AGS Ref.		
Depth	1.20	1.30
Type	Unspecified Liq	Unspecified Liq
Anions by Kone (w)	17-Nov-2020	17-Nov-2020
Conductivity (at 20 deg.C)	13-Nov-2020	13-Nov-2020
Dissolved Metals by ICP-MS	20-Nov-2020	20-Nov-2020
Dissolved Organic/Inorganic Carbon	13-Nov-2020	12-Nov-2020
EPH (DRO) (C10-C40) Aqueous (W)	13-Nov-2020	13-Nov-2020
Fluoride	12-Nov-2020	12-Nov-2020
Mercury Dissolved	17-Nov-2020	17-Nov-2020
PAH Spec MS - Aqueous (W)	13-Nov-2020	13-Nov-2020
pH Value	12-Nov-2020	12-Nov-2020
Phenols by HPLC (W)	17-Nov-2020	17-Nov-2020
Total Dissolved Solids (Grav)	13-Nov-2020	13-Nov-2020

CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 23220324 **Depth :** 1.30
Sample ID : BH6

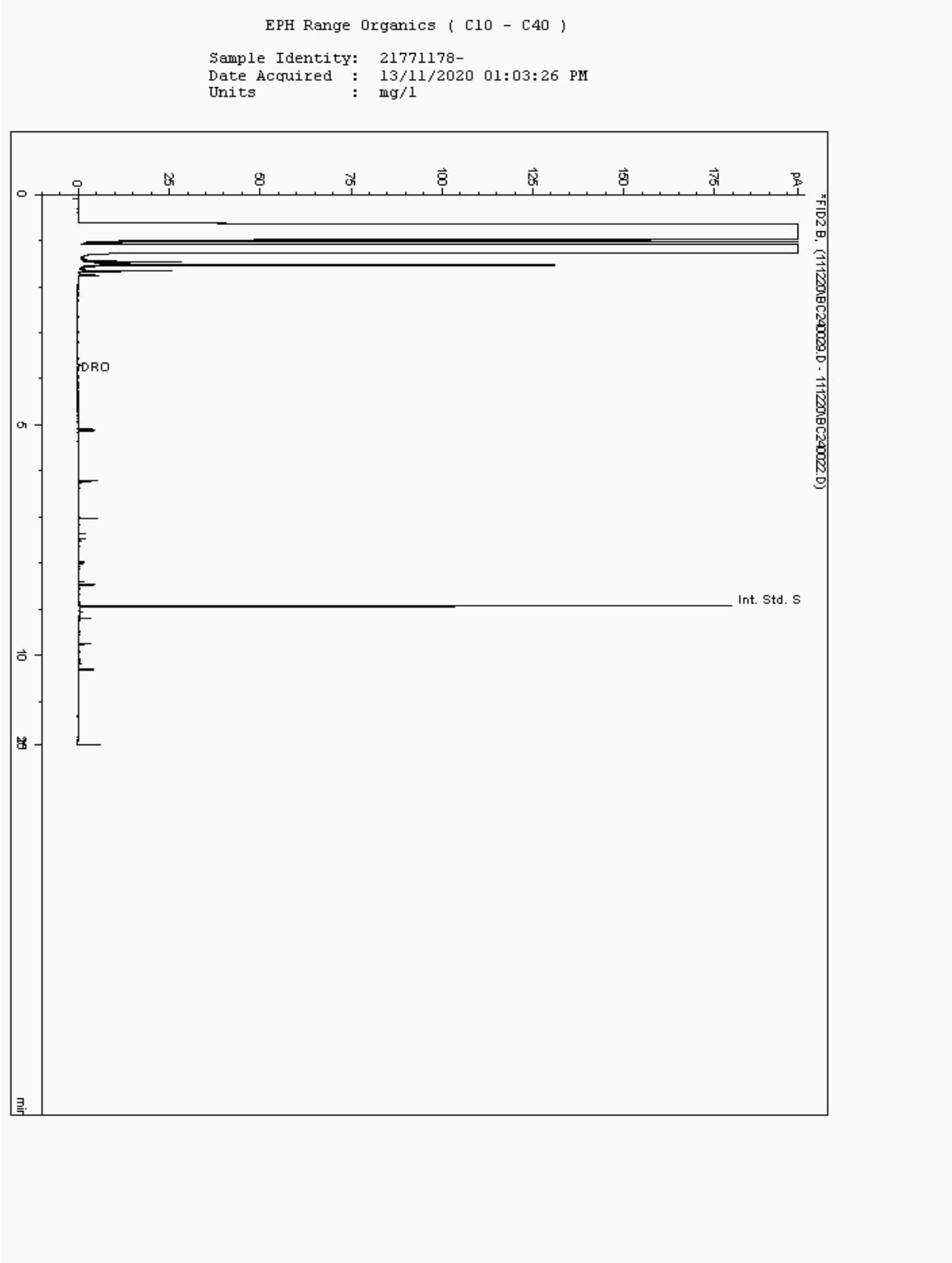


CERTIFICATE OF ANALYSIS

SDG:	201105-120	**Client Reference:**		**Report Number:**	576419
Location:	1920- Ann Street, St Helier	**Order Number:**	5027	**Superseded Report:**	576139

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 23220339 **Sample ID :** BH2 **Depth :** 1.20



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX 4

Gas Readings

The GFM436 measures the proportions of methane (by volume and LEL – Lower Explosive Limit), carbon dioxide, oxygen, hydrogen sulphide and carbon monoxide in soil gas.

BH2 and BH6

20.10.20

03.11.20

16.11.20

Date - Time	ID1	Serial	CH4(%)	LEL(%)	CO2(%)	O2(%)	H2S(ppm)	CO(ppm)	Hex(%)	PIDCf()	Flw(m3/h)	PkFlw(lh)	DP(mb)	AP(mbar)	SP(mbar)	Vel(ms-1)	Temp(C)	DIP1(m)	DIP2(m)	Pmp()	Bal(%)
20/10/2020 12:33	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	0	81.2
20/10/2020 12:34	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	70	81.2
20/10/2020 12:36	BH2	12099	0	0	0.6	18.4	0	-10	0.001	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	22	81
20/10/2020 12:36	BH2	12099	0	0	0.6	18.3	0	-10	0.001	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	32	81.1
20/10/2020 12:36	BH2	12099	0	0	0.6	18.3	0	-10	0	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	47	81.1
20/10/2020 12:36	BH2	12099	0	0	0.6	18.3	0	-10	0	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	62	81.1
20/10/2020 12:36	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	77	81.2
20/10/2020 12:37	BH2	12099	0	0	0.6	18.2	0	-10	0	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	91	81.2
20/10/2020 12:37	BH2	12099	0	0	0.6	18.2	0	-10	0	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	##	81.2
20/10/2020 12:37	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0001	0	-0.01	995	995	___._	___._	0	0	##	81.2
20/10/2020 12:42	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0003	-0.3	-0.02	996	996	___._	___._	0	0	##	81.2
20/10/2020 12:43	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0012	0	-0.08	996	996	___._	___._	0	0	##	81.2
20/10/2020 12:44	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0007	-0.1	-0.05	997	997	___._	___._	0	0	##	81.2
20/10/2020 12:45	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	0	0	0	996	996	___._	___._	0	0	##	81.2
20/10/2020 12:46	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	0	0	0	997	997	___._	___._	0	0	##	81.2
20/10/2020 12:47	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0004	-0.1	-0.02	997	997	___._	___._	0	0	##	81.2
20/10/2020 12:48	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0001	0	0	997	997	___._	___._	0	0	##	81.2
20/10/2020 12:49	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	0	0	0	997	997	___._	___._	0	0	##	81.2
20/10/2020 12:50	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0005	0	-0.03	998	998	___._	___._	0	0	##	81.2
20/10/2020 12:51	BH2	12099	0	0	0.6	18.2	0	-10	0.001	1	-0.0001	0	0	997	997	___._	___._	0	0	##	81.2
20/10/2020 13:20	BH6	12099	0	0	0.4	11.8	0	0	0.003	1	0	___._	0	_____	_____	___._	___._	0	0	19	87.8
20/10/2020 13:21	BH6	12099	0	0	0.3	12	0	0	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	33	87.7
20/10/2020 13:21	BH6	12099	0	0	0.3	11.9	0	0	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	56	87.8
20/10/2020 13:21	BH6	12099	0	0	0.3	12.2	0	0	0.002	1	0	___._	0	_____	_____	___._	___._	0	0	63	87.5
20/10/2020 13:21	BH6	12099	0	0	0.3	13.1	0	0	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	77	86.6
20/10/2020 13:22	BH6	12099	0	0	0.3	13.5	0	0	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	93	86.2
20/10/2020 13:22	BH6	12099	0	0	0.3	13.5	0	0	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	##	86.2
20/10/2020 13:22	BH6	12099	0	0	0.3	13.2	0	0	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	##	86.5
20/10/2020 13:24	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0.3	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:25	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0.3	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:26	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:27	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:28	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:29	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:30	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:31	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	997	_____	___._	___._	0	0	##	86.5
20/10/2020 13:32	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5
20/10/2020 13:33	BH6	12099	0	0	0.3	13.2	0	0	0	1	0	0	0	998	_____	___._	___._	0	0	##	86.5

Date - Time	ID1	Serial	CH4(%)	LEL(%)	CO2(%)	O2(%)	H2S(ppm)	CO(ppm)	Hex(%)	PIDCf()	Flw(m3/h)	PkFlw(lh)	DP(mb)	AP(mbar)	SP(mbar)	Vel(ms-1)	Temp(C)	DIP1(m)	DIP2(m)	Pmp()	Bal(%)
03/11/2020 14:18	BH2	12099	0	<<<.<	0.6	19.1	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	80.3
03/11/2020 14:19	BH2	12099	0	<<<.<	0.6	18.7	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	18	80.7
03/11/2020 14:19	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	80.8
03/11/2020 14:19	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	80.8
03/11/2020 14:20	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	80.8
03/11/2020 14:20	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	80.8
03/11/2020 14:20	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	80.8
03/11/2020 14:21	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	80.8
03/11/2020 14:21	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	80.8
03/11/2020 14:21	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	80.8
03/11/2020 14:25	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	-0.0002	0	-0.01	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:26	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	-0.0003	0	-0.02	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:27	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	-0.0002	0	-0.01	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:28	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:29	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:30	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:31	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:32	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	-0.0001	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:33	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:34	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 14:35	BH2	12099	0	<<<.<	0.6	18.6	0	-10	0	1	0	0	0	1014	1014	___._	___._	0	0	15	80.8
03/11/2020 15:16	BH6	12099	0	0	1.7	14.8	0	-10	0.03	1	0	___._	0	_____	_____	___._	___._	0	0	16	83.5
03/11/2020 15:17	BH6	12099	0	0	1.7	14.2	0	-10	0.006	1	0	___._	0	_____	_____	___._	___._	0	0	16	84.1
03/11/2020 15:17	BH6	12099	0	0	1.5	15	0	-10	0.002	1	0	___._	0	_____	_____	___._	___._	0	0	15	83.5
03/11/2020 15:17	BH6	12099	0	0	1.4	15.2	0	0	0.002	1	0	___._	0	_____	_____	___._	___._	0	0	16	83.4
03/11/2020 15:18	BH6	12099	0	0	1.3	15.4	0	-10	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	16	83.3
03/11/2020 15:18	BH6	12099	0	0	1.1	15.8	0	0	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	83.1
03/11/2020 15:19	BH6	12099	0	0	1.2	15.8	0	-10	0.001	1	0	___._	0	_____	_____	___._	___._	0	0	16	83
03/11/2020 15:19	BH6	12099	0	<<<.<	1.1	15.9	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	83
03/11/2020 15:19	BH6	12099	0	0	1.1	16.1	0	0	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	82.8
03/11/2020 15:20	BH6	12099	0	0	1.1	16	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	82.9
03/11/2020 15:20	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0152	-15.2	-1.98	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:21	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0084	-8.4	-1	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:22	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0049	-4.9	-0.49	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:23	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0028	-2.8	-0.19	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:24	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0018	-1.5	-0.12	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:25	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0011	-1	-0.07	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:26	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0008	-0.7	-0.05	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:27	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0007	-0.6	-0.05	1012	1012	___._	___._	0	0	16	82.9
03/11/2020 15:28	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0007	-0.6	-0.05	1011	1011	___._	___._	0	0	16	82.9
03/11/2020 15:29	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0006	-0.3	-0.04	1011	1011	___._	___._	0	0	16	82.9
03/11/2020 15:30	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0006	-0.5	-0.04	1011	1011	___._	___._	0	0	16	82.9
03/11/2020 15:31	BH6	12099	0	0	1.1	16	0	-10	0	1	-0.0006	-0.4	-0.04	1011	1011	___._	___._	0	0	16	82.9

Date - Time	ID1	Serial	CH4(%)	LEL(%)	CO2(%)	O2(%)	H2S(ppm)	CO(ppm)	Hex(%)	PIDCf()	Flw(m3/h)	PkFlw(lh)	DP(mb)	AP(mbar)	SP(mbar)	Vel(ms-1)	Temp(C)	DIP1(m)	DIP2(m)	Pmp()	Bal(%)
16/11/2020 09:37	BH2	12099	0	<<<.<	0.5	18.2	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	21	81.3
16/11/2020 09:37	BH2	12099	0	<<<.<	0.5	18.1	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	17	81.4
16/11/2020 09:38	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:38	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	17	81.5
16/11/2020 09:38	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:39	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:39	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:40	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:40	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:40	BH2	12099	0	<<<.<	0.5	18	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.5
16/11/2020 09:43	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	0	0	0	1005	1005	___._	___._	0	0	9	80.7
16/11/2020 09:44	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0003	0	-0.02	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:45	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0006	-0.1	-0.04	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:46	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0003	-0.2	-0.02	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:47	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0004	0	-0.03	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:48	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0003	0	-0.02	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:49	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0002	-0.1	-0.01	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:50	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0003	-0.1	-0.02	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 09:52	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	0	0	0	1007	1007	___._	___._	0	0	9	80.7
16/11/2020 09:52	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0003	-0.1	-0.02	1007	1007	___._	___._	0	0	9	80.7
16/11/2020 09:53	BH2	12099	0	<<<.<	0.1	19.2	0	-10	0	1	-0.0003	-0.1	-0.02	1006	1006	___._	___._	0	0	9	80.7
16/11/2020 10:24	BH6	12099	0	<<<.<	1.9	17.4	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	80.7
16/11/2020 10:25	BH6	12099	0	<<<.<	1.9	16.9	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	81.2
16/11/2020 10:25	BH6	12099	0	<<<.<	1.9	16.9	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.2
16/11/2020 10:25	BH6	12099	0	<<<.<	1.9	16.8	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	17	81.3
16/11/2020 10:26	BH6	12099	0	<<<.<	1.9	16.8	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.3
16/11/2020 10:26	BH6	12099	0	<<<.<	1.8	17	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.2
16/11/2020 10:26	BH6	12099	0	<<<.<	1.7	17.2	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	15	81.1
16/11/2020 10:27	BH6	12099	0	<<<.<	1.6	17.3	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.1
16/11/2020 10:27	BH6	12099	0	<<<.<	1.5	17.4	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81.1
16/11/2020 10:27	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	0	___._	0	_____	_____	___._	___._	0	0	16	81
16/11/2020 10:29	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.006	-6	-0.64	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:30	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0021	-2.1	-0.14	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:31	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0008	-0.7	-0.05	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:32	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0004	-0.3	-0.03	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:33	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0004	0	-0.02	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:34	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0003	-0.3	-0.02	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:35	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0003	0	-0.02	1008	1008	___._	___._	0	0	16	81
16/11/2020 10:36	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0002	-0.1	-0.01	1009	1009	___._	___._	0	0	16	81
16/11/2020 10:37	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0002	0	-0.01	1009	1009	___._	___._	0	0	16	81
16/11/2020 10:38	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0001	0	-0.01	1009	1009	___._	___._	0	0	16	81
16/11/2020 10:39	BH6	12099	0	<<<.<	1.5	17.5	0	-10	0	1	-0.0003	0	-0.02	1009	1009	___._	___._	0	0	16	81

APPENDIX 5 Notes of Site Investigation and Limitations

INVESTIGATION TECHNIQUES

INTRODUCTION

The following brief review of Ground Investigation techniques, generally used as part of most Site Investigations in the UK, summarises their methodology, advantages, and limitations. Detailed descriptions of the techniques are available and can be provided on request. This review should be read in conjunction with the accompanying General Notes.

TRIAL PITS

The trial pit is amongst the simplest yet effective means of identifying shallow ground conditions on a site. Its advantages include simplicity, speed, potential accuracy, and cost-effectiveness. The trial pit is most commonly formed using an excavator, which can typically determine ground conditions to some 4 metres below ground level. Hand excavation is often used to locate, expose, and detail existing foundations, features or services. In general, it is difficult to extend pits significantly below the water table in predominantly granular soils, where flows can cause instability. Unless otherwise stated, the trial pits will not have been provided with temporary side support during their construction. Under such circumstances, ground conditions to some 1.20 metres can be closely inspected, subject to stability assessment, but below this depth, entrance into the pit is not permitted in the absence of shoring and hence observations will have been made from ground surface and samples taken from the excavator bucket. Trends in strata type, level and thickness can be determined, shear surfaces identified and the behaviour of plant, excavation sides and excavated materials can be related to the construction process. They are particularly valuable in landslip investigations. Some types of insitu test can be undertaken in such pits and large disturbed or block samples obtained.

DRY CORE DRILLING

The dry core drilling technique of soft ground boring, typically at a diameter of 100mm, is a method of rotary boring vertical holes and generally allows data to be obtained in respect of strata conditions other than rock. A core barrel is drilled into the ground using s rotary boring rig. Soil which enters the barrel is regularly removed and either sampled for subsequent examination or test or laid in a core box. Steel casing will have been used to prevent collapse of the borehole sides where necessary. A degree of disturbance of soil is inevitable and the presence of very thin layers of different soils within a stratum may not be identified. Changes in strata type can only be detected on recognition of a change in soil samples at surface, after the interface has been passed. For the foregoing reasons, depth measurements should not be considered more accurate than 0.10 metre. In cohesive soils, cylindrical samples are retrieved by driving or pushing in 70mm nominal diameter tubes. In soft soils, piston sampling or vane testing may be undertaken. In granular soils and often in cohesive materials, insitu Standard Penetration Tests (SPT's) are performed. The SPT records the number of standard blows required to drive a 50mm diameter open or cone ended probe for 300mm after an initial 150mm penetration. A modified method of recording is used in more dense strata. Small disturbed samples are obtained throughout. The technique can determine ground conditions to depths more than 30 metres under suitable circumstances and usually causes less surface disturbance than trial pitting.

ROTARY DRILLING

Rotary Drilling to produce cores by rotating an annular diamond-impregnated tube or barrel into the ground is the technique most appropriate to the forming of site investigation boreholes through rock or other hard strata. It has the advantage of being able to be used vertically or at an angle. Core diameters of less than 100mm are most common for site investigation purposes. Core is sometimes retrieved in plastic lining tubes. A flushing fluid such as air, water or foam is used to cool the bit and carry cuttings to the surface. Examination of cores allows detailed rock description and generally enables angled discontinuity surfaces to be observed. However, vertical holes do not necessarily reveal the presence of vertical or near-vertical fissures or joint discontinuities. Where open hole rotary drilling is employed, descriptions of strata result from examination at surface of small particles ejected from the borehole in the flushing medium. In consequence, no indication of fissuring, bedding, consistency, or degree of weathering can be obtained. Small scale plant can be used for auger drilling to limited depths where access is constrained. Depths more than 60 metres can be achieved under suitable circumstances using rotary techniques, with minimal surface disturbance.

WINDOW SAMPLING

This technique involves the driving of an open-ended tube into the ground and retrieval of the soil, which enters the tube. The term "window sample" arose from the original device, which had a "window" or slot cut into the side of the tube through which samples were taken. This has now been superseded using a thin-walled plastic liner within a sampler, which has a solid wall. Diameters range from 36 to 86mm. Such samples can be used for qualitative logging, selection of samples for classification and chemical analysis and for obtaining a rudimentary assessment of strength. Driving devices can be hand-held or machine mounted, and the drive tubes are typically in 1m lengths. The hole formed is not cased, however, and hence the success of this technique is limited when soils and groundwater conditions are such that the sides of the hole collapse on withdrawal of the sampler. Obstructions within the ground, the density of the material or its strength can also limit the depth and rate of penetration of this light-weight investigation technique. Nevertheless, it is a valuable tool where access is constrained such as within buildings or on embankments. Depths of up to 8m can be achieved in suitable circumstances but depths of 4m to 6m are more common.

DYNAMIC PROBING

This technique typically measures the number of blows of a standard weight falling over a standard height to advance a cone-ended rod over sequential standard distances (typically 100mm). Some devices measure the penetration of the probe per standard blow. It is essentially a profiling tool and is best used in conjunction with other investigation techniques where site-specific correlation can be used to delineate the distribution of soft or loose soils or the upper horizon of a dense or strong layer such as rock. Both machine-driven and hand-driven equipment is

available, the selection depending upon access restrictions and the depth of penetration required. It is particularly useful where access for larger equipment is not available, disturbance is to be minimised or where there are cost constraints. No samples are recovered, and some techniques leave a sacrificial cone head in the ground. As with other lightweight techniques, progress is limited in strong or dense soils. The results are presented both numerically and graphically. Depths of up to 10m are commonly achieved in suitable circumstances. The hand driven DCP probing device has been calibrated by the TRL to provide a profile of CBR values over a range of depths of up to 1.50m.

INSTRUMENTATION

The most common form of instrument used in site investigation is either the standpipe or else the standpipe piezometer, which can be installed in investigation holes. They are used to facilitate monitoring of groundwater levels and water sampling over a period following site work. Normally a standpipe would be formed using rigid plastic tubing which has been perforated or slotted over much of its length whilst a standpipe piezometer would have a filter tip which would be placed at a selected level and the hole sealed above and sometimes below to isolate the zone of interest. Groundwater levels are determined using an electronic “dip meter” to measure the depth to the water surface from ground level. Piezometers can also be used to measure permeability. They are simple and inexpensive instruments for long term monitoring, but response times can limit their use in tidal areas and access to the ground surface at each instrument is necessary. Remote reading requires more sophisticated hydraulic, electronic, or pneumatic equipment. Settlement can be monitored using surface or buried target plates whilst lateral movement over a range of depths is monitored using slip indicator or inclinometer equipment.

EXPLORATORY HOLE RECORDS

The data obtained by these techniques are generally presented on Trial Pit, Borehole, Drill hole or Window Sample Records. The descriptions of strata result from information gathered from many sources, which may include published geological data, preliminary field observations and descriptions, insitu test results, laboratory test results and specimen descriptions. A key to the symbols and abbreviations used accompanies the records. The descriptions on the exploratory hole records accommodate but may not necessarily be identical to those on any preliminary records or the laboratory summaries. The records show ground conditions at the exploratory hole locations. The degree to which they can be used to represent conditions between or beyond such holes, however, is a matter for geological interpretation rather than factual reporting and the associated uncertainties must be recognised.

GENERAL NOTES

1. The report is prepared for the exclusive use of the Client named in the document and copyright subsists with Amplus Ltd. Prior written permission must be obtained to reproduce all or part of the report. It is prepared on the understanding that its contents are only disclosed to parties directly involved in the current investigation, preparation, and development of the site.

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3. The report and/or opinion are prepared for the specific purpose stated in the document and in relation to the nature and extent of proposals made available to Amplus Ltd at that time. Reconsideration will be necessary should those details change. The recommendations should not be used for other schemes on or adjacent to the site without further reference to Amplus Ltd.

4. The assessment of the significance of the factual data, where called for, is provided to assist the Client and his Engineer and/or Advisers in the preparation of their designs.

5. The report is based on the ground conditions encountered in the exploratory holes together with the results of field and laboratory testing in the context of the proposed development. The data from any commissioned desk study and site reconnaissance are also drawn upon. There may be special conditions appertaining to the site, however, which are not revealed by the investigation and which may not be considered in the report.

6. Methods of construction and/or design other than those proposed by the designers or referred to in the report may require consideration during the evolution of the proposals and further assessment of the geotechnical and any geoenvironmental data would be required to provide discussion and evaluations appropriate to these methods.

7. The accuracy of results reported depends upon the technique of measurement, investigation and test used and these values should not be regarded necessarily as characteristics of the strata (see accompanying notes on Investigation Techniques). Where such measurements are critical, the technique of investigation will need to be reviewed and supplementary investigation undertaken in accordance with the advice of the Company where necessary.

8. The samples selected for laboratory test are prepared and tested in accordance with the relevant Clauses of BS 1377 Parts 1 to 8, in a UKAS accredited Laboratory.

10. Any unavoidable variations from specified procedures are identified in the report.

11. Specimens are cut vertically, where this is relevant and can be identified, unless otherwise stated.

12. All the data required by the test procedures are recorded on individual test sheets but the results in the report are presented in summary form to aid understanding and assimilation for design purposes. Where all details are required, these can be made available.

13. Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes, or on the possible presence of features based on visual, verbal, written, cartographical, photographic or published evidence, this is for guidance only and no liability can be accepted for its accuracy.

14. Classification of materials as Made Ground is based on the inspection of retrieved samples or

exposed excavations. Where it is obvious that foreign matter such as paper, plastic or metal is present, classification is clear. Frequently, however, for fill materials that arise from the adjacent ground or from the backfilling of excavations, their visual characteristics can closely resemble those of undisturbed ground. Other evidence such as site history, exploratory hole location or other tests may need to be drawn upon to provide clarification. For these reasons, classification of soils on the exploratory hole records as either Made Ground or naturally occurring strata, the boundary between them and any interpretation that this gives rise to should be regarded as provisional and subject to re-evaluation in the light of further data.

15. The classification of materials as Topsoil is generally based on visual description and should not be interpreted to mean that the material so described complies with the criteria for Topsoil used in BS 3882 (1994). Specific testing would be necessary where such definition is a requirement.

16. Ground conditions should be monitored during the construction of the works and the report should be re-evaluated in the light of these data by the supervising geotechnical engineers.

17. Any comments on groundwater conditions are based on observations made at the time of the investigation, unless specifically stated otherwise. It should be noted, however, that the observations are subject to the method and speed of boring, drilling or excavation and that groundwater levels will vary due to seasonal or other effects.

18. Any bearing capacities for conventional spread foundations which are given in the report and interpreted from the investigation are for bases at a minimum depth of 1m below finished ground level in naturally occurring strata and at broadly similar levels throughout individual structures, unless otherwise stated. The foundations should be designed in accordance with the good practice embodied in current Standards and Codes. Foundation design is an iterative process and bearing pressures may need adjustment or other measures may need to be taken in the context of final layouts and levels prior to finalisation of proposals.

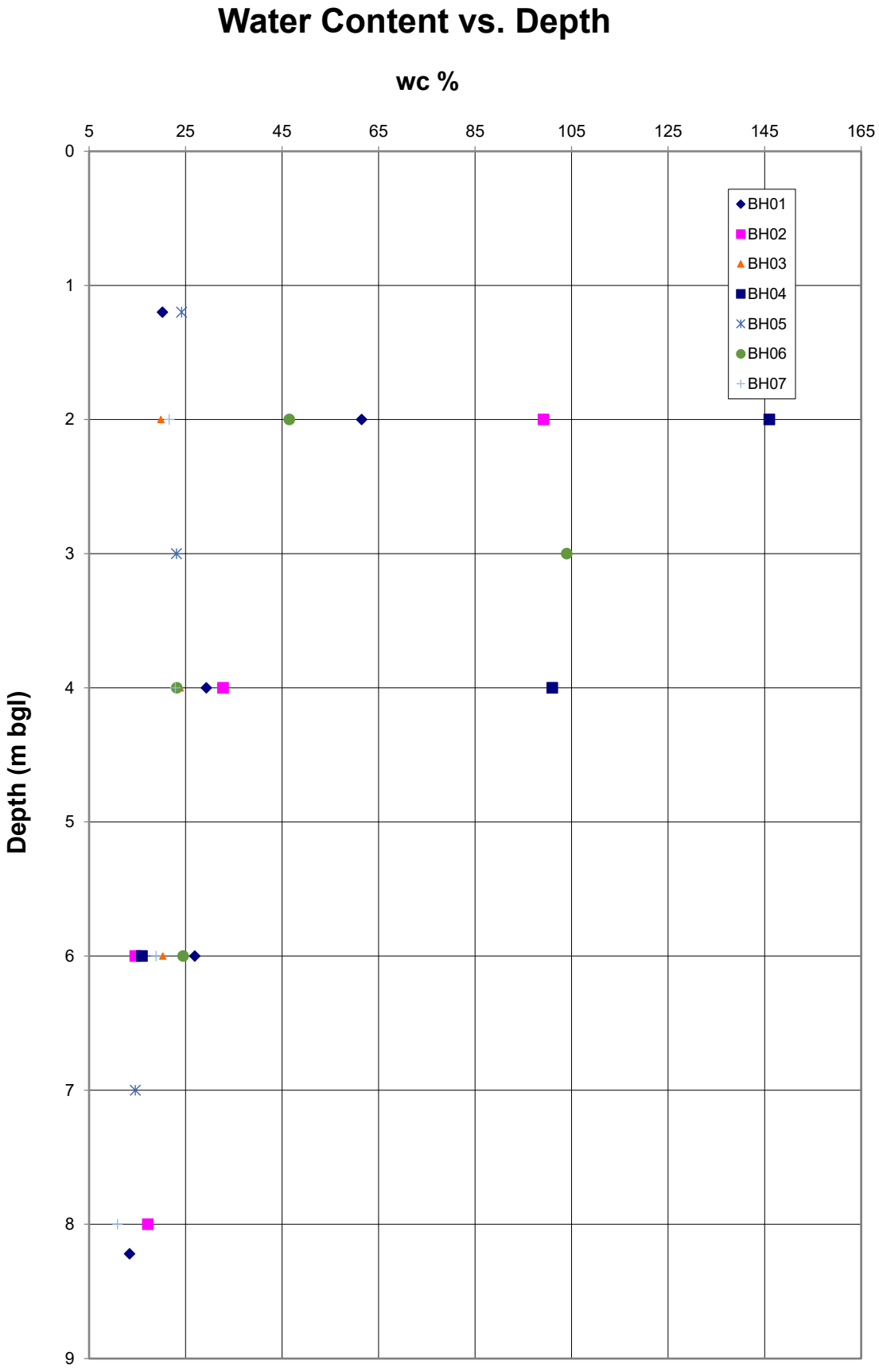
19. Unless specifically stated, the investigation does not take account of the possible effects of mineral extraction or of gases from fill or natural sources within, below or outside the site.

20. The costs or economic viability of the proposals referred to in the report, or of the solutions put forward to any problems encountered, will depend on very many factors in addition to geotechnical or geoenvironmental considerations and hence their evaluation is outside the scope of the report.

FIGURE

1. Water content vs Depth

FIGURE 1


Water Content vs. Depth
wc %
5
25
45
65
85
105
125
145
165
0
1
2
3
4
5
6
7
8
9
Depth (m bgl)
BH01
BH02
BH03
BH04
BH05
BH06
BH07

DRAWINGS

1. **Site Location, JY94-DA-100-P01/F1**

2. **Exploratory Hole Positions, JY94 SI Mark Up BH only**

DO NOT SCALE THIS DRAWING.

REV	DATE	DESCRIPTION	DRN
F1	25/06/19	Preliminary Issue	DMK

Development
Ann Street Brewery
Redevelopment

Drawing Title
Site Location Plan
Digimap Licence No. J11

dandara
jersey limited
Tel +44(0)1534 506200
Fax +44(0)1534 506222

Status	FEASIBILITY STAGE (F)
File Ref.	*.dwg
Scale	1:2500 @ A3
Date	25/06/19
Drawn	DMK
Checked	DMK
Drwg. No.	JY94-DA-100-P01
Rev.	F1

Millennium Park

m Town Park

Simon Place

Belmont Road

Belmont Place

Ann Street

Ann Place

Providence Street

Charles Street

Brooklyn Street

St. Saviour's Road

41 Belmont Road
Ref: HE0706
Listed Grade 4

Belmont Lodge
Simon Place
Ref: HE1550
Listed Grade 3

1 to Simon Place
Ref: HE1551
Listed Grade 3

4 Simon Place
Ref: HE1552
Listed Grade 3

12 Simon Place
Ref: HE0481
Listed Grade 4

16 Simon Place
Ref: HE1553
Listed Grade 3

18 Simon Place
Ref: HE1553
Listed Grade 3

20 Simon Place
Ref: HE1554
Listed Grade 3

22 Simon Place
Ref: HE1555
Listed Grade 3

No. 24 Simon Place
Ref: HE1556
Listed Grade 3

84 Cow Terrace
Ref: HE0859
Listed Grade 4

82 Cow Terrace
Ref: HE0858
Listed Grade 4

80 Cow Terrace
Ref: HE0700
Listed Grade 4

78 Cow Terrace
Ref: HE1517
Listed Grade 3

76 Cow Terrace
Ref: HE1184
Listed Grade 4

Brewery Offices & Stores
Ref: HE1819
Listed Grade 4

Store House
Ref: HE0010
Listed Grade 3

Saint Sioac
Ref: HE0714
Listed Grade 3

4 The Queen's Assembly Rooms/ Belmont Place
Ref: HE0705
Listed Grade 2

El Sub Sta

De Quetteville Court

Car Pk

The Mayfiar Hotel

PH

Victoria College

SM

91 Ann Street
Ref: HE0773
Listed Grade 4

93 Ann Street
Ref: HE0771
Listed Grade 4

54 St. Saviour's Road
Ref: HE1516
Listed Grade 4

54 St. Saviour's Road
Ref: HE1515
Listed Grade 3

52 St. Saviours Road
Ref: HE0686
Listed Grade 3

55 St. Saviour's Road
Ref: HE0713
Listed Grade 3

53 St. Saviour's Road
Ref: HE1514
Listed Grade 3

51 St. Saviour's Road
Ref: HE0711
Listed Grade 4

49 St. Saviour's Road
Ref: HE1527
Listed Grade 3

45 St. Saviour's Road
Ref: HE1525
Listed Grade 4

41 Blisyth's St. Saviour's Road
Ref: HE1524
Listed Grade 3

39 St. Saviour's Road
Ref: HE1523
Listed Grade 4

69 Frankport St. Saviour's Road
Ref: HE0709
Listed Grade 3

63 St. Saviour's Road
Ref: HE1721
Listed Grade 3

Key:

= Listed Building

DO NOT SCALE THIS DRAWING.

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S

REV	DATE	DESCRIPTION	DRN
F1	25/06/19	Feasibility Issue	RC

Development
Ann Street Brewery Redevelopment

Drawing Title
Existing Site Plan

dandara jersey limited
Tel [redacted]
Fax [redacted]

Status	FEASIBILITY STAGE (F)
File Ref.	*.dwg
Scale	1:500 @ A1
Date	25/06/19
Drawn	DMK
Checked	DMK
Drwg. No.	JY94-DA-100-P02
Rev.	F1