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GROUND INVESTIGATION NEWTON STEWART FLOOD PROTECTION SCHEME



Prepared By	F Murray	Assistant Contracts Manager	Date	14 th August 2018
Approved By	C Rodger	Technical Manager	Date	14 th August 2018
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GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address <u>admin@holequest.co.uk</u> Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

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Client:-

SWECO 2nd Floor, Quay 2 139 Fountain Bridge Edinburgh EH3 9QG

GROUND INVESTIGATION NEWTON STEWART FLOOD PROTECTION SCHEME

Ground Investigation Fieldwork & Laboratory Testing

& Report No:- S/NSFPS/0418/Fact.

Project:-

GROUND INVESTIGATION NEWTON STEWART FLOOD PROTECTION SCHEME

Ground Investigation Fieldwork & Laboratory Testing

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1:0 INTRODUCTION

Messrs Holequest Limited were commissioned by SWECO to undertake a ground investigation, for the proposed Newton Stewart Flood Protection Scheme.

1:1 The ground investigation works consisted of excavation of 16No. Boreholes by Light Cable Percussion, Rotary Open and Core Drilling techniques, 35No. machine excavated Trial Pits, and 16No. Hand Excavated Trial Pits all at predetermined locations to instructed depths. The various strata penetrated were recorded and sampled, and laboratory testing was undertaken as required.

The results of the investigation are presented in the form of a factual report, covering the Ground Investigation Fieldwork and Laboratory Testing.

The terminology adopted (Code of practice for site investigations B.S. 5930: 1999, BSEN ISO 14688 and BSEN ISO 14689) in the preparation of the descriptions for the soils and rocks encountered during this investigation is detailed in Appendix I of this report.

1:2 The site works were undertaken during the period 13th to 23rd December 2017 and 15th January to 23rd February 2018.

1:3 The weather during the site works was principally overcast with occasional to many heavy showers of rain, periods of frost through to dry and with rare sunny periods. However, was in general consistent for the time of year.

2:0 THE SITE LOCATION

The works are located either immediately adjacent to, or in close proximity to the River Cree, which flows from north to south through the town.

Drawings detailing the works location, split as per each design Option, are presented in Appendix II, these drawings were prepared by SWECO based on the as drilled survey provided by Holequest Ltd.

Generally, the works areas can be described as follows:

Option 6: The works are located within public soft landscaping / managed grassed areas and streetscapes within Newton Stewart, and on narrow access paths (core paths) along the banks of the River Cree.

Option 7: The works are located in farmland and narrow core paths along the banks of the River Cree, together with works in proximity to the abutments of the A75 bridge.

Option 24: The works are located on farmland adjacent to River Cree.

Sparling Bridge GI: GI located on public landscaping, narrow access paths and farmland adjacent to the River Cree.

The centre of the site is located at nominally Ordinance Survey National Grid Reference NGR: NX 41234 65240.

3:0 SITE WORKS & IN-SITU TESTING

Light Cable Percussion Boring

3:1 The sinking of Boreholes BH1-OP6, BH2-OP6, BH2A-OP6, BH3-OP6 and BH14-OP6 were undertaken by a Dando 2000 Light Cable Percussion boring rig equipped with 200mm diameter boring tools and casing as appropriate. Due to the nature of the ground conditions encountered no "Undisturbed" samples could be obtained. However, environmental samples, bulk disturbed samples and in-situ standard penetration tests undertaken where appropriate.

Rotary Boreholes

3:2 Rotary drilling was undertaken at all Boreholes including TP9-OP6, changed from a Trial Pit to a Borehole on SWECO instruction, using a tracked Comacchio GEO205 or Massenza MI5 hydraulic top drive rotary drilling rig as noted on the relevant borehole records.

Rotary casing was sunk where appropriate using the Symetrix simultaneous casing systems and down-the-hole hammer. As the name implies, the system is such that the casing follows immediately behind the drill bit, thus keeping the borehole stable in the overburden. Upon reaching the required depth the drill string is reversed, allowing the concentric part of the drill bit to be released and withdrawn from the lined hole leaving the casing in place, and where appropriate U80 or U100 Samples, Standard Penetration Tests, Rotary Core Drilling and / or Rotary Open hole Drilling was undertaken to the full depth of the Boreholes as determined by SWECO.

It will be appreciated that accurate sampling of the overburden and solid geology is not possible with air flushed full hole rotary drilling methods specified, and therefore strata descriptions may not be in precise accord with BSENISO 14688/14689.

Trial Pits

3:3 The Trial Pits were excavated using a wheeled backhoe excavator or a 5t rubber tracked excavator as allowed by access restrictions on site. The Trial Pits were logged, sampled, and photographed by an Engineer from Holequest Ltd. HPSW2, TT1 East and TT1 West were excavated to identify utilities locations and were not logged for geotechnical purposes.

It should be noted that the strengths / relative densities reported on the trial pit records and the descriptions contained therein are based on visual assessment, trial pit stability, ease of excavation and where appropriate in-situ test results.

In-situ Testing

3:4 In-situ testing was undertaken in the boreholes and comprised of the following:-

- Standard Penetration Test
- Constant Flow Permeability Test in Ground Water Monitoring Installations

3:5 The records of the site works and in-situ testing are summarised in Appendix III (SPT) and Appendix V (Permeability tests).

Ground Water

3:6 Ground water observations during the drilling of the boreholes and excavation of the trial pits are presented on the individual logs.

Groundwater monitoring wells comprising 50mm ID HDPE geo-wrapped casing and screen were installed in the Boreholes as directed by SWECO. The installation details are summarised on the appropriate borehole record.

Water levels taken during the fieldwork period are summarised in Appendix V

4:0 LABORATORY TESTING

A programme of soil laboratory testing, scheduled by SWECO, was undertaken at the UKAS accredited laboratory of Professional Soils Laboratory Limited. The tests where appropriate were undertaken in accordance with British Standard 1377 "Methods of Tests for Soils for Civil Engineering Purposes" or as indicated otherwise. The various tests undertaken are as follows:-

1) NATURAL MOISTURE CONTENT

- 2) PARTICLE SIZE DISTRIBUTION BY WET SIEVE
- 3) PARTICLE SIZE DISTRIBUTION BY SEDIMENTATION
- 4) LIQUID AND PLASTIC LIMITS
- 5) UNCONSOLIDATED UNDRAINED TRIAXIAL (MULTISTAGE)
- 6) ONE DIMENSIONAL CONSOLIDATION
- 7) DRY DENSITY / MOISTURE CONTENT RELATIONSHIP 2.5KG HAMMER
- 8) CONSOLIDATED DRAINED SHEARBOX (PEAK ONLY)

A programme of rock laboratory testing, scheduled by SWECO, was undertaken at the UKAS accredited laboratory of MATtest Limited. The various tests undertaken are as follows:-

- 1) UNCONFINED COMPRESSIVE STRENGTH ASTM D7012-14
- 2) POINT LOAD STRENGTH ISRM (2007)

A programme of laboratory testing for environmental parameters on soils, water and leachates, scheduled by SWECO was undertaken at the UKAS accredited laboratory of Concept Life Sciences Ltd, on behalf of Messrs Holequest Limited. The soil and water samples were tested for one or more of the following:-

CYANIDE TOTAL 1) 2) **CYANIDE FREE** 3) THIOCYANTE pН **4**) **ORGANIC MATTER** 5) 6) SULPHATE (TOTAL) 7) **SULPHUR (TOTAL)** 8) ARSENIC 9) **BORON (WATER SOLUBLE)** 10) CADMIUM 11) CALCIUM 12) CONDUCTIVITY 13) CHROMIUM (TRIVALENT) 14) CHROMIUM (HEXAVALENT) 15) COPPER 16) DISOLVED ORGANIC CARBON 17) LEAD 18) MERCURY 19) NICKEL 20) SELEMIUM 21) ZINC 22) VANADIUM 23) AMMONIACAL NITROGEN 24) SULPHIDE 25) CHLORIDE 26) NITRATE 27) PAH USEPA16 28) TPH CWG 29) **TPH BANDED** 30) BTEX / MTBE 31) PHENOLS (MONO) 32) ASBESTOS ID 33) ASBESTOS QUANTIFICATION

The Geotechnical and Environmental Laboratory Test Results are summarised in Appendix IV.

Prepared By:-

F. Murray (Engineer) for HOLEQUEST LTD

Dated:- August 2018

Approved By:-

1 top A

C. Rodger (Technical Manager) for HOLEQUEST LTD &©ajb

Dated:- August 2018

APPENDIX I

Terminology Adopted In Description of Soil and Rocks

TERMINOLOGY ADOPTED IN DESCRIPTION OF SOILS

1. The description and classification of soils has been carried out using as a general basis the British Standard Code of Practice for Site Investigations - B.S.5930 - 2015 and BSENISO 14688 / 14689

2. Soils containing 35% or more of material passing a 0.06mm sieve will be classified as **CLAY** or **SILT** as appropriate.

3. The relative densities of granular materials given in this report are based upon visual inspection of the borehole / excavation and the results of in-situ standard penetration and cone penetration tests, where carried out

The classification is as follows :-

TABLE 1 Non-cohesive Granular Materials

N - Value	Relative Density
Below 4	Very Loose
4 to 10	Loose
10 to 30	Medium Dense
30 to 50	Dense
50 and Over	Very Dense

TABLE 2A Cohesive Materials (Field Description)

TERM USED FOR FIELD DESCRIPTION	CONSISTENCY DESCRIPTION DEFINITION	
Very Soft	Finger easily pushed in up to 25mm. Exudes between fingers	
Soft	Finger pushed in up to 10mm. Moulds by light finger pressure	
Firm	Thumb makes impression easily. Cannot be moulded by fingers, rolls in the hand to a 3mm thick thread without breaking or crumbling	
Stiff	Can beindented slightly by thumb. Crumbles in rolling a 3mm thick thread, but can then be remoulded into a lump	
Very Stiff	Can be indented slightly by thumb nail. Cannot be moulded but crumbles under pressure.	
Hard	Can be scratched by thumbnail	

TABLE 2B Cohesive Materials (Measured Strength Classification)

TERM BASED ON MEASUREMENT	UNDRAINED STRENGTH CLASSIFICATION DEFINITION C _{u,} in kPa
Extremely low	<10
Very low	10 – 20
Low	20 - 40
Medium	40 – 75
High	75 – 150
Very high	150 - 300
Extremely high	300 - 600

4. The consistency of 'fine soils' given in this report is based on both visual inspection of the sample and the results of in-situ and / or laboratory tests, where carried out.

** Note:- When very stiff cohesive materials (generally with a significant proportion of cobbles and boulders) are encountered, the term Hard may be included in the description to enhance the descriptive term of very stiff, especially where cohesive materials were difficult to progress through, or could not be penetrated by normal light cable percussion boring methods.

BOREHOLE & TRIAL PIT RECORDS SYMBOLS & ABBREVIATIONS USED:-

U	80mm or 100mm diam. "Undisturbed"	80mm diam sample in windowless sampling / rotary boreholes,
	sample	100mm diam sample in light cable percussion boreholes
Р	Piston Sample "Undisturbed"	
D	Disturbed sample	
В	Bulk Disturbed sample	
W	Water Sample	
ES	Soil Contamination Sample	
EW	Water Contamination Sample	
SPT	Standard Penetration Test	Split Spoon Sampler - Blow count for 300mm penetration = 'N'
		value
CPT	Standard Cone penetration Test	Solid Cone replaces split spoon sampler, as above blow count for
	-	'N' value
V	In-situ Borehole Vane Test	
VHP	Variable Head Permeability Test	
CHP	Constant Head Permeability test	
PT	Borehole Packer Test	

ROTARY CORE DRILLING

TCR	Total Core Recovery	Ratio of core recovered (solid and non intact) to length of core
		run
SCR	Solid Core Recovery	Ratio of solid core recovered to length of core run
RQD	Rock Quality Designation	Ratio of solid core pieces longer than 100mm to length of core
		run
FI	Fracture Index	Count of the number of spacing of fractures over an arbitary
		length of core of similar intensity of fracturing. Commonly
		reported as Fracture Index (FI, number of fractures per metre) or
		as Fracture Spacing (If,mm).

GROUND WATER

OROUND WATER				
	depth (m)	Ground Water Level	Initial ingress level recorded in water strikes column	
	comments	Standing Ground Water Level	Time observation or a.m. ground water level recorded in the	
			remarks section of the borehole / trial pit record.	

	ADDITIONAL INFORMATION	
HVT	Hand Vane Tests	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records
HPT	Hand Penetrometer Tests	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records
CBR	California Bearing Ratio Test	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records
PBT	Plate Bearing Test	Recorded in Samples and In-situ Testing Column on borehole /
		trial pit records

Additional Notes:-

1) Ground water levels vary and therefore the observations recorded on the borehole and trial pit records are as observed at the time of the investigation.

2) The comments and opinions expressed in this report are based on the ground conditions observed at each location during the site works and on the results of any tests undertaken in-situ or in the laboratory on the samples obtained during the site works.

REFERENCE BIBLIOGRAPHY USED IN REPORTING & TESTING

British Standards:-	Code of Practice for Site Investigation BS5930, 2015 BS EN 14688 Part 1: 2002 BS EN 14688 Part 2: 2002 BS EN 14689 Part 1: 2003 Methods of Test for Soils for Civil Engineering Purposes BS 1377 Testing Of Aggregates BS 812 Code of Practice for Foundations BS8004 Code of Practice for Earthworks BS 6031 Code of Practice for Ground Anchorages BS 8081 Cathodic Protection BS 7361	
Scottish Development Department	Specification for Roads & Bridgeworks - Soil Suitability for Earthworks Use of the Moisture Condition Apparatus	
Head K.H.	The Manual of Soil Laboratory Testing Vol. 1 to 3.	
Terzaghi K. & Peck B.P.	Soil Mechanics in Engineering Practice - Wiley	
Tomlinson M.J.	Foundation Design & Construction - Pitman	
Lambe & Whitman	Soil Mechanics - Wiley	
Blyth F.G.H. & de Freitas M.H.	A Geology for Engineers - Arnold	
Burland J.B. & Burbridg Scotland	M.C. Settlement of Foundations on Sand and Gravel (Glasgow & West of Association Centenary Celebrations Invited Lectures 1984)	
Forde M.C.	Earthworks: Selection & Compaction (University of Edinburgh)	
B.R.E. Publications		

EXPLANATION OF GRAPHIC LOGS FOR BEDROCK CORES

The style of presentation of the graphic logs is guided principally by BS5930:2015, with its interpretation refined by reference to other sources listed below. The logs are set out in columns, with each page carrying standard header and footer banners. The information contained within each column is outlined here.

1. DEPTH

The drillers' depth is given in meters (m), normally relative to ground surface but to another datum, if noted. Depth relative to a survey datum may be given, as available.

2. BOX

The core-box numbers are given, and the depth range of the core contained within that box is marked off.

3. RUNS

The depth range of each core run is marked in this column.

4. NOTES

Brief notes specific to short core sections at given depths are recorded in this column, or if they are too long, they are expanded in the 'Description' column with labels A, B, C, &c.

5. TCR, SCR and RQD

Total core recovery, solid core recovery, and rock quality designation respectively.

TCR is an estimate of the proportion by volume of the run length that is represented by material recovered from the hole and placed in the core box, irrespective of its state of division.

SCR is that proportion of the run length that is represented by core segments that span the full diameter of the hole, irrespective of their individual axial lengths.

RQD measures the proportion of the core, within the given length of borehole, that consists of unbroken sections whose individual axial lengths exceed 100mm. It leads to the descriptive classification of fracture state given in section 8 of the scheme of description and classification of rocks for applications in engineering. These parameters are calculated for each length of core as delimited by the horizontal rules in the column, generally either a box length or a drilling run, whichever is the shorter.

The background to this column is shaded to indicate graphically the values of these three index parameters. RQD is the darkest, SCR intermediate, and TCR the palest. Where values are equal, RQD takes precedence over SCR, and SCR likewise over TCR.

It is an unavoidable consequence of drilling and core recovery that fractures will be induced in the rock, additional to those of natural origin, and that such artifacts are likely to be much more common in certain rocks (eg. laminated mudstones) than in others (eg. dolerite). The RQD parameter thus represents a minimum estimate of the in situ value and should be interpreted in the context of the engineering requirement to be placed on the bedrock structure, especially in relation to whether loads are likely to be tensile, or compressive, or both. TCR is dependent not only on the inherent nature of the rock, but in certain difficult circumstances, also on the drilling method and the skills of the drilling team.

6. FRC

In selected applications, this column logs individual fracture (or discontinuity) surfaces in the style described by Norbury, Child and Spink (in Hawkins, 1986, pp331-342).

7. LOG

This column is ornamented conventionally according to rock type, using symbols recommended in BS5930:2015, but refined as necessary according to geological and engineering requirements. Rockhead, if clearly identified, rather than subject to deep weathering or periglacial frost shattering, is shown as a full line. The arbitrarily determined bottom of the hole, as well as any gaps, is marked by a zig-zag line. Clear boundaries between rock types are marked by full lines; transitional boundaries, where one rock type grades into another, are shown by pecked lines or by gradational ornament if the transition is extended.

To the right of the column, numbers link the rock types shown in the graphic log to their descriptions, adjacent, while brief notes on contact relationships between successive rock types are given, where those contacts are preserved.

8. DESCRIPTION

The standard format of the systematic description is given in the appendix, together with determinative tables and figures for a variety of features. Any extensions to the standard are included in (parentheses). Drillers' notes are contained within [brackets] while salient interpretations that can be stated briefly are enclosed by {braces}.

Where a rock unit consists of two or more intimately-related rock types, eg. alternating mudstones and siltstones, the general features are given first, followed by detailed descriptions of the component rock types.

Colours are generally given using the Munsell scheme, described in the Rock Color Chart referenced below. This element of the description may contain mention of colours arising from alteration, ie. processes occuring near the time of the formation of the rock rather than resulting from more-recent chemical and physical weathering under current or recent climatic regimes. The strength estimates as contained within these descriptions are based on a visual inspection of the rock material in the context of table 7.

9. REFERENCES AND BIBLIOGRAPHY

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Dutro, J. T., Dietrich, R.V. and Foose, R.M. (eds.), 1989, '*AGI Data Sheets*', 3rd edition, American Geological Institute, ISBN 0-922152-01-2.

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Weltman, A. J. and Head, J. M., 1983, '*Site Investigation Manual*', Construction Industry Research and Information Association, ISBN 086017 196 5.

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A scheme of description and classification of rocks for applications in engineering

This scheme refers to the description of rock specimens as presented in the form of hand specimens acquired either from cored boreholes or from natural or artificial exposures (as available, for example, on hill slopes and river banks, or in excavations). The methods applied are based simply on visual inspection, supplemented by a hand lens (typically $\times 10$ magnification) and a light hammer (to expose unweathered surfaces and/or to give a preliminary assessment of rock strength). The scheme is based on BS5930:2015, although with some re-ordering and some extensions. Thus to facilitate laboratory and/or fieldwork, the assessment of rock strength (listed first in the *Standard*, but which requires the specimen to be destroyed) is postponed until other features of the material have been described. On occasion, it may be useful to extend the *Standard* to give appropriate additional detail. Such extensions can be enclosed in (parentheses).

1.1 The general structure of the description

The principal components of the description are:

- 1 Strength.
- 2 Structure;
- 3 Colour;
- 4 Texture, fabric
- 5 Grain size;
- 6 ROCK NAME.
- 7 Additional features;
- 8 State of weathering;
- 9 Fracture state;

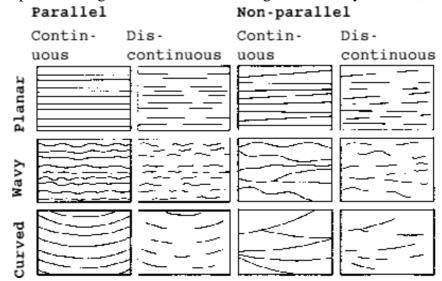
Some details of these components follow and there is a concluding list of further sources of reference.

1:2 Structure

The dimensions are given by:

Spacing Composit- or dim-ional	Specimen size:	
ension layering	Slab (1D)	Block (3D)
>6m	Extremely wide	
бm		
Very thick	Very wide	Very large
2m		
Thick	Wide	Large
600mm		
Medium	Medium	Medium
200mm		
Thin	Close	Small
60mm		
Very thin	Very close	Very small
20mm		
Thickly	Extremely	
laminated	close	
6mm		
Thinly laminated	spaced	blocky, tabular or columnar.

Compositional layering refers to stratification in sedimentary or some igneous rocks or to foliation in metamorphic or certain igneous rocks. Terms in the third and fourth columns can be applied to fragments of rock separated along natural fractures, cleavage or schitosity surfaces, and similar.



Descriptive terms for bedding/foliation, eg. *planar parallel discontinuous*. After Collinson & Thompson, 1982, fig. 2.6

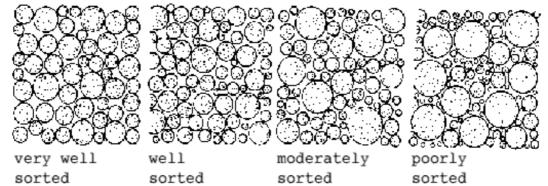
1:3 Colour

The standard co	olours are:
-----------------	-------------

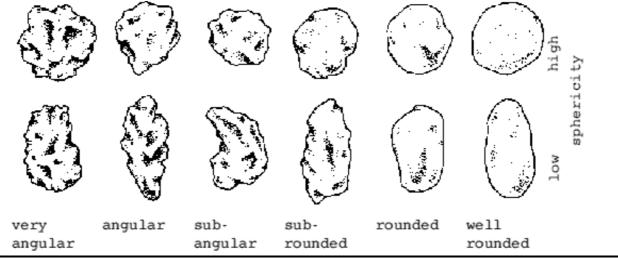
Colour	Supplemente as needed b	_
red	light	pinkish
pink	dark	reddish
yellow	mottled	yellowish
brown	etc	brownish
olive		etc
green		
blue		
white		
grey		
black		
etc		

See also GEOLOGICAL SOCIETY OF AMERICA, *Rock Color Chart* 1991 for an outline of the Munsell scheme, which gives a much more precise definition of colours.

1:4 Texture



Descriptive terms for the degree of sorting in fragmental rocks. After Tucker, 1982, fig. 4.1.



Descriptive terms for roundness and sphericity of clasts in fragmental rocks. After Tucker, 1982, fig. 4.3.

1:5 Grain size

The standard grain sizes are:

Grain size/mm	Bedded rocks	Foliated/massive crystalline rocks
20		
6	RUDACEOUS	COARSE
2		
0.6	- coars	e
0.2	ARENACEOUS - mediu	m MEDIUM
	- fin	e
0.06	Normal limit o	f unaided vision
	ARGILLACEOUS	FINE
0.002		
	Amorphous or ci	ryptocrystalline

This may be extended using the Wentworth-Lane scale, below.

phi:	size/mm	class:	
-9	512		
-8	256	Boulders	
		Cobbles:	large
-7	128		small
-6	64	Gravel:	very coarse
-5	32		
-4	16		coarse
-3	8		medium
			fine
-2	4		very fine
-1	2	Sand:	very coarse
0	1	build	
1	1/2		coarse
2	1/4		medium
			fine
3	1/8		very fine
4	1/16	Silt:	coarse
5	1/32	0110.	
б	1/64		medium
7	1/128		fine
			very fine
8	1/256	Mud:	coarse
9	1/512		medium
10	1/1024		
			fine

The 'phi' number is calculated as minus the logarithm to the base two of the grain size in mm.

1:6 Rock-type classifications

• •				
Grain	entary rocks Grain size	Sediment grains	At least 50% of	At least 50% of grains
size/m m	designation	mainly of siliceous minerals	grains are of carbonate	are of volcanic origin
20				
	Rudaceous	CON- GLOMERATE (rounded clasts cemented in a finer matrix) BRECCIA (angular fragments in a finer matrix)	Calcirudite	AGGLOMERATE (with rounded clasts) or VOLCANIC BRECCIA (with angular clasts, in a finer matrix)
6				
2				
0.6	Coarse arenaceous			
0.0	Medium arenaceous	SANDSTONE	Calcarenite	TUFF or TUFFACEOUS SANDSTONE
0.2				
0.06	Fine arenaceous Limit of unaided vision	SILTSTONE	Calcisiltite	TUFF or TUFFACEOUS SILTSTONE
0.002	Argillaceous	MUDSTONE	Calcilutite	SILISTONE
	Amorphous or cryptocrystalline	Flint, chert		
Notes:				

1 Rocks composed of more than 50% carbonate are more usually known as LIMESTONE if the carbonate mineral is mostly calcite (CaCO₃) or DOLOMITE/DOLOMITIC LIMESTONE if the cabonate mineral is predominantly dolomite (CaMg(CO₃)₂).

	orphic rocks Grain size designation	Foliated rocks	Non-foliated rocks
20		GNEISS: well-developed but often widely spaced foliation sometimes with schistose layers.	
	Coarse		
6		MIGMATITE: mixed granitic and gneissose/schistose components.	AMPHIBOLITE MARBLE QUARTZITE BRECCIA (as associated
			with faulting)
2		Separation by grain size is less important amongst metamorphic rocks	
		-	SERPENTINE
0.6			HORNFELS
	Medium	SCHIST: well developed, perhaps undulose foliation, with crystal grains aligned.	
0.2			
0.06	Unaided vision limit		
	Fine	PHYLLITE: slightly undulose foliation. SLATE: well- developed planar cleavage.	
0.002			
Notas	Amorphous or cryptocrystalline	MYLONITE: usually thinly laminated.	

Notes:

1 *Porphyroblast* refers to distinctly larger crystals arising by new growth during metamorphism. *Augen* or *porphyroclast* refers to distinctly larger crystals surviving after deformation during metamorphism.

Igneous	rocks				
Grain size/m m	Grain size designatio n	'Acid' (essential quartz and feldspar - <i>leucocratic</i>)	'Inter- mediate' (some quartz, essential feldspar - <i>mesocratic</i>)	'Basic' (little or no quartz, abundant feldspar - <i>melanocratic</i>)	'Ultrabasic' (no quartz, little or no feldspar - <i>melanocratic</i>)
20 6	Coarse	GRANITE	DIORITE	GABBROS	PYROXENITE PERIDOTITE
2					
0.6	Medium	MICRO- GRANITE	MICRO- DIORITE	DOLERITE	
0.2					
0.06	Limit of unaide				
0.002	Fine	RHYOLITE	ANDESITE	BASALT	
	Amorphous or crypto- crystalline	OBSIDIAN	VOLCANIC GLASSor	PITCHSTONE	

Notes:

1 'Acid', 'intermediate', 'basic' and 'ultrabasic' are somewhat dated terms relating to the amount of SiO₂ in the chemical analysis of the rock (larger to smaller in this ordering). The coarse and medium grained categories of these rocks tend also to range from pale to darker colours because of variation in the proportion of lighter to darker minerals in their constitution. Thus an alternative designation might be *lecocratic* (less than one third dark mineals); *mesocratic* (from one third to two thirds dark minerals); *melanocratic* (greater than two thirds dark minerals). For reasons related to their microscopic texture, the colours of fine grained igneous rocks are not a good guide to identification.

2 Some igneous rocks are described as *porphyritic*; they contain scattered crystals (called *phenocrysts*) that are distinctly above the average grain size for the rock.

1:7 Weathering

Weathering and alteration of rock material

Fresh

No visible sign of weathering of the rock material.

Discoloured

The colour of the original fresh rock material is changed and is evidence of weathering. The degree of change from the original colour should be indicated. If the colour change is confined to particular mineral constituents, this should be mentioned.

Decomposed

The rock is weathered to the condition of a soil in which the original material fabric is still intact, but some or all of the mineral grains are decomposed.

Disintegrated

The rock is weathered to the condition of a soil in which the original material fabric is still intact. The rock is friable, but the mineral grains are not decomposed.

Weathering grades of rock mass

Fresh (I)

Unchanged from original state.

Slightly weathered (II)

Slight discolouration, slight weakening.

Moderately weathered (III)

Considerably weakened, penetrative discolouration, large pieces cannot be broken by hand

Highly weathered (IV)

Large pieces cannot be broken by hand. Does not readily disaggreagte (slake) when dry sample immersed in water.

Completely weathered (V)

Considerably weakened, slakes. Original texture apparent.

Residual soil (VI)

Soil derived by in-situ weathering, but retaining none of the original texture or fabric.

1:8 Fracture / discontinuity state

Types:

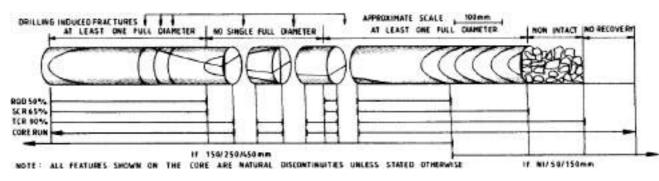
- Joint
- Fault
- Bedding
- Cleavage
- Induced
- Closed/Incipient (non standard term visible fracture with some remaining tensile strength)
- Dulling / Dull (non standard term distinguishing between natural and drill induced fractures)

Descriptors:

- Number of sets
- Orientation
- Spacing
- Persistence or extent
- Termination
- Surface roughness
- Wall strength
- Wall weathering/alteration
- Aperture
- The term "face" is introduced to counter a weakness in Eurocode 7, which does not allow for "non matching" joint faces in it's terminology. Where a fracture is described as having a face, the shape of the face of the rock core on the one side bears no obvious relationship to the shape on the other. There is therefore no way of determining the aperture of the fracture.
- Infilling

Definitions:

- Solid core: core spans full diameter through its axis
- Total core recovery (TCR): proportion (as %) of core material recovered to total length of core run.
- Solid core recovery (SCR): proportion (as %) of solid core to total length of core run.
- Rock quality designation (RQD): proportion (as %) of solid core segments of length ≥100mm to total length of core run.
- Fracture index: number of fractures per unit length (commonly one meter).
- Fracture spacing: interval between adjacent fractures on the scan line.



Illustrating descriptive terms for fracture logging. Adapted from Norbury et al., 1986, fig. 1.

Overall designation of rock mass, based on RQD:

```
RQD/% Term

0

Very poor

25

Poor

50

Fair

75

Good

90

Excellent

100
```

- Ottoligtii		
Term (with typical unconfined compressive strength/MPa)	Criteria	Typical examples
Extremely weak (<1.0)	Indented by thumbnail	Some weakly compacted sedimentary rocks
Very weak (1.0 to 5.0)	Crumbles under firm blows with point of geological hammer, can be peeled with a pocket knife	some very highly weathered igneous or metamorphic rocks
Weak (5.0 to 25.0)	Can be peeled with a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	boulder clays.
Medium strong (25.0 to 50.0)	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	Some sedimentary rocks, some foliated metamorphic rocks, highly weathered igneous and metamorphic rocks.
Strong (50 to 100)	Specimen requires more than one blow of geological hammer to fracture it	Some low-grade metamorphic rocks, marbles, some strongly silica cemented sandstones, some weathered metamorphic and igneous rocks.
Very strong (100 to 250)	Specimen requies many blows of geological hammer to fracture it	Mainly plutonic, hypabyssal and extrusive igneous rocks (medium to coarse grained), sedimentary quartzites, strong slates, gneisses, peridotites.
Extremely strong (>250)	Specimen can only be chipped with geological hammer	Fine grained igneous rocks; metamorphic quartzites, some hornfelses.

1:9 Strength

2:0 References and bibliography

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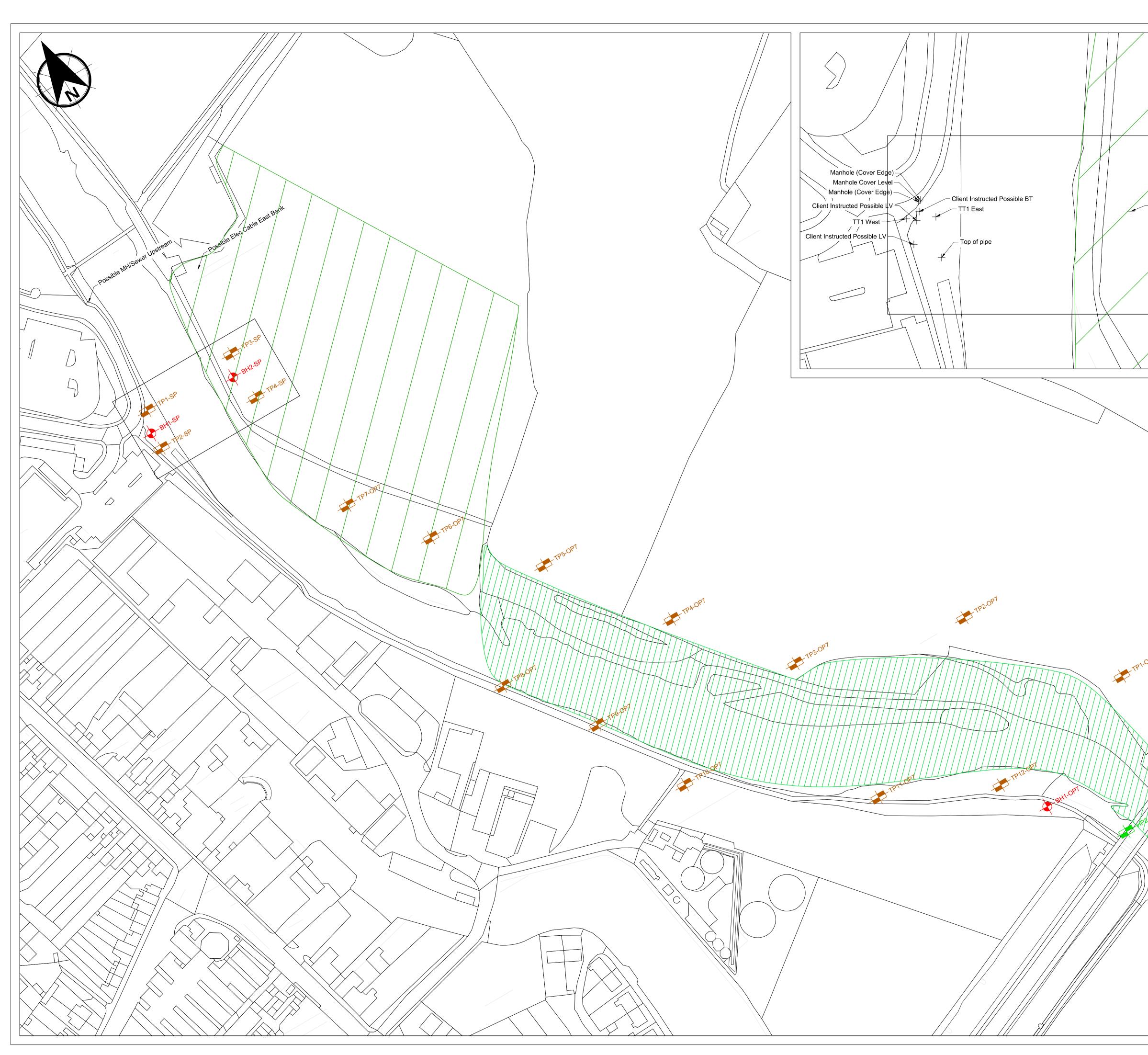
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APPENDIX II

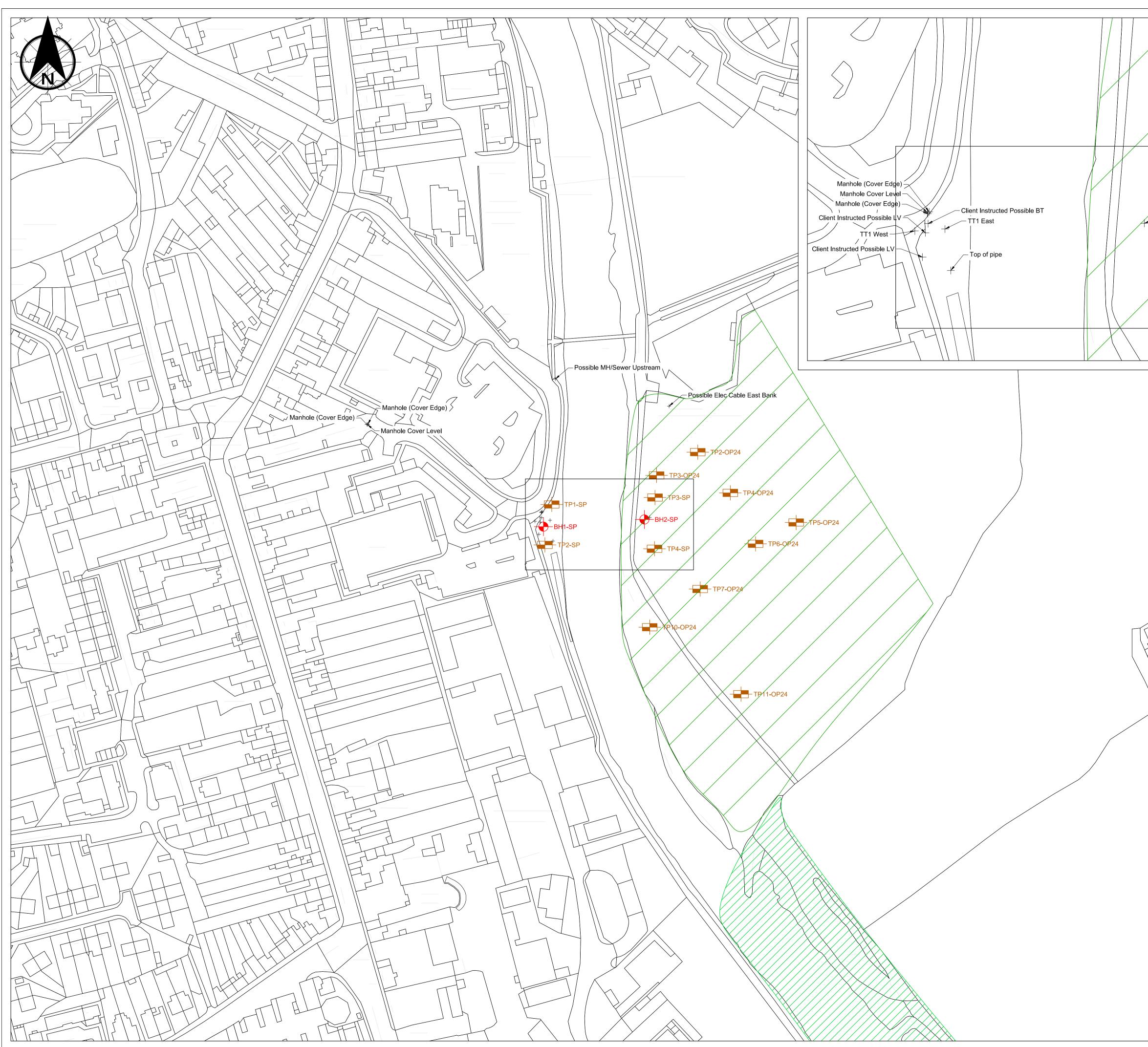
Borehole & Trial Pit Location Plan



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APPENDIX III

Borehole & Trial Pit Records



Certificate No. 642



Certificate No. 007883









Reference	Easting	Northing	Level (m ODN)
BH1-SP	241242.675	565144.772	9.238
BH2-SP	241297.315	565148.683	7.561
BH1-OP6	240948.715	566124.095	15.004
BH2-OP6	240979.611	566048.039	14.046
BH2A-OP6	240980.100	566049.300	14.050
BH3-OP6	241054.871	565871.328	10.943
BH4-OP6	241089.059	565754.690	9.570
BH5-OP6	241139.807	565580.638	9.148
BH7-OP6	241242.253	565279.550	7.992
BH8-OP6	241250.000	565099.302	9.441
BH9-OP6	241294.904	564986.199	8.464
BH11-OP6	241240.514	565493.291	8.252
BH12-OP6	241304.378	565357.366	8.308
BH13-OP6	241329.323	565279.663	8.086
BH14-OP6	241386.187	565302.529	7.311
BH1-0P7	241566.161	564717.077	5.222
HP1-OP6	241045.853	565929.231	10.294
HP1A-OP6	241045.853	565929.231	10.294
HP2-OP6	241091.033	565759.429	9.359
HP2A-OP6	241091.033	565759.429	9.359
HP3-OP6	241112.872	565673.420	9.466
HP4-OP6	241127.314	565619.723	9.201
HP5-OP6	241160.034	565559.455	8.865
HP6-OP6	241186.970	565501.284	8.626
HP7-OP6	241217.492	565432.565	8.291
HP8-OP6	241237.008	565378.291	7.833
HP9-OP6	241197.348	565665.356	9.190
HP10-OP6	241206.244	565630.228	8.650
HP11-OP6	240966.866	566108.533	12.503
HP12-OP6	240982.363	566065.922	12.101
HP1-OP7	241628.171	564683.148	4.950
HP2-OP7	241597.030	564683.017	5.248
HP-SW2	241248.149	565490.710	8.486
TP1-OP6	240964.981	566088.093	14.281
TP2-OP6	241039.300	565941.550	10.337
TP3-OP6	241068.978	565830.720	10.057
TP4-OP6	241086.670	565772.030	9.465
TP5-OP6	241245.445	565248.066	8.061

GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est. 1974, VAT 271 4670 58 www.holequest.co.uk

TP7-OP6	241308.983	564969.091	7.907
TP9-OP6	241256.527	565441.755	8.073
TP11-OP6	241318.366	565297.838	7.683
TP12-OP6	241344.077	565290.944	7.657
TP13-OP6	241372.562	565303.577	7.440
TP-W1-OP6	241092.848	565755.685	8.258
TP-W2-OP6	241206.617	565459.755	6.702
	044600 400		0.007
TP1-OP7	241638.196	564758.480	9.097
TP2-OP7	241439.393	564911.124	5.780
TP3-OP7	241485.955	564855.483	5.780
TP4-OP7	241579.347	564830.281	9.696
TP5-OP7	241393.343	564972.471	6.228
TP6-OP7	241347.028	565017.081	6.271
TP7-OP7	241316.121	565055.849	6.625
TP8-OP7	241340.137	564926.191	6.696
TP9-OP7	241374.345	564881.438	6.386
TP10-OP7	241399.436	564828.473	6.434
TP11-OP7	241488.342	564768.460	5.872
TP12-OP7	241550.030	564740.261	5.022
TT1 East	241246.255	565148.237	8.903
TT1 West	241238.087	565147.710	9.051
TP1-SP	241247.132	565156.800	8.629
TP2-SP	241243.429	565134.911	9.415
TP3-SP	241303.050	565160.562	7.420
TP4-SP	241302.775	565132.807	7.339
11 4-01	241302.773	505152.007	1.000
TP2-OP24	241326.203	565185.130	7.874
TP3-OP24	241303.895	565172.546	7.460
TP4-OP24	241343.818	565163.081	7.935
TP5-OP24	241379.457	565147.051	6.859
TP6-OP24	241357.484	565135.503	7.638
TP7-OP24	241327.487	565111.029	7.596
TP10-OP24	241300.177	565090.351	6.652
TP11-OP24	241349.595	565054.106	7.043

	Holequest Ltd Winston Road Galashiels Talk 01806 752205								Borehole N BH1-OP		
			\mathbf{LI}	MI	ΓΕΓ)	Galas Tel: 0	hiels 1896 752	295	Sheet 1 of 2	
Project Na	ame					Pr	oject N			Hole Type	
Newton Stewart FPS 17/082 Co-ords: 240949E - 566124N							Co-ords: 240949E - 566124N	Cable/Rota	ary		
Drilling Methods:- Rotary open hole, Symetrix 170mm diam, GL - 5.8m Rotary cored, T2101 water flush, 5.8 - 10.5m						70mm d	- 5.8m	Level: 15.00 m AOD	Orientation	n	
	R	otary co	orea, 12	2101 0	vater fit	ISN, 5.8	- 10.5m		Level. 15.00 III AOD	90	
Client:- Dumfries	& Gallowa	ay Co	uncil						Dates: 12/01/2018-23/01/2018	Logged B BMY / RR / F	-
Vell Water Strikes	Sample Depth (m)	es & Ir Type		Testin Results		Depth (m)	Level (m CD)	Legend	Stratum Description		
	0.20	В				0.20	14.80		MADE GROUND comprising Dark brown clayey sandy	Topsoil	Ŧ
2.54	0.20 0.50 0.50	ES B ES				0.50	14.50		MADE GROUND comprising Dark brown very clayey fi Sand and fine to coarse rounded to subangular Gravel cobble content	ne to coarse with low	
* * . * o *	1.00 1.00	B ES						70	MADE GROUND comprising Dark brown to black silty slightly organic fine to coarse Sand with low cobble con intermixed locally with above strata and roots.		-1
	1.20	SPT B	N=7 (1,2/2,1,2,2)		1.30	13.70	Soft orange brown slightly sandy gravelly silty CLAY with low		-		
	1.50 1.50	ES B	(1,2/2,1,2,2)			1.75	13.25		cobble and boulder content and rare roots (Possible Made Ground) (BD from 1.6m, Non Plastic) Obstructed on boulder at approx 1.7m		
	1.60-2.70	в						× × × ×	Very dense orange brown to grey slightly clayey slightly fine to coarse subrounded to angular GRAVEL with hic		-2
	1.00 2.10							× × × × × × × × ×	boulder content, Gravel, cobbles and boulders of varyir lithologies but predominantly of grey Meta-sandstone (ng	-
	2.80	SPT		N=50	_			×××××			-
		(25	for 75n	mm/50 1	for 75m	m)		× * * * × * * *			-3
		_						× * * * * *			-
	2.70-4.30	В						× × × × × ×			-
								× × × × × × ×			-4
	4.30	SPT		N=50				× × × × × ×			-
	4.30				for 75m	m)		× × × ×			-
								× * * *			-
	4.30-5.80	в						× × × × × × × ×			-5
								× × × × ×			-
						5.60	9.40	× × × *	Grey META-SANDSTONE / META-SILTSTONE (wack	e)*	-
	5.80	SPT (25	for 75n	N=50 nm/50	AZCL	5.80 m)	9.20	· · · · · · · ·	Weak to medium strong, laminated, thinly to medium b	edded (dip	6
	5.80-6.70	89	72	22	25			· · · · · · · · · ·	40 - 90 degrees) light pinkish / greenish grey fine grain META-SANDSTONE with META-SILTSTONE laminae	and occasional	F
								· · · · · · · · · · ·	beds of medium to coarse grained Meta-sandstone, va Quartz veins - sub mm to 10mm thick, slightly to mode weathered,		-
					NI			· · · · · · · ·	Discontinuities; Set 1: 10 - 30 degrees, very closely to medium spaced		-
					>50			• • • • • • • • •	terminating at intersection where seen, planar to undul smooth to rough, tight to partly open.		-7
	6.70-7.70	100	40	15				· · · · · · · · · ·	Set 2: 45 - 90 degrees, very closely to closely spaced, persistence observed to 200mm, terminating at interse	ction or in	-
					18				rock where seen, planar to undulating, rough, tight to p open. Both with patchy reddish brown staining / coating	artly	
	7.70-8.30	100	42	0	NI	ł					-8
	1.10-0.30		-74								-
					>50						F
	8.30-9.10	100	0	0				· · · · · · · · ·			F
											-9
	9.10-9.70	100	0	0	35	ł					
	0.10 0.70	100				_					F
					>50	9.75	5.25	· · · · · · · · ·			1
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<emarks:< td=""><td>Hand excavate No groundwate</td><td>er encou</td><td>ntered</td><td></td><td></td><td></td><td></td><td></td><td>110.01</td><td>cale Log Sta</td><td>atu</td></emarks:<>	Hand excavate No groundwate	er encou	ntered						110.01	cale Log Sta	atu
	Hard strata / sl * Denotes visu						ished hore	abolo roturne	HQ01 1	:50 Final	al.

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-	ect Na							oject N	lo.		Co-ords: 24094	0E - 566124N		Hole Type
Nev	vton S	Stewart FP	S				17	7/082			00-0103. 24094	92 - 30012411		able/Rotary
Drilli	ing Me	ethods:- Ro	otary op	pen hol	e, Sym	netrix 1	70mm di	am, GL	- 5.8m		1		C	Drientation
		Ro	otary co	ored, L	2101 w	ater flu	ush, 5.8	- 10.5m			Level: 15.00	m AOD		90
Clie	nt:-												L	ogged By
Dun	nfries	& Gallowa	ay Co	uncil							Dates: 12/01/2	2018-23/01/2018	BM	Y/RR/FM
Well	Water	F	Rotary	Corin	g		Depth	Level						
vv en	Strikes	Depth (m)	TCR	SCR	RQD	FI	(ṁ)	(m CD)	Legend			Stratum Description		
		9.70-10.50	100	13	0	40			· · · · · · · · ·		Medium strong dark purpl with occasional light grey	ish grey medium graine Quartz and reddish brov	d META-SAI vn Haematit	
							10.50	4.50		۱ ا	veins to 5mm, moderately - 30 degrees, closely to m	weathered. Discontinu	ities: Set 1:	10 [
							10.50	4.50		N I	undulating, rough, partly o	pen. Set 2: 45 - 90 degr	ees, very	, fe l
											closely to closely spaced, terminating at intersection	persistence observed t or in rock where seen,	o 350mm, undulating,	/ -
										<i>.</i>	rough, tight to open.			
										·	Er	nd of Borehole at 10.60 m		'
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			TCR	SCR	RQD	FI								
Rem	arks:	Hand excavate No groundwate	ed service	e clearar	nce from	GL - 1.2	m					SPT Hammer	Scale	Log Status
		Hard strata / sl * Denotes visu	low prog	ress fron	n 1.7 - 1. Edesoria	.75m (1 h	nr) ad op air fli	ished bors	hole return	c		HQ01	1:50	Final
		Borehole Term 63mm diam H	inated o	n engine	ers instr	uction			nois ieluiti	5				
		John ulan T	⊃, ∟ 0di					0.011						³

		C	Н	OLEQUE	ST,	Winst Galas	uest Ltd on Road tiels 1896 75			В	orehole No H2-OP6 heet 1 of 1	5
Proi	ect N	ame			Pr	oject N					Hole Type	
-		stewart FP	s			/082		Co-ords: 24098	0E - 566048N		Cable	
Drilli	ing Me	ethods:- Lic	aht cab	le percussion, 200m			35m			0	Drientation	
	0			1 /	,			Level: 14.05	m AOD		90	
Clie	nt:-										ogged By	
		& Gallowa	ay Co	uncil				Dates: 12/01/	2018		/ BMY / FI	_ I
Well	Water	Sample	es & Ir	Situ Testing	Depth	Level	Lanard					-
W Ch	Strikes	Depth (m)	Туре	Results	(m)	(m CD)			Stratum Description			_
		0.10 0.20	B B		0.20	13.85		MADE GROUND compris			o Sand	
		0.20 0.50	ES ES					with low cobble content, l	ncludes Bricks and Brick	fragments.		
		0.65 0.65	B ES		0.65	13.40		MADE GROUND compris	sing Dark grey silty grave	Ily fine to co	arse	
		1.00	ES					slightly organic Sand with fragements of Slate, Lime	low cobble content, Incl Mortar and locally sligh	udes Bricks tly Ashy.	i, -	-1
		1.20	SPT	N=50		40.00						
		1.30	В	(2,6/50 for 5mm)	1.36	12.69		•••••••••••••••••••••••••••••••••••••••	oulder obstruction at 1.3	5m		
								E	nd of Borehole at 1.36 m		ŀ	
											Ę	-2
											-	
											- - -	
											-	
												-3
											-	
											-	
												-4
											-	-
											-	
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											Ē	
											Ę	Mon. 03
											-	-9 4420
											- -	n vO date
											ŀ	note Lock
											F	tard Bore
			Туре	Results								Chand
Rem	arks:	Hand excavate No groundwate	d service	e clearance from GL - 1.2r	m				SPT Hammer	Scale	Log Stat	us us
		Hard strata / sl	ow progi	ress from 1.35m (2 hrs) a cobble / boulder obstruct	tion at 1.3	55m			HQ04	1:50	Final	24 /P
												Hold R A 9

			Н	ÛΓ	EQ	UE red	ST	Holeq Winst Galas	on Road				2A-0F	∿ ₽6
						ւըր			1896 752	295			neet 1 of	
•	ect Na		~					oject N	lo.	Co-ords: 240980E - 56	6049N		lole Type	
		tewart FP						7/082					ble/Rota	
Jrill	ng Me		tary op	en hol	le, Sym	etrix 17	'0mm d	iam, GL	- 5.5m	Level: 14.05 m AOE)		90	1
Clie	nt.	Ro	otary co	ored, T	2101 w	ater flu	sh, 5.5	- 10.5m					ogged By	v
		& Gallowa	ay Co	uncil						Dates: 22/01/2018-2	5/01/2018		/ / RR / F	-
ell	Water	Sample	-		Testin	q	Depth	Level				וואום	/ IXIX / I	
	Strikes	Depth (m)	Туре		Results	-	(m)	(m CD)	Legend		Description			_
							0.20	13.85		MADE GROUND comprising Dark MADE GROUND comprising Brown			Sand	Ŧ
										with low cobble content, Includes B			- Cana	
							0.65	13.40		MADE GROUND comprising Dark slightly organic Sand with low cobb	grey silty gravel	ly fine to coa	arse	Ţ
										fragments of Slate, Lime Mortar an				-1
														-
							1.60	12.45						F
									×. × . × . *	Very dense grey brown silty very sa angular GRAVEL with low to mediu	indy fine to coar im cobble and t	se rounded	to ent*	
		1 00 0 00							× × × *					-2
		1.60-2.80	В						× × ×					-
									× × × ×					ŀ
		2.80	SPT (6.18/25	N=50 5,25 for	25mm)			× × × *					-
				-,	-,				^```X``X` X``X``X`					-3
									× × × × ×					F
		2.80-4.30	В						×. ×. ×. *. ×					-
	\Box								××××					
									× × × × ×					Ē
		4.30	SPT (7,	10/13,1	N=50 16,20,1	for 5mn	ı)		×. × × ×					
									× × × ×					-
		4.30-5.50	В						× × × ×					-5
							5.10	8.95		Grey META-SANDSTONE / META-	-SILTSTONE*			ţ
		5.50	SPT		N=50		5.50	8.55	· · · · · · · · ·	Strong locally work to modium atra	ana laminatada	to thick had	lod	+
			(25	for 35r	nm/50 f	or≫5500mi	n)			Strong, locally weak to medium stro (dip 45-70 deg), grey to dark grey, y	ariably light gre	ey, fine		
		5.50-6.40	100	83	63	4			· · · · · · · · ·	to medium grained METASANDST lenses of METAMUDSTONE and q	uartz veins loca			-6
									· · · · · · · · ·	50mm. Slightly to moderately weath Discontinuities;				-
										Set1; 10-30deg; very close to widel intersection where seen, planar to			۱,	-
						17				tight to part open Set2; 40-70deg, very close to medi	um space, pers	istant to 150)mm,	-
		6.40-7.60	100	64	49				· · · · · · · ·	terminating at intersection where so smooth to rough, tight to part open,	yellowish brow	n staining o	n	-7
										faces to 30mm locally, patchy yello coating to sub mm fill.	wish or reddish	brown		F
														ŀ
														F
		7.60-8.50	100	100	92	4								-8
														ŀ
		0.50.0.00		50	50	1								F
		8.50-9.00	66	56	50	NI				20mm very weak crushed muds	stone - fault rock	k, associated	d	ţ,
										with 60deg dipping fault				-9
									· · · · · · · · · · · · · · · · · · ·					ŀ
		9.00-10.50	100	90	83	8								F
		9.00-10.50												ŀ
			TCR		RQD	FI		[next sheet			T
em	arks:	Hand excavate * Denotes visu	al asses	sment of	f descrip	tion base	n d on air fl	ushed bore	ehole returns		Hammer	Scale	Log Sta	atu
		Hard strata / sl Groundwater e				2 hrs)				F	IQ01	1:50	Final	ı

			H	0Ľ	EO	UE	ST	Holeq Winst	uest Ltd on Road				orehole No
				LI	MIJ	TED)	Galasł	niels	205			12A-OP6
Deci	ot NL-								1896 752	293			heet 2 of 2 Hole Type
Projec		ime ewart FP	9					oject N 7/082	10.	Co-ords: 24098	0E - 566049N		able/Rotary
		thods:- Lig		le nerc	ussion	200m			Sm				rientation
Drining	y wie	Ro	otary op	en hol	e, Sym	etrix 17	70mm di Ish, 5.5	am, GL ·	- 5.5m	Level: 14.05	m AOD		90
Client:	:-			<u>neu, 12</u>	2101 W		1511, 0.0	- 10.511		D		L	ogged By
Dumfr	ries 8	& Gallowa	ay Cou	uncil						Dates: 22/01/	2018-25/01/2018	BM	//RR/FM
	/ater rikes			Corin SCR		FI	Depth (m)	Level (m CD)	Legend		Stratum Description		
		Depth (m)	TCR			FI	(ṁ) 10.50	(m CD) 3.55		Strong, locally weak to me (dip 45-70 deg), grey to di to medium grained META lenses of METAMUDSTO Somm. Slightly to modera Discontinuities; Set1; 10-30deg; very closs intersection where seen, t ight to part open Set2; 40-70deg, very closs terminating at intersection smooth to rough, tight to p faces to 30mm locally, particular coating to sub mm fill.	edium strong, laminated ark grey, variably light gr. SANDSTONE, with lami NE and quartz veins loc: tely weathered e to widely spaced termi planar to undulating, smo e to medium space, perso n where seen, planar to u part open, yellowish brow	ey, fine nae to very t ally abundar nating at both to rougl sistant to 150 indulating, vn staining o	thin It to h, –11 Dmm,
			TCR	SCR	RQD	FI							
Remar		Hand excavate * Denotes visua	d service	e clearan	ce from	GL - 1.2ı		ished har-	holo roturn-		SPT Hammer	Scale	Log Status
	l	Hard strata / sl Groundwater e Borehole termi 63mm diam HI	ow progr ncounter	ress from red at 4.0	n 1.4m (2)m	2 hrs)			noie returns		HQ01	1:50	Final

			H	0Ľ	EQ	UE	ST	Holec Winst Galas	uest Lto on Road	Borehole No BH3-OP6
				LI.	MI	ГED)		1896 75	295 Sheet 1 of 2
	ect Na							oject N	۱o.	Co-ords: 241055E - 565871N Coble/Deter
		tewart FP						7/082		Cable/Rolary
Drilli	ng Me		otary op	oen hol	le, Sym	etrix 17	'0mm di	iam, GL	7m - 5.5m	Level: 10.94 m AOD 90
Clier	nt:-	Ro	otary co	ored, T2	2101 w	ater flu	sh, 5.5	- 10.5m		Logged By
Dum	nfries	& Gallowa	•		Teetin	~		I		Dates: 15/01/2018-26/01/2018 DF/ RR/ FM
/ell	Water Strikes	Sample Depth (m)	Type		Results	y	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.10 0.20	B ES				0.10	10.84		MADE GROUND comprising Dark brown silty sandy Topsoil with rootlets
		0.40 0.50	B ES				0.40	10.54		MADE GROUND comprising Dark grey silty gravelly fine to coarse Sand with medium cobble content, Includes Bricks and fragments of Glass and Coal.
		1.00 1.20 1.20-1.65 1.50	ES CPT B ES	11,18/2	N=45 2,23 for	75mm)				MADE GROUND comprising Brown silty sandy locally very sandy fine to coarse rounded to angular Gravel with high cobble content, Silty / sandy matrix noted slightly organic, Includes Brick and Coal fragments.
		2.00 2.00-2.45	СРТ В ⁽⁷	18,25/2	N=50 5,25 for	75mm)	1.80	9.14		Very dense grey slightly silty sandy fine to coarse rounded to angular GRAVEL with low cobble content
		2.90 3.00 3.00	W CPT B (8,19/23	N=50 3,27 for	75mm)				
		2.80-4.40 4.40 4.00-5.50	SPT	(5,7/	N=42 ⁄8,10,10	,14)	3.70	7.24		Dense grey brown silty sandy fine to coarse rounded to angular GRAVEL with medium to high cobble and boulder content*
9							5.10	5.84	× × ×	Grey META-SANDSTONE*
		5.50	SPT (25	for 75r	N =50 nm/50 f	or 75mr	5.50 n)	5.44	· · · · · · · · · · ·	Weak to medium strong, laminated to thickly bedded (dip
		5.50-6.20	100	14	0	>50	,			60-90deg), extensively disrupted, locally brecciated / sheared by faulting, dark brownish grey to dark grey, fine to medium grained METASANDSTONE with light grey Quartz Veins locally and laminae of Metamudstone, Moderately to highly weathered.
										Discontinuities; Set1; 5-30deg,extremely close to medium spaced, terminating at intersection where seen, planar to undulating, smooth to rough, tight to part open
		6.20-7.70	100	55	53	9				Set2; 50-90deg, extremely close to medium spaced, terminating at intersection where seen, planar to undulating, rough, tight to part open, dark brown, orangish or reddish brown coating to sub mm fill.
										Brecciated / crushed Mudstone between 6.1 - 6.45m, probably associated with 80 degree dipping Fault.
		7.70-8.70	100	23	0	>50				With laminae of Meta-mudstone between 8.0 - 9.6m
		8.70-9.60	83	30	0	20 >50				
			TCR	SCR	RQD	FI				Continued next sheet
lem	arks:	Hand excavate Hard strata / sl Water added in encountered a * Denotes visu	low progi n order to t 2.9m, i	ress from advanc rising to 2	n 1.2 - 2. ce boreho 2.7m afte	0m (2 hrs ble throug er 20 min:	s) and fror h granula s, sealed	r strata fro at 5.4m	m 1.2 - 2.9r	Groundwater SPT Hammer Scale Log Statu HQ01 1:50 Final

			H	0L	EQ	UE	ST	Holeq Winst	uest Ltc on Roac	1 1					orehole No	
				LI	MI	ΓΕΓ		Galas		2200	-				H3-OP6	l
D	0 64 N								1896 75	229:	3				heet 2 of 2 Hole Type	
	ect Na	ame Stewart FP	c					oject N 7/082	10.		Co-ords	: 24105	5E - 565871N		able/Rotary	l
		ethods:-Lig		le perc	ussion	150m			7m						Drientation	ł
		Ro	otary op	ben hol	e, Sym	etrix 17	70mm di 1 <u>sh, 5.5</u>	am, GL	- 5.5m		Level:	10.94	m AOD		90	
Clie Dun		& Gallowa	ay Co	uncil							Dates:	15/01/	2018-26/01/2018		.ogged By F/ RR/ FM	
Well	Water Strikes			Corin SCR		FI	Depth (m)	Level (m CD)	Legend				Stratum Description	<u> </u>		
Well	Water Strikes	E Depth (m) 9.60-10.50	TCR 100	Corin SCR 61		FI 15			Legend	60 gu la D S in tiq S in p	0-90deg), ext y faulting, dan rained META minae of Me iscontinuities et1; 5-30deg ttersection wh ght to part op et2; 50-90de ttersection wh	ensively dia k brownish SANDSTO tamudstone ; extremely ere seen, en g, extremel here seen, k brown, o	Stratum Description laminated to thickly bed supted, locally brecciate ore to dark grey, fine to NE with light grey Quart a, Moderately to highly w close to medium spaced planar to undulating, rour rangish or reddish brown and of Borehole at 10.50 m	d / sheared o medium z Veins loca eathered. , terminating ooth to roug ed, terminati gh, tight to	gat h, – 11 ngat	on v3 data (37th Nov 013
																- Rorahola I.o.
			TCR	SCR	RQD	FI) Standar
Rem	arks:	Hand excavate Hard strata / sl Water added in	d service ow progi n order to	e clearan ress from o advanc	ce from n 1.2 - 2. e boreho	GL - 1.2 0m (2 hr ble through	s) and fron gh granula	r strata fro		m, Gro	oundwater		SPT Hammer HQ01	Scale	Log Status	3.1 (Bld 426.72)
		* Denotes visu Borehole termi	al asses	sment of	descript	tion base	s, sealed d on air flu	at 5.4m Jshed bore	hole return	S				1:50	Final	HoleBASE

			Н	OLEQUE LIMITEI	ST	Winst	uest Ltd on Road hiels	Borehole No BH4-OP6
					,	Tel: 0	1896 752	
•	ect Na					oject N	No.	Co-ords: 241089E - 565755N
		tewart FP				7/082		Rolary
Drillir	ng Me	ethods:- Ro	otary op	en hole, Symetrix 1 pred, T2101 water flu	70mm di Jsh 11 3	iam, GL	- 11.3m	Level: 9.57 m AOD
					Jon, 11.0	10.01		90
Clien Dum		& Gallowa	ay Co	uncil		_		Dates: 17/01/2018-01/02/2018 Logged By BMY / RR / FM
	Water Strikes	Sample Depth (m)	es & In Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.20	ES	1103010	0.15	9.42		MADE GROUND comprising Dark brown to black clayey sandy Topsoil with some roots and rootlets
2.5		0.20 0.50	B ES		0.40	9.17		MADE GROUND comprising Black slightly organic silty gravelly fine to coarse Sand, Includes Roots, Rootlets, Ash and China
		0.50	В		0.80	8.77		MADE GROUND comprising Grey mottled brown silty fine to coarse
		1.00	ES		1.00	8.57		Sand and fine to coarse angular to subangular Gravel with medium
		1.00 1.30	B ES		1.30	8.27		Masonry, Lime Mortar, Slate and China
		1.30 1.30-1.75	B U					MADE GROUND comprising Soft orange brown slightly sandy gravelly silty Clay with medium to coarse gravel sized pockets of silty fine to coarse Sand and fine to coarse Gravel as above.
		1 20 2 00	в					Soft orange brown sandy slightly gravelly silty CLAY
		1.30-2.80						Soft becoming firm light grey mottled brown sandy silty CLAY of intermediate plasticity.
		2.80	SPT	N=30	2.80	6.77		Madium dance grou eith each fing to googe group to the second
		2.80	U	(2,6/6,6,8,10)			×. × × ×	Medium dense grey silty sandy fine to coarse rounded to angular GRAVEL with low to medium cobble and boulder content*
							×- × × ×	No recovery of U100 at 2.8m
		2.80-4.20	В				× × × ×	t i i i i i i i i i i i i i i i i i i i
							× × × × *	-
	\bigtriangledown				4.10	5.47	× × × *	
		4.20	SPT (25	N=50 6 for 5mm/50 for 25mr	-	0.17		Very dense grey gravelly cobbly BOULDERS, Predominantly of Meta-sandstone (wacke) but also include Microgranite and Basalt
					ĺ			
								Ē
								[
								-
								-
		5.50-6.80	в		6.00	3.57	<u>^• ^ • 9</u>	Very dense grey silty sandy fine to coarse rounded to angular
							× × × × × ×	GRAVEL with high cobble and boulder content*
							× × × ×	t i i i i i i i i i i i i i i i i i i i
		6.80	SPT (9	N=50 14/16,15,19 for 75mn	n)		×	F.
				, -,	ľ		^ × × × × × × × ×	
							× × × ×	Ę
		6.80-8.30	В				× × × × ×	Ē
							× × × ×	
		0.05	0.000	N			× × × ×	r
		8.30	SPT (11,1	N=50 4 for 25mm/50 for 50	mm)		× × × *	ţ
							$\overset{\times}{\underset{\times}{\overset{\times}{\times}}}$	Ę
		8.30-9.80	в				× * * * * * * *	
		0.30-9.60					× × × ×	i i i i i i i i i i i i i i i i i i i
							× × × × ×	
		9.80	SPT	N=50			$\stackrel{\times}{\underset{\times}{}} \stackrel{\times}{\underset{\times}{}} \stackrel{\times}{\underset{\times}{}} $	Ę
		3.00	B (9	12/15,21,14 for 50mn	n)		× × ×	
ema	arks:	Hand everyote	Type	Results e clearance from GL - 1.3	Г m	I		<u>Continued next sheet</u> SPT Hammer Scale Log Statu
		Groundwater e	encounte	red at 4.2m sment of description base		ushed bore	ehole returns	11001
		Borehole term	inated or DPE Gas	engineers instruction				HQ01 1:50 Final

Γ	H	0	Н	ΟL	EQ	UE	ST	Winst Galasl		Borehole No BH4-OP6
									1896 752	
-	ect N		_					oject N	lo.	Co-ords: 241089E - 565755N
		Stewart FP						7/082		Rolary
Drill	ing Me	ethods:- Ro Ro	otary op otary co	oen ho ored, T	ole, Sym 2101 w	etrix 17 ater flu	70mm di Jsh, 11.3	am, GL 3 - 15.9m	- 11.3m า	Level: 9.57 m AOD Orientation 90
Clie	nt:									Logged By
	nfries	& Gallowa			T = 1 (1)		1	1	1 1	Dates: 17/01/2018-01/02/2018 BMY / RR / FM
Well	Water Strikes	Sample Depth (m)	s & In Type		Results	g	Depth (m)	Level (m CD)	Legend	Stratum Description
		9.80-11.30					10.90	-1.33		Very dense grey silty sandy fine to coarse rounded to angular GRAVEL with high cobble and boulder content*
•		11.30	SPT		N=50		11.30	-1.73	· · · · · · · · ·	
		11.30		for 25	mm/50 f	or 50m		-1.73	· · · · · · · · ·	Medium strong to strong, greenish grey, fine to medium grained METASANDSTONE with a few light grey Quartz and common reddish
		11.30-12.00	100	37	0				· · · · · · · ·	brown Hematite veins, moderately locally highly weathered. Discontinuities:
						>50			· · · · · · · ·	Set 1, 0 - 30 degrees, extremely closely to closely spaced, terminating at intersection where seen, planar to undulating,
									· · · · · · · · ·	smooth to rough, tight to partly open. Set 2, 40 - 90 degrees, extremely closely to closely spaced,
		12.00-12.90	100	33	0		-			terminating at intersection or in rock, persistance seen to 400mm, planar to undulating, smooth commonly polished /
						10			· · · · · · · · ·	slickensided, tight to partly open. Both sets with red brown coatings and up to 2mm fill.
						18			· · · · · · · · ·	Recovered Non - Intact as platy, angular Gravel between 11.3 - 11.4m and 11.9 - 12.25m
		12.90-13.70	100	35	35		-		• • • • • • • •	
									· · · · · · · · · · · ·	
									· · · · · · · · ·	Extremely weak to weak brecciated METASANDSTONE between 13.7 - 15.1m
		13.70-14.70	100	6	0				•••••	
		10.10 11.10	100	Ŭ	Ŭ				· · · · · · · ·	-
						>50				Crushed Metasandstone (Fault Rock) between 14.58 - 14.7m
									• • • • • • • •	within brecciated strata.
		14 70 15 00	100	62	0					F
		14.70-15.90	100	02	0				· · · · · · · ·	
							15.90	-6.33		End of Borehole at 15.90 m
										-
										-
										-
			TCR	SUD	RQD	FI	-			
Rem	arks:	Hand excavate					и m	I		SPT Hammer Scale Log Statu
		* Denotes visua	ncounter al asses:	red at 4. sment o	.2m of descript	tion base		ushed bore	hole returns	HQ01 1:50 Final
		Borehole termi	noted on		oro inotre					

-	0	H	OLEQUE LIMITEI	ST	Winst Galas					B	orehole No H5-OP6	6
						1896 7522	.95				heet 1 of 2	
Project		_			oject N	NO.	Co-ords:	24114	0E - 565581N	ŀ	Hole Type	
	Stewart FF				7/082				02 00000111		Rotary Prientation	
Drilling i	/ietnoas:- Ri Ri	otary op otary co	oen hole, Symetrix 1 bred, T2101 water flu	70mm d Jsh, 14.3	iam, GL 3 - 19.3r	- 14.3m n	Level:	9.15 m	n AOD		90	
Client:-											ogged By	
	s & Gallowa	ay Co	uncil				Dates:	07/02/2	2018-19/02/2018		Y / CE / FN	
Vell Wate	er Sampl		N Situ Testing	Depth	Level	Legend					., 02,	_
Strike	S Depth (m)	Туре	Results	(m)	(m CD)		TARMAC		Stratum Description			
	0.20 0.20	ES B		0.18 0.25	8.97 8.90			D compris	ing Pinkish brown silty s	andy fine to	coarse /	
	0.50 0.50	ES B					rounded to angu				[
	0.50								ing Bluish grey slightly s ular Gravel with medium			
	1.00 1.00	ES B									-	- 1
	1.30	CPT	N=35 (9,10/8,8,10,9)	1.20	7.95				ing Bluish grey silty sand barse angular to subang		g very	-
			(9,10/8,8,10,9)				with medium co				-	
											-	
	1.30-2.80	В										-2
											-	
	2.80	CPT	N=50 11/12,8,30 for 75mm	0							r	
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									-3
											-	
	2.80-4.30	В									Ē	
_	_										-	
$ \sum$	-			4.10	5.05		Dense to verv de	ense arev	brown silty sandy fine to	coarse	[- 4
	4.30	CPT	N=45 (8,10/9,11,11,14)			× × × × × ×	rounded to angu	ilar GRAV	EL and COBBLES*	coarse	-	
			(0,10,0,1,1,1,1,1)			× × ×						
						× × × ×					-	
	4.30-5.80	В				×. * . * . *					-	
						× × ×						
						× * * × * * *					-	
	5.80	CPT (25	N=50 for 75mm/50 for 75m	m)		× × × ×					E,	e
						× × × × × ×					-	
	F 00 F 00	5				^``*`* *`*`*					-	
	5.80-7.30	В		6.00	2.25	× × × *						
				6.80	2.35		Dense dark brow	wn silty gra	avelly fine to medium SA	ND*		-7
	7.30	СРТ	N=40								-	
	1.50		(7,8/9,9,8,14)			×,					F	
				7.80	1.35						-	
	7.30-8.80	в				\times \times \times \times \times \times \times \times	Very dense dark to medium SAN	c grey brov D with pos	vn to dark grey silty to ve ssible lenses of Clay tow	ry silty fine ards base.*	-	- e
						× × × × × × ×			-		r F	
						$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x}$					-	
	8.80	СРТ	N=50			$\times \times $					-	
		(25	for 75mm/50 for 75m	m)		$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} $					Ę.	- 9
						× × × × × × ×						
	8.80-10.30	в				$\hat{\mathbf{x}} \times \hat{\mathbf{x}}$					-	
						$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} $					-	
Ð.		Туре	Results	-		××××			Continued next sheet		-	
Remarks	Hand excavate	ed service	e clearance from GL - 1.2	m. m.	•	· · ·			SPT Hammer	Scale	Log Statu	U
	* Denotes visu Groundwater e	al asses	sment of description base red at approx 4.1m	ed on air fl	ushed bore	ehole returns			HQ03	1:50	Final	1
			engineers instruction / Groundwater monitor ir		12.0m					1.50	г па	

		C	Н		EQ	UE	ST	Winst Galas	uest Ltd on Road hiels 1896 752	295			В	orehole No H5-OP(heet 2 of 2	6
Proj	ect Na	ame					Pr	oject N	lo.	On and a				Hole Type	
		tewart FP						/082		Co-ords:	24114	0E - 565581N		Rotary	
Drill	ing Me	ethods:- Ro Ro	otary op otary co	oen hol ored, T2	e, Sym 2101 w	netrix 17 vater flu	70mm di ısh, 14.3	am, GL 5 - 19.3n	- 14.3m n	Level:	9.15 m	AOD		rientation 90	
Clie	nt:-		-										L	.ogged By	,
		& Gallowa	ay Co	uncil						Dates:	07/02/	2018-19/02/2018		Y/CE/F	
Well	Water Strikes	Sample Depth (m)	es & In Type		Testin Results	g	Depth (m)	Level (m CD)	Legend			Stratum Description			
		Deptil (III)	туре		Cesuits		()	(Very dense dark	grey brow	vn to dark grey silty to ve ssible lenses of Clay tow	ery silty fine		-
		10.30	CPT (25	for 75n	N=50 nm/50 f	for 75m	10.30 m)	-1.15	× × ×	Grey sandy silty	CLAY*		alus base.		-
										(BD from 10.3m	, Non Pla	stic)			-
		10.30-11.80	В												-11
															-
															-
															- 12
															-
		11.80-13.30	В												-
• • • • • • • •															13
							13.50	-4.35							
		13.30-14.30	в						· · · · · · · · · · · · · · · · · · ·	Grey META-SA	NDSTON	E / META-SILTSTONE*			
									· · · · · · · · ·						-14
							14.30	-5.15	· · · · · · · · · · · · · · · · · · ·	Strong, dark gre	y varied li	ght grey, fine to coarse g	grained		-
		14.30-15.10	88	45	15	20			· · · · · · · · ·	METASANDST quartz veins to 1	ONE with	many discontinuous ger ghtly, locally moderately	tle and stee	p dipping	-
				-		>50			· · · · · · · · · · ·			close to medium spaced			- 15
						-			· · · · · · · · · · · · · · · · · · ·	tight to open.	-	planar to undulating, smo e to medium spaced, pe	-	n,	-
						14			· · · · · · · · ·	300mm, termina undulating, smo	ating at int oth to rou	ersection where seen, p gh, tight to partly open.	lanar to		-
		15.10-16.40	85	81	50				· · · · · · · · · · · ·	Both sets with p	atchy red	brown and brown coatin	igs		-
									· · · · · · · · ·						16
						30			· · · · · · · · · · · · · · · · · · ·						-
									•••••						-
		16.40-17.90	97	77	44	10			· · · · · · · · ·						-17
			•						· · · · · · · · · · · · · · · · · · ·						-
									· · · · · · · · ·						
						-									-18
		17.90-19.20	100	92	78				· · · · · · · · · · · · · · · · · · ·						
															- 19
						-	19.30	-10.15							
							10.00				Er	nd of Borehole at 19.30 m			
															- 4
_	<u> </u>		TCR	SCR		FI									
Rem	arks:	Hand excavate * Denotes visus Groundwater e	al assess	sment of	descrip	tion base		ished bore	hole returns			SPT Hammer	Scale	Log Stat	tus
		Borehole termi 63mm diam HI	nated on	n enginee	ers instru	uction	stalled to	13.0m				HQ03	1:50	Final	0.00
			5 -												

		H	OLEQUE LIMITED	ST	Holec Winst Galas	ton Road	Borehole N BH7-OP	
			LIMITED)		niels 1896 752		
Project	Name			Pr	oject N	No.	Hole Type	e
Vewton	Stewart FF	۳S		17	7/082		Co-ords: 241242E - 565280N Rotary	
Drilling I	Methods:- R	otary op	pen hole, Symetrix 17	70mm di	iam, GL	- 11.8m	Level: 7.99 m AOD	ſ
	ĸ	otary co	pred, T2101 water flu	isn, 11.č	5 - 17.5r	n	90	
Client:- Dumfrie	es & Gallow	ay Co	uncil				Dates: 12/01/2018-17/01/2018 Logged By CE / FM	y
ell Wat Strik			n Situ Testing	Depth (m)	Level (m CD)	Legend	Stratum Description	Τ
	Depth (m)	Туре	Results	0.15	7.84	XXXX	TARMAC	╞
	0.30	ES		0.20	7.79		CONCRETE	Æ
	0.50 0.50	ES B		0.25	7.64		_TARMAC //	/
				0.80	7.19		MADE GROUND comprising Brown slightly silty fine to coarse Sand and fine to coarse rounded to subangular Gravel	F
	1.00 1.00	ES B					MADE GROUND comprising Brown silty very sandy fine to coarse	/-·
	1.30	SPT	N=28 (4,6/7,7,6,8)				rounded to angular Gravel with high cobble content, Includes Bricks, Roots (up to 30mm diam), and fine Coal fragments.	-
			(4,0/1,7,0,0)				MADE GROUND comprising Brown silty fine to coarse Sand and fine	
							to coarse rounded to subangular Gravel with low cobble content, Includes rare fine to medium gravel of Masonry and Coal.*	F
	1.30-2.80	В						-:
				2.40	5.59		Soft locally very soft grey locally gravelly silty CLAY*	ł
						E	(BD from 2.8m, Non Plastic)	
							70% Recovery of U80 at 2.8m	-
	2.80-3.80	U						-
	2.80-4.30	в						-
	3.80	SPT	N=13			E =		-
Z	Z		(1,2/2,3,4,4)	4.10	3.89			ŀ
	4.30	SPT	N=24			× × × ×	Medium dense to very dense with depth grey silty very sandy fine to coarse rounded to subangular GRAVEL with low to medium	-
			(5,6/5,6,7,6)			× × × × × ×	cobble content after approx 5.1m, Gravel and cobbles of mixed lithologies.*	-
						× × ×		-
	4.30-5.80	В				× × × *		-!
						×××××		-
						∧``×`× ×`×`×`×		-
	5.80	CPT	N=50 (10,11/50 for 75mm)			× × × ×		-
			(, , , , , , , , , , , , , , , , , , ,			× × × * ×		- (
						×- × × × × ×		-
	5.80-7.30	В				× × * × × × *		F
						× × × *		-
	7.00	0.077	N 50			$\times \times \times \times$		F
	7.30	CPT (25	N=50 for 75mm/50 for 75m	m)		× * × * * *		-
						×- × × *		Ē
	7.30-8.80	В				× × × × *		-8
	1.00-0.00			8.20	-0.21		Soft grey CLAY of intermediate plasticity with closely spaced	ŧ
							silty partings*	Ē
	8.80	SPT	N=9			E		F
			(2,2/2,2,2,3)				No recovery of U80 between 8.8 - 9.8m	-9
	8.80-9.80	U						ŀ
	8.80-10.30	в						F
						ETT-		F
H1.1.		Туре	Results				Continued next sheet	F
emark	S: Hand excavate	ed service	e clearance from GL - 1.2 sment of description base	m ad on air fl	ished bar	ehole returne	SPT Hammer Scale Log Sta	atu
	Groundwater	encounte		o un dif fil	aoneu DOL	CHOIC LEIGINS	HQ03 1:50 Final	
	63mm diam H	IDPE Gas	s / Groundwater monitor ir	nstalled to	12.0m			

CLIMITED Galaxiels The U 1896 752255 Sheet 2 of Netron Stewart FPS Sheet 2 of Roday Project Name Project No. 177082 Project No. 177082 Co-ords: 241242E - 565280N Roday Dilling Methods: Excury open hole, Symethis 170m mutant fluck, 11.8 ± 17.8m Level: 7.89 m AOD Orientation Status code. 12101 water fluck, 11.8 ± 17.8m Level: 7.89 m AOD Orientation Status code. 12101 water fluck, 11.8 ± 17.8m Clonx:: Darks: 1201/2018-17.011/2018 Logged BJ CE / FM Outries & Galaxines Durifies & Galaxines (10.30) Set Status code Status Description Intel Status code To 30 SPT KetStatus code Status Description Intel Status code To 30 SPT KetStatus code Status code Status code Intel Status code 11.80 3.81 To 30 SPT KetStatus code Status code Status code Intel Status code 11.80 3.81 To 30 Status code Status code Status code Intel Status code 11.80 3.81 To 30 Status code Status code Status code Status code Status code			H	0L	EQ	UE	ST	Holeq Winst	uest Ltd		Borehole No
Interview Interview Strett S				LI	MII)			205	BH7-OP6
Newton Stewart FPS 17/082 Co-ords: 241242E - 565280N Retary Orientation 90 Drilling Methods:	Project	Nomo								295	
Drilling Methods: Ready screet, 17211 Water flight, 11.8 - 17.5m Level: 7.99 m AOD Offentiation 90 Client:: Dummfres & Galloway Council Dates: 12/01/2018-177/01/2018 Lovel: 7.99 m AOD Lovel: Client:: Dummfres & Galloway Council Client:: 10.30 SPT (4.510,11,11.16) 10.30 SPT (4.511,11.16) 3.61 11.80 3.81 Title 3.261 Stratum Description <			S					•	NU.	Co-ords: 241242E - 565280N	
Rotary cored, T2101 water flush, 118-17.5m Level: 7.99 m AOD 90 Client:: Durffiels & Galloway Council Dates: 1201/2018-17/01/2018 Logged By Veter Samples & In Stut Testing Decidin (mCD) Dates: 1201/2018-17/01/2018 CE / FM Veter Strater Dates: 1201/2018-17/01/2018 CE / FM CE / FM Veter Strater Dates: 1201/2018-17/01/2018 CE / FM Veter Strater Strater Strater Strater Strater 11.00 90 Composition Dates: 1201/2018-17/01/2018 CE / FM 11.00 91 Composition Dates: Strater				en hole	e, Sym	etrix 17			- 11.8m		Orientation
Dummines & Galloway Council Dates: 12/01/2018-17/01/2018 CE / FM View Samples & In Stu Testing Interview Dates: 12/01/2018-17/01/2018 CE / FM View Samples & In Stu Testing Interview Dury Interview Statum Description CE / FM 10.30 SPT (45/10,11,11,4) 10.30 -231 CE / FM 11.80 SPT (45/10,11,11,4) 10.30 -231 CE / FM 11.80 SPT Helds Interview Dere brown hits smh/finite locares incurded to angular GRAVEL 11.80 SPT Helds Interview Section Testing Deres brown hits smh/finite coares incurded to angular GRAVEL 11.80 SPT Helds Interview Section Testing Deres brown hits smh/finite coares incurded to angular GRAVEL 11.80 SPT Helds Transfer Testing Deres brown hits smh/finite coares incurded to angular GRAVEL 11.80 SPT Transfer Testing Section Testing Deres transfer Mither Coares incurded to angular GRAVEL 11.80 SPT Transfer Testing Section Testing Deres transfinite	U									Level: 7.99 m AOD	90
Bittless Depth (m) Type Results (m) (m CD) Legend Stitzum Description 10.30 SPT (-510.11,11.14) 10.30	Client:- Dumfrie	es & Gallowa	ay Co	uncil						Dates: 12/01/2018-17/01/2018	Logged By CE / FM
Description Direction Direction <thdirection< th=""> <thdirection< th=""> <t< td=""><td></td><td></td><td></td><td></td><td></td><td>g</td><td>Depth (m)</td><td></td><td>Legend</td><td>Stratum Description</td><td></td></t<></thdirection<></thdirection<>						g	Depth (m)		Legend	Stratum Description	
10.30 SF1 (4.570,31,11,14) 10.30 2.51 10.30-11.80 B 11.80 -3.61 Perse trown silly standy line to coarse rounded to angular GRAVEL 11.80 -507 11.80 -3.61 Perse trown silly standy line to coarse rounded to angular GRAVEL 11.80 -507 11.60 -3.61 Perse trown silly standy line to coarse rounded to angular GRAVEL 11.80-12.40 0 0 N/1 -3.61 Perse trown silly standy line to coarse rounded to angular GRAVEL 11.80-13.00 0 0 N/1 -3.61 Perse trown silly standy line to coarse rounded to angular GRAVEL 11.80-13.00 0 0 N/1 -3.61 Perse trown silly standy line to coarse rounded to angular GRAVEL 11.80-13.00 0 0 N/1 -4.41 Persenting coarse rounded to angular GRAVEL 13.30-13.00 100 42 0 25 Persenting coarse rounded to angular GRAVEL 13.30-15.00 100 41 18 -500 Persenting coarse rounded to angular GRAVEL 13.00-15.01 100 41 18 <t< td=""><td></td><td></td><td>туре</td><td></td><td>esuits</td><td></td><td>()</td><td></td><td></td><td>Soft grey CLAY of intermediate plasticity with closely s</td><td>paced -</td></t<>			туре		esuits		()			Soft grey CLAY of intermediate plasticity with closely s	paced -
Inso Set Inso 3.81 11.80 -0 -11.60 -3.81 11.80 -12.40 -3.81 -1.00 -1.00 -1.00 11.80 -12.40 -0 -1.00 -3.81 -1.00 -1.00 -1.00 -1.00 11.80 -12.40 -1.41 -3.81 -1.00 <td< td=""><td></td><td>10.30</td><td>SPT</td><td></td><td></td><td>,14)</td><td>10.30</td><td>-2.31</td><td></td><td>Dense brown silty sandy fine to coarse rounded to and</td><td>ular GRAVEL</td></td<>		10.30	SPT			,14)	10.30	-2.31		Dense brown silty sandy fine to coarse rounded to and	ular GRAVEL
Interference Integer Integer </td <td></td> <td>10.30-11.80</td> <td>В</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- </td>		10.30-11.80	В								-
11.80-12.40 125 for 75mm0 for 75mm0 / 0					N ==						
Instruction 0 0 Azcc 12.40 -4.41 11.80-13.30 B B Azcc 12.40 -4.41 11.80-13.30 D0 42 D Z				for 75m	nm/50 f			-3.81	* * * * * * * * *		11.6 - 13.3m
13.30-13.90 100 42 0 1 13.30 -5.31 13.30-13.90 100 42 0 1 13.30 -5.31 13.30-13.90 100 42 0 1 13.30 -5.31 13.30-13.90 100 42 0 1 13.30 -5.31 13.90-15.00 100 41 18 - - - - 13.90-15.00 100 41 18 - - - - - 13.90-15.00 100 41 18 -	Ŭ			0	0		12.40	-4.41		fine to coarse grained META-SANDSTONE (wacke) w 15mm thick Quartz veins, slightly weathered, Recover	sh grey, ith sub mm to
13.30-13.90 100 42 0 N 13.30-13.90 100 42 0 Z5 13.30-13.90 100 42 0 Z5 13.30-13.90 100 41 18 Storag, Gark purplish grey Cuartz very closely to closely spaced. 13.30-15.00 100 41 18 -6.36 Storag, Gark purplish grey closely to closely spaced. 15.00-16.10 86 56 0 Storag, Gark purplish grey closely to closely spaced. 15.00-16.10 86 56 0 Storag, Gark purplish forward started to approxe to completely weathered. 16.10-17.50 100 24 8 Storag, Gark purplish forward started to approxe to completely weathered. 16.10-17.50 100 24 8 To surface dips approx to degrees, purplish torward, there to be space. 16.10-17.50 100 24 8 To surface dips approx to degrees, purplish torward, there to be space. 16.10-17.50 100 24 8 To surface dips approx to degrees, purplish torward, the to be support to completely weathered. 16.10-17.50 100 24 8 To sufface dips approx to degreese, purplish torward, the toreded, weakly foli			83							ŭ	/ / / / /
13.90-15.00 100 41 18 25 13.90-15.00 100 41 18 -500 14.55 -6.56 -6.56 -6.56 -6.56 15.00-16.10 86 56 0 -7.21 15.00-16.10 86 56 0 -7.26 15.00-16.10 86 56 0 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 16.10-17.50 100 24 8 -7.26 17.50 -9.51 -7.26 -7.26 <		13.30-13.90	100	42	0	25	13.30	-5.31	· · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · · ·	META-SANDSTONE (wacke) with sub mm to 15mm t to pinkish grey Quartz veins, slightly weathered.	hick light greenish
13.90-15.00 100 41 18 14.35 -5.6 13.90-15.00 100 41 18 -50 -5.6 14.55 -5.6 -5.6 -5.6 -5.7 -5.6 15.00-16.10 86 56 0 -7.21 -5.6 15.00-16.10 86 56 0 -7.21 -7.26 15.00-16.10 86 56 0 -7.21 -7.26 15.00-16.10 86 56 0 -7.21 -7.26 15.00-16.10 86 56 0 -7.21 -7.26 15.00-16.10 86 56 0 -7.21 -7.26 -7.26 15.00-16.10 86 56 0 -7.21 -7.26										Set 1: 0 - 30 degrees, very closely to closely spaced,	lating
15.00-16.10 86 56 0 -7.21 -7.26 -7.21 15.00-16.10 86 56 0 -7.26 <td></td> <td>13.90-15.00</td> <td>100</td> <td>41</td> <td>18</td> <td></td> <td></td> <td></td> <td></td> <td>rough, tight to partly open. Set 2: 45 - 90 degrees, very closely to closely spaced, persistance observed to 200mm, terminating at interse rock, planar to undulating, smooth to rough, tight to pa</td> <td>ection or in</td>		13.90-15.00	100	41	18					rough, tight to partly open. Set 2: 45 - 90 degrees, very closely to closely spaced, persistance observed to 200mm, terminating at interse rock, planar to undulating, smooth to rough, tight to pa	ection or in
15.00-16.10 86 56 0 15.00-16.10 86 56 0 16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 17.50 -50 17.50 -9.51 18.00-110.10 100 24 8 19.00 100 24 8 19.00 100 24 8 10.10 100 24 8 110.10 100 24 8 110.10 100 24 8 110.10 100 24 8 110.10 100 24 8 111.50 100 24 8 111.50 -9.51 -9.51 -9.51 Immunologic particle date purplish brown, fine to medium graened metas particle date purplish prown, fine to medium graened metas particle date purplish prown, fine to medium graened metas particle date purplish prown, fine to medium graened metas particle date purplish prown, fine to medium graened metas particle date purplish prown, fine to medium graened metas particle date purplish prown, fine to medium graened metas particle date par						AZCL				Soft to extremely weak, foliated (dip approx 70 degree purplish brown, FAULT ROCK including light pinkish g	s), irey Quartz
16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 16.10-17.50 100 24 8 17.50 -9.51 17.50 -9.51 Image: Second		15.00-16.10	86	56	0		15.25	-7.26		25 degrees. Discontinuities in random orientations in top 100mm b	elow which
16.10-17.50 100 24 8 >50 16.10-17.50 100 24 8 >50 16.10-17.50 100 24 8 >50 17.50 100 24 8 >50 17.50 100 24 8 >50 17.50 -9.51 Trian development Los flux brown, frue to highly weathered. Discontinuities, extremely closely spaced in random orientations, terminating at intersection where seen, undulating, rough, tight to open. Los flux brown, crushed FAULT ROCK Weak to strong, thinky to medium bedded, weakly foliated (dipping 30 - 45 degrees), dark greensin to purplish grey motified dark purplish brown, frue to medium grained META-SANDSTONE and subordinate META-SILTSTONE with light grey Veins, moderately to highly weathered. Discontinuities; Set 1: 0 - 45 degrees, extremely closely to closely spaced, terminating at intersection where seen, planer to undulating, rough to smooth, occasionally with cushed Siltstone fill to 20mm thick. Set 2: 50 - 90 degrees, very closely to medium spaced, persistance observed to 150mm, terminating at intersection or in rock where seen, planar to undulating, rough to smooth, tight to partly open. TOR SCR RQD FI Remarks: Hand excavated service clearance from GL - 1.2m *Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 4.1m SPT Hammer HOO3 Scale Log Stat									· · · · · · · · · · ·		
Firm, dark purplish brown, crushed FAULT ROCK Weak to strong, thinly to medium bedded, weakly foliated (dipping 30 - 45 degrees), dark greensin to purplish grey mottled dark purplish brown, fine to medium grained META-SANDSTONE and subordinate META-SILTSTONE with light grey Veins, moderately to highly weathered. Discontinuities; Set 1: 0 - 45 degrees, extremely closely to closely spaced, terminating at intersection where seen, planer to undulating, rough to smooth, occasionally with crushed Siltstone fill to 20mm thick. Set 2: 50 - 90 degrees, very closely to medium spaced, persistance observed to 150mm, terminating at intersection or in rock where seen, planar to undulating, rough to smooth, itight to partly open. TCR SCR RQD Fi Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Statestore of the security		16.10-17.50	100	24	8	>50				purplish grey mottled dark purplish brown, fine to med grained META-SANDSTONE and subordinate META- light grey Veins, moderately to highly weathered. Discontinuities, extremely closely spaced in random orientations, terminating at intersection where seen, undulating, rough, tight to open.	ium /[
Remarks: Hand excavated service clearance from GL - 1.2m * Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 4.1m 17.50										· · · · ·	F
Image: Top artly open. Image: Top artly open. Image: Top artly open. End of Borehole at 17.50 m Image: Top artly open. Image: Top artly open. Image: Top artly open. End of Borehole at 17.50 m Image: Top artly open. Image: Top artly open. Image: Top artly ope							17.50	-9.51		Weak to strong, thinly to medium bedded, weakly folia (dipping 30 - 45 degrees), dark greensih to purplish gr mottled dark purplish brown, fine to medium grained META-SANDSTONE and subordinate META-SILTSTT Veins, moderately to highly weathered. Discontinuities Set 1: 0 - 45 degrees, extremely closely to closely spa terminating at intersection where seen, planer to undu rough to smooth, occasionally with crushed Siltstone f 20mm thick. Set 2: 50 - 90 degrees, very closely to medium spaced persistance observed to 150mm, terminating at interse	ey DNE with light grey ; ced, lating, Il to , ction or in
TCR SCR RQD FI Remarks: Hand excavated service clearance from GL - 1.2m * Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 4.1m SPT Hammer Scale Log State										to partly open.	i, ugit
Remarks: Hand excavated service clearance from GL - 1.2m * Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 4.1m HO03 HO03 HO03 HO03										End of Borehole at 17.50 m	
* Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 4.1m			TCR	SCR	RQD	FI					-
Groundwater encountered at 4.1m	Remark	* Denotes visu	al asses	sment of	descript	GL - 1.2r ion base	m ed on air flu	ushed bore	hole return	SPT Hammer S	cale Log Statu
Borehole terminated on engineers instruction 1:50 Final 63mm diam HDPE Gas / Groundwater monitor installed to 12.0m		Groundwater e Borehole termi	encounter inated or	red at 4.1 enginee	1m ers instru	ction				HQ03	I:50 Final

		Н	OLEQUE LIMITED	ST	Winst	uest Ltd ton Road	Borehole N BH8-OP	
		7	LIMITED))1896 752	295 Sheet 1 of	2
Project N	ame			Pr	oject N	No.	Hole Type	Э
Newton S	Stewart FP	S		17	7/082		Co-ords: 241250E - 565099N Rotary	
Drilling Mo	ethods:- Ro	otary op	oen hole, Symetrix 17 ored, T2101 water flu	70mm d	iam, GL	- 10.3m	Level: 9.44 m AOD	۱
			fied, 12101 water no	1511, 10.	5 - 15.21		90	
Client:- Dumfries	& Gallowa						Dates: 16/01/2018-15/02/2018 Logged By MT / CE / FI	
ell Water Strikes	Sample Depth (m)	es & In Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend	Stratum Description	
		51		0.10	9.34		TARMAC	
	0.30 0.30	B ES		0.30	9.14		MADE GROUND comprising Light grey slightly silty sandy fine to coarse subrounded to angular Gravel (Sub-Base)	ł
	0.50 0.50	B ES		0.50	8.94		ADE GROUND comprising Black silty gravely to very gravely	4
	1.00	в		1.00	8.44		fine to coarse Sand (possibly slightly organic), Includes	È
	1.00	ES	N 40	1.20	8.24		MADE GROUND comprising Grey silty gravelly fine to coarse	ł
	1.30	SPT	N=10 (2,4/3,2,2,3)				slightly organic Sand, Includes fragments of Brick and Ashy debris.	Æ
							Becoming brown in colour between 0.6 - 0.7m MADE GROUND comprising Brown silty very gravelly fine to coarse	ŀ
	1.30-2.80	в					Sand with medium cobble content, Includes Bricks and fragments of Brick / Clay Pipe.	-2
	22 2.00						MADE GROUND comprising Loose to medium dense dark grey brown	F
							silty fine to coarse Sand and fine to coarse angular to subangular Gravel with lenses of very clayey Sand and sandy	-
	2.80	SPT	N=14				gravelly Clay*	-
			(3,5/6,2,2,4)					-3
								-
	2.80-4.30	В						-
\square				3.80	5.64		Dense to very dense greyish brown becoming orangish brown with	Ē
						× × × ×	depth very silty sandy fine to coarse rounded subangular GRAVEL with low cobble and boulder content*	F
	4.30	СРТ	N=48 (10,11/11,13,10,14)			^```X``X X``X``X`		-
			(10,11,11,13,10,14)			× * * *		-
						×××××		÷.
	4.30-5.80	В				^```X``X` X``X``X`		
						×- * * *		-
	5.80	CPT	N 50			× × × ×		-
	5.60		N=50 for 75mm/50 for 75m	m)		× × × × × × ×		-6
						× * × *		F
	5.80-7.30	В				$\stackrel{\times}{\underset{\times}{\overset{\times}{\xrightarrow}}}$		F
						× × × × × × *		F
						$\times \times \times \times$		-7
	7.30	СРТ	N=50	7.30	2.14	× × × ×	Very dense orangish brown very clayey sandy fine to coarse	ŧ
			(12,13/50 for 75mm)				rounded subangular GRAVEL with low cobble and boulder content*	ŀ
								-
	7.30-8.80	В						-8
								ŀ
								-
	8.80	CPT (25	N=50 for 75mm/50 for 75mi	m)				
		Ì		·				F
	0 00 40 00			9.30	0.14	0.0000	Very dense grey brown slightly silty gravelly COBBLES with low boulder content predominantly of Meta-sandstone (wacke)*	ŧ
	8.80-10.30	В					Content predominantly of Meta-SaliuStone (Wacke)	F
		T 1	Deculto			0.0.0.0.0.0		F
emarks:	Hand excavate	Type	Results e clearance from GL - 1.2r	1 m			Continued next sheet SPT Hammer Scale Log Sta	
	* Denotes visu Groundwater e	al asses	sment of description base	ed on air fl	ushed bor	ehole returns	11000	
	Borehole term	inated or	engineers instruction s / groundwater monitor in				HQ03 1:50 Final	

			Н	ΟĻ	EQ	UE	ST	Holeq Winst Galas	uest Ltd on Road hiels				orehole No 18-OP6
				LI.			,		1896 752	2295		SI	neet 2 of 2
-	ect Na							oject N	lo.	Co-ords: 24125	0E - 565000N	H	lole Type
		stewart FP						/082		0-0103. 24125	0E - 3030991N		Rotary
Drill	ing Me	ethods:- Ro Ro	tary op tary co	pen hol pred, T2	e, Sym 2101 w	etrix 17 vater flu	70mm di Ish, 10.3	am, GL 5 - 15.2n	- 10.3m า	Level: 9.44 m	AOD	0	rientation 90
Clie											2018-15/02/2018	L	ogged By
Dun	nfries	& Gallowa	•						r	Dates: 16/01/	2016-15/02/2016	MT	/ CE / FM
Well	Water Strikes	Sample Depth (m)	es & In Type		Testin Results	g	Depth (m)	Level (m CD)	Legend		Stratum Description		
							10.00	-0.56	· · · · · · · · · ·	Grey META-SANDSTON	E / META-SILTSTONE*		-
		10.30	CPT (25	for 75r	N =50 nm/50 f 20	or 75m	10.30 m)	-0.86		Strong to medium strong,	locally weak, thickly bec	lded (dip	
		10.30-10.80	80	70	20				· · · · · · · · ·	30deg), dark reddish brow to medium grained META	SANDSTONE, with sub	ordinate	-
		10.80-12.10	85	72	59	7				METASILTŠTONE, with Slightly to moderatley were Discontinuities. Set1; 0-35deg, close to m intersection where seen, p tight to partly open. Set2; 60-90deg, extremely 660mm, terminating at int undulating, smooth to rou Both sets with reddish da	athered. edium sapced, terminati planar to undulating, sm / close to medium space ersection where seen, p gh, tight to open.	ing at both to rough ed, persistan	- 11 - 11
		12.10-13.70	94	62	50	15							- 13
		13.70-15.20	100	82	61		15.20	-5.76					-14 -15
							15.20	-5.70		Er	nd of Borehole at 15.20 m		-
													-
													-
													- 16
													-
													-
													-17
													-
													-
													-
													- 18
													-
													-
													- 19
			TOP	0.022	DOD	-,							
Rem	arks:	Hand excavate	TCR	•	RQD	FI GI - 1 2	n	I				Scale	
		* Denotes visua Groundwater e	al asses: ncounter	sment of red at 3.	f descript 8m	tion base	d on air flu	ished bore	hole returns	3	SPT Hammer HQ03		Log Status
		Borehole termi 63mm diam HI	nated on	n enginee	ers instru	iction nonitor in	stalled to	10.0m				1:50	Final

	H		Н	OLEQUE	ST	Winst Galas	uest Ltd on Road hiels 1896 7522	295		Bł	orehole No H9-OP6 neet 1 of 2
Pro	ject Na	ame			Pr	oject N	lo.				lole Type
		tewart FP				7/082		Co-ords: 24129	5E - 564986IN		ble/Rotary rientation
Drill	ling Me	ethods:- Ro Ro	otary op otary co	en hole, Symetrix 17 red, T2101 water flu	′0mm di sh, 12.4	iam, GL 1 - 17.4n	- 12.4m n	Level: 8.46 m	n AOD		90
Clie	ent:-									L	ogged By
Dur	nfries	& Gallowa	ay Cou	uncil				Dates: 17/01/	2018-12/02/2018		/ CE / FM
Well	Water Strikes	Sample Depth (m)	es & In Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend		Stratum Description		
		0.20	ES		0.10	8.36		TARMAC			
		0.30 0.50	B ES		0.30	8.16		MADE GROUND compris subrounded to angular Gr		ndy fine to co	barse
								Firm locally soft grey moth sandy silty CLAY of very h			-
	2	1.00	ES					of silty Sand and pockets	of organic debris.		-1
					1.20	7.26		Firm grey mottled brown a CLAY with occasional len	and rarely black slightly s	andy silty	nic
		1.30-1.75	U				전 전 전 전 전 전 전 전	debris*	ses of siny Sand and po	ckets of orga	
											-2
		1.30-2.80	В		2.20	6.26		Very dense dark brown to	light brown silty to yony	silty fing to	
								coarse SAND and fine to includes fragments of tim	coarse rounded to angul	ar GRAVEL	that ⁻
		2.80	SPT	N=50				rootlets*			-
			(25	for 75mm/50 for 75mr	n)						-3
											-
		2.80-4.30	В		3.50	4.96	× × × *	Very dense light brown sli rounded to angular GRAV	ghtly silty sandy fine to o	oarse	ler -
							×- × × × ×	content*			-4
		4.30	SPT	N=50			× × × *				
		4.30	(25	for 75mm/50 for 75mr	n)		×. * × *				-
							× × × * × *				10. 11. 10.
		4.30-5.80	в				^```X``X` X``X`X`X				-5
							× × × ×				-
							× × × × × ×				-
		5.80	CPT ('	N=50 0,12/24,26 for 75mm)			×- ×- ×- ×- ×				-6
							× × × ×				
		5.80-7.30	в				× × × × ×				n. 1
							×- × × × × ×				m. m.
							× × × × × × ×				-7
		7.30	CPT (9	N=50 12/13,12,25 for 75mm)		× × × × × ×				
			,,,				× × * × × × *				- - -
		7.30-8.80	в				× × × ×				-8
							× × × *				
		8.80	SPT	N=36 (9,9/10,8,7,11)	8.80	-0.34	× × *	Dense to very dense dark	brown to brownish grev	silty verv sar	ndy
				(3,3110,0,1,11)			× × × * × × × *	fine to coarse GRAVEL w content*	ith low to high cobble an	d boulder	-9 4
		0.00.10.55					× * × *				
		8.80-10.30	В				× × × × × ×				
₩ ₩			Туре	Results			× × ×		Continued next sheet		2teordered E
Rem	harks:		d service	clearance from GL - 1.2n		· · · ·	· · ·		SPT Hammer	Scale	Log Status
		Groundwater e Borehole termi	ncounter nated on	engineers instruction			endle returns		HQ03	1:50	Final
		63mm diam HI	DPE Gas	/ groundwater monitor in	stalled to	10.0m					

		H	ÕŤ	EQ	UE	ST	Holeq Winst Galas	uest Ltd on Road	Borehole No.	
		7	ΓĮ	MI	гег)		1896 752	295 Sheet 2 of 2	2
Project N	ame					Pr	oject N	۱o.	Hole Type	•
	Stewart FP						7/082		Co-ords: 241295E - 564986N Cable/Rotar	-
Drilling M	ethods:- Ro	otary op	oen ho ored. T	le, Syn 2101 y	netrix 1 vater flu	70mm d Jsh, 12.4	iam, GL 4 - 17.4n	- 12.4m n	Level: 8.46 m AOD	
<u></u>			, 100, 1	21011					90	
Client:- Dumfries	& Gallowa	av Co	uncil						Dates: 17/01/2018-12/02/2018 Logged By MT / CE / FN	
ell Water		-		Testir	าต	Depth	Level			/1
Strikes	Depth (m)	Туре		Results		(m)	(m CD)	Legend	Stratum Description	
	10.30	SPT		N=50				×. ×. ×. *. ×	Dense to very dense dark brown to brownish grey silty very sandy fine to coarse GRAVEL with low to high cobble and boulder content*	-
		(25	for 75	mm/50	for 75m	m)		× × × *		-
						10.80	-2.34	×. *	Grey META-SANDSTONE / META-SILTSTONE*	-
	10.30-11.80	В								-
								· · · · · · · · ·	-	-
								· · · · · · · · · · · · · · · · · · ·		-
	11.80	SPT (25	for 75	N=50 mm/50	for 75m	m)		· · · · · · · ·	-	_
									-	-
						12.40	-3.94		Strong, thick bedded (dip 60 degrees), dark reddish brown	-
					AZCL			· · · · · · · · ·	occasionally red, fine to coarse grained METASANDSTONE with sparse light greenish and pinkish grey quartz veins to 10mm,	-
					NI	-			Discontinuities.	-
	12.40-14.00	63	38	16		-			Set 1; dipping 0 - 20 degrees, extremely closely to wide spaced, terminating at intersection where seen, planar to undulating, smooth to rough, tight to partly open.	-
								· · · · · · · · ·	Set 2; dipping 45 - 90 degrees, extremely closely to closely spaced, persistance observed to 220mm, terminating at	-
								· · · · · · · · ·	intersection or in rock, undulating, rough, tight to open.	-
								· · · · · · · ·	Cobbles between 13.0 - 13.3m	-
					18			· · · · · · · · ·		-
	14.00-15.50	100	81	63				· · · · · · · · ·	-	-
								· · · · · · · · · · · · · · · · · · ·	Extremely weak to medium strong, variably brecciated	
								· · · · · · · ·	METASANDSTONE between 15.0 - 16.5m	-
					_					-
					. 50			· · · · · · · · ·		-
	15.50-16.50	100	16	0	>50			· · · · · · · · ·		- '
										-
									- T	-
	16.50-17.40	94	82	38	20					-
							_	· · · · · · · · · · · · · · · · · · ·	Ē	-
						17.40	-8.94		End of Borehole at 17.40 m	-
										-
									- F	- '
									- F	-
									Ì	-
										-
									ļ	-
									- F	-
										-
		TCR	SCR	RQD	FI					-
emarks:	Hand excavate * Denotes visu	d service	e cleara	nce from	GL - 1.2	m ad on air f	ushed har	abole returns	SPT Hammer Scale Log State	tu
	Groundwater e Borehole termi	encounte	red at 3	.0m .		sa on dif Ti	uoneu DOle		HQ03 1:50 Final	
	63mm diam H					nstalled to	10.0m			

		H	OLEQUE LIMITED	ST	Winst	uest Ltd on Road		Borehole No BH11-OP
			LIMITED)	Galas	hiels 1896 752	205	
	lama							Sheet 1 of 2 Hole Type
Project N	lame Stewart FP	2			oject N 7/082	NU.	Co-ords: 241241E - 565493N	Rotary
			pen hole, Symetrix 17			- 13 3m		Orientation
	Ro	otary of	pred, T2101 water flu	sh, 13.3	an, GL 3 - 17.8n	n 13.311	Level: 8.25 m AOD	90
Client:-								Logged By
	& Gallowa	ay Co	uncil				Dates: 25/01/2018-02/02/2018	MT / CE / FM
ell Water Strikes	Bample Depth (m)		Situ Testing	Depth (m)	Level (m CD)	Legend	Stratum Description	-
		Туре	Results	(11)			Dark brown clayey very sandy gravelly TOPSOIL with	
	0.20 0.20	B ES					content and occasional medium to coarse gravel size grey mottled orange firm silty Clay	ed pockets of
	0.50	ES						-
	0.90	в		0.90	7.35			
	1.00	ES		1.20	7.05		Black very clayey gravelly fine to medium organic SA cobble content	ND with low
	1.30	SPT	N=11 (1,1/1,2,3,5)			×××××	Medium dense dark brown very silty gravelly fine to co (possibly slightly organic)*	parse SAND
							(Possibly organic)	Ē
	4 00 0 00							-
	1.30-2.80	В				XXXX		-
								- -
								-
				3.10	5.15			-
				3.10	5.15		Firm light grey brown slightly sandy slightly gravelly s CLAY*	ilty
	2.80-4.30	в						-
				3.70	4.55		Medium dense to dense greyish brown clayey fine to	
							and fine to coarse rounded to subangular GRAVEL ir possible thin lenses of Clay*	icludes
	4.30	SPT	N=26					Ē
			(6,7/6,7,7,6)					-
								[
	4.30-5.80	В						-
		0.07	N. 10					-
	5.80	SPT	N=40 (8,9/10,9,10,11)					-
$ $ ∇				6.20	2.05		Very dense grey silty sandy fine to coarse rounded to	
	5.80-7.30	в				× × × ×	GRAVEL with low cobble and boulder content*	
	0.00 1.00					× × × ×		
						* * * *		-
	7.30	SPT	N=50			× × × × ×		F
			(10,11/50 for 75mm)			× × × × × × ×		
						× × × ×		Ļ
	7.30-8.80	В				× × × *		-
						× × × × × × ×		
						× × × ×		-
	8.80	SPT (25	N=50 for 75mm/50 for 75mr	n)		× × × *		-
						× × × × × × ×		
		_				× × × ×		Ē
	8.80-10.30	В				× × × *		F
		L				* * * *		r r
emarke	Hand over at		Results e clearance from GL - 1.2r	n	I			
oniario.	* Denotes visu Groundwater e	al asses	sment of description base	d on air flu	ushed bore	ehole returns	11000	Scale Log State
	Borehole term	inated or	engineers instruction Groundwater monitor in				HQ03	1:50 Final

			Η	0LI	EQ	UE	ST	Winst	uest Ltd on Road				rehole N 11-OF	
				LII	MI	ΓEΓ)	Galasl Tel· 0	hiels 1896 752	95			neet 2 of	
Proi	ect Na	ame					Pr	oject N					lole Type	
-		Stewart FP	s					7/082		Co-ords: 241241E - 565493	N		Rotary	
		ethods:- Ro		pen hole	e. Svm	etrix 1			- 13.3m				rientation	n
	5	Ro	tary co	ored, T2	101 w	ater flu	ush, 13.3	3 - 17.8m	1	Level: 8.25 m AOD			90	
Clie		& Gallowa	av Col	uncil						Dates: 25/01/2018-02/02/	2018		ogged By	
Well	Water	Sample	es & Ir	n Situ T		g	Depth	Level	Legend	Stratum Daga	intion		/ CE / FI	
: : : : : : : : : : : : : : : : : : :	Strikes	Depth (m)	Туре	R	esults		(m)	(m CD)		Stratum Descu Very dense grey silty sandy fine to coarse	-	ubangul	ar	╞
		10.30	SPT (25	for 75m	N=50 nm/50 f	or 75m	m)			GRAVEL with low cobble and boulder con		ubungu		
		10.30-11.80	В						× × × ×					- 11 - - - -
		11.80	SPT (25	for 75m	N=50 nm/50 f	or 75m	m)							- 12
		11.80-13.30	В				12.40	-4.15		Grey META-SANDSTONE / META-SILTS	TONE*			-13
		13.30	SPT (25	for 75m	N=50 nm/50 f	or 75m >50	- 13.30 m)	-5.05		Strong, locally medium strong, thin to tickl 30-50deg), dark grey, fine to medium grai occasional metamudstone laminae and lig pinkish grey quartz / haematite veins to 10	hed METASA	NDSTO grey to	NE with	-
		13.30-14.80	83	53	30	26 >50				moderately weathered. Discontinuities. Set1; 5-30deg, very close to close spaced intersection where seen, planar to undulat tight to part open. Set2; 40-90deg, very close to close space terminating at intersection, planar to undu rough, tight to part open. Patchy orangish	, terminating ing, smooth t d, persistent lating, smootl	at o rough to 200m n to		- 14 - - - - -
		14.80-16.30	100	87	72	14				coating occassional sub mm fill.				- 15
		16.30-17.80	97	69	42	>50	-							- - - - - - - - - - - -
						22	17.80	-9.55		End of Borehole at 17	.80 m			
														- - - - - - - - - - - - - - - - - - -
Rem	arks:	Hand excavate * Denotes visua Groundwater e Borehole termi 63mm diam HI	al asses ncounte nated or	sment of red at 6.2 n engineer	ce from descript m rs instru	tion base	ed on air fli		hole returns	SPT Ham HQ03		cale :50	Log Sta Final	

		H	OLEQUE LIMITEI	ST		on Road					Borehole N H12-O	
			LIMITEI)	Galasl Tel: 0	nels 1896 75229	95				Sheet 1 of	
Project N	ame			Pr	oject N						Hole Typ	
-	Stewart FP	s			7/082		Co-ords:	2413	304E - 565357N		Rotary	
Drilling M	ethods:- R	otary op	pen hole, Symetrix 1	70mm di	am, GL	- 13.9m	Lovali	0.04		(Orientatio	'n
	K	stary co	ored, T2101 water fl	usn, 13.9	9 - 18.80	1	Level:	0.31	m AOD		90	
Client:- Dumfries	& Gallowa	ay Co	uncil				Dates:	18/0	1/2018-12/02/2018	2	Logged B IY / RR / I	
ell Water Strikes	Depth (m)	es & Ir Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend			Stratum Description			
	0.20	ES		0.20	8.11		Dark brown silt	y sandy	TOPSOIL with some root	lets and low	/ to	Ţ
2.5	0.20	B ES				× × × ×	Grey brown loc	ally slig	htly organic at top clayey	sandy fine to	⁄	Ē
	0.50	B				×·^ × ×	coarse roundec content	d to subi	rounded GRAVEL with hig	h cobble ar	nd boulder	-
-	1.00	ES				^``*`* *```*`*						Ļ
\Box	1.00 1.30	B SPT	N=50	1.20	7.11	x. × x.	Verv dense bec	comina	nedium dense with depth	arev silty ve	erv	-
	1.00		for 50mm/31,19 for 25	āmm)		×		barse ro	unded to subangular GRA			-
						× × ×						-
	1.30-2.80	в				× * * *						-2
						× × × ×						
						× × ×						-
	2.80	SPT	N=40 ,15 for 25mm/14,6,9,7	11)		× × × *						Ē
			,10101201111/14,0,0,	,		× × × ×						
						× × × ×						F
	2.80-4.30	В				× × × *						Ē
						× × × ×						-
	1.00	0.07				× × × *						-
	4.30	SPT	N=17 (3,6/6,4,4,3)			×- × , × , *						
						× × ×						
	4.30-5.80	в				× × × *						- {
						×- × × × × ×						-
						× × × ×						-
	5.80	SPT	N=21			×- × × ×						-
			(2,3/3,4,7,7)			×- * × *						-6
						~`````````````````````````````````````						F
	5.80-7.30	В				× × × ×						ŀ
						× × × ×						- -
						× × × × × × ×						-7
	7.30	SPT	N=20 (1,3/5,3,5,7)			×- × × *						ŀ
				7.80	0.51	× × × ×						-
	7.30-8.80	в		1.00	0.01		Firm grey slight	tly sand	y locally slightly gravelly s	ilty CLAY*		-8
												ŀ
												ŀ
	8.80-9.25	U										-9
						동송품						ŀ
	8.80-10.30	В										E
												F
<u> </u>		Туре	Results	1					Continued next sheet			
emarks:	* Denotes visu	al asses	e clearance from GL - 1.2 sment of description base	ed on air flu					SPT Hammer	Scale	Log Sta	atu
	Groundwater i	ngress fro inated or	om surface in service cle engineers instruction	arance and	a encounte	rea trom 1.3m			HQ01	1:50	Fina	al

Strikes Sam I Water Sam Depth (n 10.30-10.1 10.30-11.1 10.30-11.1 11.80 11.80 13.30 13.30 13.30-13.1 13.90 13.90-15.1 13.90-15.1 15.30-16.1 16.80-18.1	R	Η	OLE	QUE	ST	Holeq Winst Galas	uest Ltd on Road hiels		Borehole No BH12-OP
Newton Stewart F Drilling Methods:- Client:- Dumfries & Gallor ell Water Strikes Depth (rr 10.30-10.1 10.30-11.1 11.80 11.80 13.30 13.30 13.90 13.90-15.1 15.30-16.1 16.80-18.1		2		ITEI	ر 		1896 752	95	Sheet 2 of 2
Villing Methods:- Dumfries & Gallor ell Water Sam Strikes Depth (m 10.30-10.1 10.30-11.1 11.80 11.80-13.1 13.30 13.30-13.1 13.90 13.90-15.1 15.30-16.1 16.80-18.1					Pr	oject N	lo.		Hole Type
Summerical Same ell Water Same Strikes Depth (m 10.30-10.1 10.30-10.1 10.30-11.1 11.80 11.80 11.80 13.30 13.30 13.90 13.90 13.90-15.3 13.90 15.30-16.4 16.80-18.3	Stewart FF	S			17	7/082		Co-ords: 241304E - 565357N	Rotary
Strikes Sam ell Water Sam Strikes Depth (n 10.30-10.1 10.30-11.1 10.30-11.1 11.80 11.80 11.80 13.30 13.30 13.90 13.90 13.90-15.3 13.90 15.30-16.4 16.80-18.3	/lethods:- Ro	otary o	pen hole, S	Symetrix 1 01 water fl	70mm d	iam, GL	- 13.9m	Level: 8.31 m AOD	Orientation
Summer line Same line ell Water Depth (m Instruction Instruction Instruction Instruction				or water ii	usii, 15.3	9 - 10.01			90
 Strikes Depth (rr 10.30-10. 10.30-11.1 11.80 11.80 11.80-13.1 13.30 13.30-13.1 13.90 13.90-15.1 15.30-16.1 16.80-18.1 		-			1	1	1	Dates: 18/01/2018-12/02/2018	Logged By BMY / RR / FN
10.30-11.4 11.80 11.80-13.4 13.30 13.30-13.4 13.90 13.90-15.4 15.30-16.4 16.80-18.4	er Sample S Depth (m)	ES & II	n Situ Te Res		Depth (m)	Level (m CD)	Legend	Stratum Description	
10.30-11.4 11.80 11.80-13.4 13.30 13.30-13.4 13.90 13.90-15.4 15.30-16.4 16.80-18.4								Firm grey slightly sandy locally slightly gravelly silty	CLAY*
10.30-11.4 11.80 11.80-13.4 13.30 13.30-13.4 13.90 13.90-15.4 15.30-16.4 16.80-18.4	40.00.40.75							No recovery of U100 between 10.3 - 10.75m	-
11.80 11.80-13. 13.30 13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	10.30-10.75	U					고호프 -		-
11.80 11.80-13. 13.30 13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	40.00.44.00	В					<u></u> -		-
11.80-13. 13.30 13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	10.30-11.80	В							-
13.30 13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	11.80	SPT (8,		=50 5,8 for 25m	11.50 m)	-3.19		Very dense grey silty sandy fine to coarse rounded t GRAVEL with high cobble and boulder content*	o subangular
13.30 13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.							× × × × × ×		-
13.30 13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	11 80-13 30	в					× × × ×		-
13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	11.00-13.30						×. * × *		-
13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.							× × × *		-
13.30-13. 13.90 13.90-15. 15.30-16. 16.80-18.	13 30	SPT	N=	=50			× × ×		-
13.90 13.90-15. 15.30-16. 16.80-18.		(10, ⁻ B	15 for 25mi	m/50 for 50	mm) 13.50	-5.19	× × •×	Grey META-SANDSTONE / META-SILTSTONE*	
13.90-15. 15.30-16. 16.80-18.							· · · · · · · · ·	GIEV META-SANDSTONE / META-SIETSTONE	-
15.30-16. 16.80-18.	13.90	SPT (2	25 for 5mm	=50 ∖/50 fo AZ6∂ lc	- 13.90 n)	-5.59	· · · · · · · ·	Strong, locally weak to medium strong above 15.0m bedded (dip40-60deg), dark grey, fine to medium gr	
15.30-16. 16.80-18.					1		· · · · · · · ·	METASANDSTONE with light grey quartz veins to 1	5mm (common
16.80-18.	13.90-15.30	82	43 1	18 >50			· · · · · · · ·	15.45-15.7m). Slightly, locally moderately weathered Discontinuities;	t
16.80-18.								Set1; 0-30deg, extremely close to wide spaced, term intersection where seen, planar to undulating, rough	
16.80-18.					-		· · · · · · · ·	open. Set2; 45-90deg, very close to medium spaced, pers	
16.80-18.							· · · · · · · · ·	260mm, terminating at intersection where seen, pla undulating, smooth to rough, tight to part open.	1
16.80-18.								Both sets with patchy dark brown coating to sub mm	1 TIII.
16.80-18.				17			· · · · · · · · ·		-
	15.30-16.80	100	83 4	42			· · · · · · · · ·		-
							· · · · · · · ·		-
							· · · · · · · ·		-
					1		· · · · · · · · ·		-
							· · · · · · · · ·		-
18.20-18.	16.80-18.20	100	90 6	68			· · · · · · · · ·		-
18.20-18.				7					
18.20-18.									-
18.20-18.									Ē
	18.20-18.80	100	100 10	00					- - -
					18.80	-10.49	<u></u>	End of Borehole at 18.80 m	
									-
									- -
		TCR	SCR R	QD FI	-				- - - -
emarks: Hand excav		ed servic	e clearance	from GL - 1.2		•	<u> </u>	SPT Hammer	Scale Log Statu
Groundwate	* Denotes visu Groundwater i Borehole term	ngress fi	rom surface i	in service cle				HQ01	1:50 Final

		Н	OLEQUE LIMITEI	ST		on Road		BH13-OP
			LIMITEI)	Galasl Tel: 0	hiels 1896 7522	95	Sheet 1 of 2
Project Na	ame			Pr	oject N			Hole Type
Newton S	Stewart FP	S			7/082		Co-ords: 241329E - 565280N	Rotary
Drilling Me	ethods:- Ro	otary op	pen hole, Symetrix 1	70mm di	am, GL	- 13.9m		Orientation
	Ro	otary co	ored, T2101 water fl	ush, 13.9) - 20.0n	n	Level: 8.09 m AOD	90
Client:-	0.0-11	0					Dates: 18/01/2018-07/02/2018	Logged By
	& Gallowa	•		1	1	<u> </u>		BMY / RR / FM
ell Water Strikes	Depth (m)	es & In Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend	Stratum Description	
	0.20	ES		0.10	7.99		Dark brown silty sandy TOPSOIL with many rootlets	
2.5	0.20 0.50	B ES		0.50	7.59	× × ×	Grey brown slightly organic very clayey sandy fine to co rounded to subangular GRAVEL with low cobble conte	parse
	0.50	B		0.00	1.00	× × × ×	Reddish brown silty sandy fine to coarse rounded to su	ıbangular
	1.00	ES				× × × ×	GRAVEL with low to medium cobble content	- - -
	1.00 1.30	B SPT	N=42	1.20	6.89	× × ×	Dense grey silty sandy fine to coarse rounded to subar	ngular
	1.00		(6,15/14,9,9,10)			× ^ × *	GRAVEL*	
						× × × ×		-
	1.30-2.80	в				× × × ×		
						× ^ × *		-
$ $ ∇						× × × × ×		-
	2.80	SPT	N=50			× × × ×		- • •
		(4,3	/12,14,14,10 for 50m			×		-: -: -
						× × × × ×		-
	2.80-4.30	В				× × × ×		-
				3.80	4.29	X . X	Soft to firm, locally stiff, grey slightly sandy slightly	
							gravelly silty CLAY with lenses of Sand and Gravel* (BD from 4.3m, Non Plastic)	
	4.30-4.75	U					No recovery of U100 between 4.3 - 4.75m	-
	4.30-4.75	0						-
	4 20 5 80	Б						
	4.30-5.80	В						-
								-
	5.80	SPT	N=27					- -
			(7,10/5,7,8,7)					
								-
	5.80-7.30	в						- - -
								- - -
	7.30-7.75	U						-
	7 00 0			8.00	0.09			-
	7.30-8.80	В		0.00	0.00	× × × *	Medium dense becoming very dense with depth grey s sandy fine to coarse rounded to subangular GRAVEL	lightly silty
						× * * *	high with depth cobble and boulder content*	-
	8.80	SPT	N=22			× × × × ×		-
	0.00		(6,6/7,4,3,8)			× × × ×		
						× * * *		
	8.80-10.30	в				× × × ×		-
						× × × × × ×		- - -
H. i.		Туре	Results	1		× × ×	Continued next sheet	n
emarks:		d service	e clearance from GL - 1.2					cale Log Statu
	 Denotes visu 	al assess	sment of description bas	ed on air flu	ushed bore	enole returns		

			Н	OL]	EQ	UE	ST	Holeq Winst Galas	uest Ltd on Road hiels					orehole N I13-OP	_ I
			7	LI	MLI	EL)		1896 752	295			SI	neet 2 of :	2
Proj	ect Na	ame					Pr	oject N	lo.				ŀ	lole Type	;
-		stewart FP	s					/082		Co-ords:	24132	9E - 565280N		Rotary	
Drilli	ing Me	ethods:- Ro	tary op	en hole	e, Sym	etrix 1	70mm di	am, GL	- 13.9m				0	rientation	n T
	0	Ro	tary co	ored, T2	101 w	ater flu	ısh, 13.9) - 20.0n	n	Level:	8.09 n	n AOD		90	
Clie	nt:-												L	ogged By	/
		& Gallowa	ay Col	uncil						Dates:	18/01/	2018-07/02/2018		/ / RR / F	
Well	Water	Sample	es & In	Situ T	estin	g	Depth	Level	Logond					, , .	
· · · · · · · · ·	Strikes	Depth (m)	Туре	R	esults		(m)	(m CD)	Legend	Madium danaa	.	Stratum Description		14	
		10.30 10.30-11.80	SPT (7 B	,11/13,1	N=50 5,22 fo	r 60mm))			sandy fine to co	arse roun	very dense with depth g ded to subangular GRA\ d boulder content*	/EL with low	to	- - - - - - - - - - - - - - - - - - -
		11.80 11.80-13.30	SPT (13, ² B	12 for 25	N=49 5mm/13	3,12,12	12)								
									* * * * * * *						- - -13
		13.30	SPT		N=50	on for n			^``x``X x``X``x``x						
		13.30-13.90	(13,12 B	for 50m	1m/18,3	32 TOF 23	omm)		× × × *						-
							13.90	-5.81	× × × *						
		13.90-14.60 13.90-14.80 14.80 14.60-15.10	B 71 SPT 2025	36 0 for 25m	21 N=50 nm/50 f	24		-0.01		brecciated, dark METASANDST cleaved metaminaematite veins Discontinuities. Set1; 10-30deg	c brownish ONE with udstone, li to 40mm , very clos	ded (dip70deg), extensiv grey, fine to medium gr occasional very thin par ght grey quartz and redo throughout. Moderately e to medium spaced, ter planar to undulating, sm	ained ings of very lish brown weathered. minating at	weak	- 14
		15.10-16.10	100	48	_042	11				300mm, termina undulating, smo	, very clos ating at inf ooth to rou	e to medium sapced, pe ersection where seen, p gh, tight to open. wn coatings to sub mm	lanar to		-16
		16.10-17.60	100	69	48	>50									- - - - - - 17
		17.60-18.90	96	69	46	25									- 18
		18.90-20.00	100	80	59	6 FI	.								- 19
Rom	arke	Hand excavate	TCR	SCR				I	<u> </u>		E	CDT Llaracian or	Seels		
Rein	iaiKS.	Hand excavate * Denotes visus Groundwater ir Borehole termi 63mm diam HI	al assess ngress fro nated on	sment of om surfac enginee	descript ce during rs instru	ion base g service ction	ed on air flu clearance	and enco		2.5m		SPT Hammer HQ01	Scale 1:50	Log Stat Final	tus

		H	OLEQUE LIMITED	ST	Winst	uest Ltd on Road		Borehole I BH14-O	
			LIMITED		Galasl		05	Sheet 1 o	
Project	Namo				oject N		93	Hole Typ	
-	Stewart FP	s			7/082	10.	Co-ords: 241386E - 565303N	Cable/Rota	
			pen hole, Symetrix 17			- 13.3m		Orientatio	-
0	Ro	otary co	ored, T2101 water flu	sh, 13.3	3 - 18.5m	ı	Level: 7.31 m AOD	90	
Client:-							Detec: 18/01/2018 16/02/2018	Logged E	Зy
Dumfrie	s & Gallowa	•			1		Dates: 18/01/2018-16/02/2018	MT / DF / F	۲Ŗ
ell Wat Strik	er Sample es Depth (m)	es & In Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description		
	0.20	ES					Dark brown silty sandy TOPSOIL		-
20-8-	0.50	ES		0.30	7.01		Brown silty gravelly fine to medium locally slightly SAND	/ organic	
							0		
	1.00	ES		1.00	6.31		Very dense brown silty sandy fine to coarse round	ded to	÷
						× × × × × ×	subangular GRAVEL with high cobble content, G of varying lithologies.	ravel and cobbles	E
						× × × * × × × *			F
						× * * * × *			-
	2.00 2.00	CPT B (8	N=50 3,16/19,23,8 for 75mm)		× × × × ×			-:
				2.30	5.01	× × × *	Medium dense becoming very dense grey slightly to coarse rounded to angular GRAVEL with low to	/ silty sandy fine	
	Z 2.80	SPT	N=50			× × × × × × ×	boulder content		-
	2.00		12/16,17,10,7 for 50m	m)		× × × * × ×			-:
						^```x``x x``x`x			-
	2.80-4.30	в				× × × × ×			-
						× * × × × * ×			Ē
						× × × × ×			-
	4.30	SPT	N=10 (5,6/3,2,2,3)			× × × *			-
			(0,0,0,1,1,0)			× × × ×			
	1 00 5 00					×: × × ×			È,
	4.30-5.80	В				× ^ × ×			E
						× × × × ×			-
	5.80	SPT	N=50			× × × × × ×			F
		(2	2,2/6,14,29,1 for 5mm)			^X X X X X X			-
						× × × *			
	5.80-7.30	В				× × × × × ×			
						× × × ×			-
	7.00	0.07	N 50			× × × *			F
	7.30	SPT (7	N=50 18/24,16,10 for 50mm)		× × × × × × ×			-
						× × × ×			
	7.30-8.80	в				× × × × × ×			-1
						x			ŀ
						× × × ×			F
						× × × × × × ×			F
						× × × ×			- 9
	0.00.10.07	_				× × × *			F
	8.80-10.30	В				× × × ×			ŀ
		Туре	Results			× × × ×			F
emark	S: Hand excavate	ed service	e clearance from GL - 1.2r	n	I	<u> </u>	Continued next sheet SPT Hammer	Scale Log St	atu
	* Denotes visu Hard strata / sl	al asses low prog	sment of description base ress from 1.3 - 2.3 (3 hrs)	d on air fli		hole returns	HQ01	l ŭ	
	Borehole termi	inated or	red at 2.8m, rising to 1.1m n engineers instruction s / Groundwater monitor in				11001	1:50 Fina	11

		Η	0L	EQ	UE	ST	Holeq Winst	uest Ltd on Road						
				MI	ΓΕΓ)	Galasl	niels	05				114-OP	
Desile								1896 7522	:95				heet 2 of 2	
Project N		~					oject N	ю.	Co-ords:	241386	E - 565303N		Hole Type	
	Stewart FP			0			7/082	10.0					able/Rotai	-
	ethods:- Ro Ro	itary op tary co	ored, T2	e, Sym 2101 w	ater flu	/omm a ush, 13.3	am, GL 3 - 18.5m	- 13.3m 1	Level:	7.31 m	AOD		90	'
Client:-													ogged By	
	& Gallowa	•				1	1		Dates:	18/01/2	018-16/02/2018		/ DF / RF	
Well Water Strikes		es & In Type		Testin Results	g	Depth (m)	Level (m CD)	Legend		5	Stratum Description			
	10.30 10.30-11.80	SPT (20,5	5 for 15	N=50 mm/50	for 50n	nm)					ery dense grey slightly ar GRAVEL with low to			- - - - - - - - - - - - - - - - - - -
	11.80 11.80-13.30	SPT (B	5,20/30	N=50),20 for	25mm)									- 12
- (W)	13.30 13.30-14.70	SPT (25	5 for 251 66	N=50 mm/50 37	for 5mr 36 >50	- 13.30 n)	-5.99		brown mottled gre including thin bec quartz veins to 20 Discontinuities; Set1; 5-20deg, e> intersection wher tight to open, occ Set2; 45-90deg, e	eenish gre ds of MET, Omm, Mod xtremely cl re seen, pl casionally extremely	dium bedded (dip10-20 y, fine to coarse META AMUDSTONE with occ erately to locally highly lose to medium spaced anar to undulating, sma with cruched rock fill to close to wide spaced, p	SANDSTON asional light weathered. I, terminating ooth to rough 25mm. persistent to	NE t grey g at n,	
	14.70-16.20	100	89	45	16				140mm, terminat undulating, smoo Both sets with da	oth to roug		lanar ro		- - - - - - - - - - - - - - - - - - -
	16.20-17.20	100	70	45		-								- 1
	17.20-18.50	100	52	29	35									
						18.50	-11.19			Enc	l of Borehole at 18.50 m			
Remarks:	Hand excavate * Denotes visua Hard strata / sle Groundwater e	al assess ow progr	sment of ress from	ice from descript 1 1.3 - 2.	tion base 3 (3 hrs)	ed on air fl		hole returns			SPT Hammer HQ01	Scale 1:50	Log Stat	

		C	Н	OLEQUE	ST	Winst Galas	uest Ltd on Road hiels 1896 7522	295		Т	prehole No P9-OP6 heet 1 of 2		
Pro	ject Na	ame			Pr	oject N					Hole Type		
_		Stewart FP	-			/082		Co-ords: 24125	7E - 565442N		Rotary		
Drill	ling Me	ethods:- Ro Ro	otary op otary co	en hole, Symetrix 17 pred, T2101 water flu	′0mm di sh, 13.3	am, GL 5 - 17.9n	- 13.3m n	Level: 8.07 m	AOD		prientation 90		
Clie Dur		& Gallowa	ay Co	uncil				Dates: 26/01/2	2018-07/02/2018		ogged By / CE / FM		
Well	Water Strikes	Sample Depth (m)	es & In Type	Results	Depth (m)	Level (m CD)	Legend		Stratum Description	•			
		0.20 0.30 0.50	ES B ES	recure				Dark brown silty sandy gra gravelly fine to medium sli low cobble content with de	ightly organic SAND with	rootlets and	ty - d _		
		0.50	В		0.70 0.80	7.37 7.27		Brown slightly sandy grave Made Ground)	elly CLAY with lenses of	Sand (Poss	ible		
		1.00 1.00	ES B					Black silty gravelly fine to	medium slightly organic	SAND*	/ =1 		
	-	1.30	SPT	N=27 (3,3/6,7,6,8)	1.30	6.77		Medium dense to dense li gravelly fine to coarse SA	ght grey brown silty to ve	ery silty lenses*			
								grater, mie te coaree en		1011000	-		
		1.30-2.80	В								-2		
							X, X, X X X, X, X				-		
	\Box	2.80	SPT	N=36							-		
				(7,8/9,8,9,10)			X X X X X X X X X				-3		
					3.40	4.67							
		2.80-4.30	В				× × × * ×	Dense locally very dense rounded to angular GRAV	grey brown silty sandy fin EL with low to medium of	ne to coarse cobble conte	ent*		
							× × × *				-4		
		4.30	CPT	N=47			× × × * × *				-		
				(9,11/10,12,11,14)			× × * × × × *				- -		
							× × × × × ×				-5		
		4.30-5.80	В				x × × *				-		
							× × * × × *				-		
		5.80	CPT	N=50 for 75mm/50 for 75mr	n)		× × × *				- -		
			(20		,		× × × * × × × *				-6		
		5.80-7.30	в				× × × × × ×				- - -		
		0.00 1.00					× × × × × × ×				~		
							$\stackrel{\times}{\overset{\times}{\overset{\times}{\overset{\times}{\overset{\times}{\overset{\times}{\overset{\times}{\overset{\times}{$				-7		
		7.30	CPT	N=37 (8,9/10,8,8,11)			× × × *				- - -		
							× × × * × × × *				- - -		
		7.30-8.80	В				× × × *						
							× × × × × × ×				-		
		8.80	СРТ	N=50			× * * * * * *						
		0.00		for 75mm/50 for 75mr	n)		× × *				-94		
	8.80-10.30 B												
			T	Deculta			× × × *						
Rem	narks:	Hand excavate	Type d service	Results e clearance from GL - 1.2r	n	L			Continued next sheet SPT Hammer	Scale	Log Status		
	* Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 2.8m Borehole terminated on engineers instruction												
		63mm diam H	DPE Gas	Groundwater monitor in	stalled to	12.0m					Final		

Project Name Trade UD00 72293 Operation Spleriz D Project Name Trade To 000 72293 Co-ords: 241257E - 565442N Relary Operation Drilling Methods: Relary Cored, T2101 water fluch, 13.3 - 17.3m Level: 8.07 m AOD Offertability Client: Dummfries & Galloway Council Date: 2601/2018-07/02/2018 ML (CF / F) Valid Sinke Description Date: 2601/2018-07/02/2018 ML (CF / F) Valid Sinke Description Description Description ML (CF / F) Valid Sinke Description Description Description Description ML (CF / F) Valid Sinke Description Results Dimensional and sinker of first to course foundable angle CRAFL with lot to be mean odde content? Upt gray slight/sandy sinky CLA?* Upt gray slight/sandy sinky CLA** 11.80 CFT (N-M (DR (CF / R)) N-M (DR (CF / R)) 12.70 4.63 Cray META SANDSTONE / META SULTSTONE (macker)* 11.80 13.30 CFT (N-M (DR				Н	OL]	EQI	UE	ST	Galas			Borehole N TP9-OP	P 6
Newton Stewart FPS 17/082 Co-ords: 241257E - 565442N Rotagy Orientation go Drilling Methods: Rotary open hole, Synetrix 170mm dam, GL - 13.3m Rotary open, 1210 water hubb, 13.3 - 17.9m Level: 8.07 m AOD 0 Client: - Dumfries & Galloway Council Date: 26/01/2018-07/02/2018 Logged B M / / CE / FI View Samples & In Situ Testing Dumfries & Galloway Council Date: 26/01/2018-07/02/2018 Logged B M / / CE / FI View Samples & In Situ Testing Dumfries & Galloway Council Drent Level Profile Logged B M / / CE / FI View Samples & In Situ Testing Dumfries & Galloway Council Drent Level Profile Denter gray travel site to cause muscle content counced to angular GRAVEL with two threature oxide content counced to angular GRAVEL with two threature oxide content counced to angular GRAVEL with two there with the counce counced to angular GRAVEL with two the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscled to angular GAVEL with medium cobbin with the counce muscle with patchy between the patch with the counce muscle with patchy data test to angular GAVEL with medium cobbin with the counce muscle with patchy data test to angular GAVEL with medium cobbin with the counce muscle test with patch							ĽL				295		
Drilling Methods: Retury coset Net: Symetric 170m dam GL - 13.3m Retury cored, T211 water Haah, 13.3 - 17.9m Level: 8.07 m AOD Orientation go Client:: Dumfines & Galloway Council Date: 26/01/2018-07/02/2018 Legged B MT / CE / Fit Weil Streep Date: 26/01/2018-07/02/2018 Legged B MT / CE / Fit Weil Streep Date: 26/01/2018-07/02/2018 Legged B MT / CE / Fit 10.30 CPT (10.10, 12.0) Drift Imm6 Dumb / mCD Legned Dumb / mode matching and / fit to coare rounded to angular GRAVEL, with low to meture coatele content? 11.80 CPT (10.10, 12.0) 11.00 -3.53 Centry singlety sandy fitte to coare Centry singlety sandy fitte to coare 11.80 CPT N=41 11.40 -3.53 Centry singlety sandy fitte to coare Centry singlety sandy fitte to coare 11.80 CPT N=41 11.00 -3.53 Centry singlety sandy fitte to coare Centry singlety sandy fitte to coare 11.80 CPT N=41 13.30 -6.23 Medum storg to story singlety sandy fitte to coare Centry singlety s	-			ç					•	10.	Co-ords: 241257E - 565442N		
Return correct, T2101 water flush, 13.3 - 17.9m Level: 8.07 m AOD 90 Client:- Dumfries & Galloway Council Dates: 26/01/2018-07/02/2018 Logged B MT / CE / Fi Condect a angular GRX-E. with low to measure obtaine occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse occurse rounded to angular GRX-E. with low to measure occurse rounded to angular GRX-E. with low to come and rounded to angular GRX-E. with low to					oen hole	e Svme	etrix 1			- 13 3m			
Dumfries & Galloway Council Dates: 26/01/2018-07/02/2018 MT / CE / FI wei Samples & In Stut Testing (In D) Depti (In D) Leggind (In D) Statum Description MT / CE / FI wei Jasse (In Stut Testing (In D) Depti (In D) Depti (In D) Leggind (In D) Dense body very deep grey brown silty sandy fine to coarse rounded to angular GRAVEL with low to medium cobbie context* 11.30 CPT Nucl (In U) 11.60 -3.53 CPT Dense grey brown silty sandy fine to coarse rounded to angular GRAVEL with modum cobbie and buildin compare 11.30 CPT Nucl (In U) 11.60 -3.53 CPT Dense grey brown silty sandy fine to coarse rounded to angular GRAVEL with modum cobbie and buildin compare 11.30 CPT Nucl (In U) 11.60 -3.53 Crey META-SAMDSTONE / META-SULTSTONE (wacke)* 11.30-12.20 PT Nucl (In U) 12.70 -4.63 Grey META-SAMDSTONE / META-SULTSTONE (wacke)* 11.30-12.20 PT Nucl (In U) 13.30 -5.23 Medium strong to strong, finit to finis Mathematic at intersection where seen, plane to unduiding, and the sound to roughly medited at 1/30 m 11.30-14.80 100 90 <td></td> <td>.g</td> <td>Rc</td> <td>otary co</td> <td>ored, T2</td> <td>2101 wa</td> <td>ater flu</td> <td>ush, 13.3</td> <td>3 - 17.9n</td> <td>n</td> <td>Level: 8.07 m AOD</td> <td>90</td> <td></td>		.g	Rc	otary co	ored, T2	2101 wa	ater flu	ush, 13.3	3 - 17.9n	n	Level: 8.07 m AOD	90	
Were Were Sector Control Start Start Testing Dependence Level (mOD) Level (mOD) Dependence Stratum Description 10.30 CPT Nec39 Results 000 Dependence Dependenc												Logged B	Зу
Since: Depti (m) Type Results (m) (m CC) Upper Demail locally very drate graps there is a curve included to angular CRAVEL with low to medium obble content* 10.30 CPT N=39 (10.108.811.11) 10.70 -2.63 Upper locally very drate graps therm ally sandy file to course monded to angular CRAVEL with low to medium obble content* 11.80 CPT N=41 (10.108.811.11) 11.60 -3.53 Upper graps thrown ally sandy file to course mounded to angular CRAVEL with modum cooble and bold or content* 11.80 CPT N=41 (8.4710.108.12) 11.60 -3.53 Ceres graps thrown ally sandy fine to course mounded to angular CRAVEL with modum cooble and bold or content* 11.80-13.30 B 12.70 -4.63 Ceres graps thrown ally sandy fine to course mounded to angular CRAVEL with modum cooble and bold or content* 13.30 CPT N=41 (2.8750mBib file 7.5mmb) 13.30 -5.23 Medium atrong to strong, thin to hickly badded, locally thrown the subcombine graps thrown coasing mounded to angular CRAVEL with modum cooble and bold or contant* 13.00.14.80 100 60 20 -5.23 Medium atrong to strong, thin to hickly badded, locally thrown to angular graps the subcombine to could any purpoint to angular graps theread to angular graps theread to angular graps the	Dumf	fries &		-							Dates: 26/01/2018-07/02/2018	MT / CE / F	M
Image: State in the state is the state in the state in the state is the state in the state is the s	Vell V	Vater strikes	Sample Depth (m)				9		Level (m CD)	Legend	Stratum Description		
Line Line <thline< th=""> Line Line <thl< td=""><td></td><td></td><td></td><td></td><td></td><td>N=39</td><td>,11)</td><td></td><td></td><td>* * * *</td><td></td><td></td><td>n n n</td></thl<></thline<>						N=39	,11)			* * * *			n n n
Image: Construction of the second s								10.70	-2.63		Light grey slightly sandy silty CLAY*		-
11.80 CPT N-41 (8.910.10.9.12) Dense grey forow ality sandy line to coarse rounded to angular GRAVEL, with medium cobie and boulder content." 11.80-13.30 B 12.70 -4.63 Grey META-SANDSTONE / META-SILTSTONE (wacke)* 13.30 -CPT N+50 (25 for 75mm50 for 75mm) 13.30 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated (dp20deg), dark grey valued light greans in to pinkish invite bedded UET ANUDSTONE / META-SILTSTONE (wacke)* 13.30-14.80 100 50 20 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated (dp20deg), dark grey valued light greans in to pinkish invite bedden UET ANUDSTONE / META-SILTSTONE (wacke)* 13.30-14.80 100 50 20 -5.23 Medium strong to strong, thin to thickly bedded (bcally laminated at instruction to rough, gift watered. 14.80-16.30 100 69 67			10.30-11.80	В									-11
Insol CPT N=41 (8,9/10,10,9,12) Derise grey force willy sandy line to coarse rounded to angular GRAVEL with medium cobie and boulder content." 11.80 CPT (8,9/10,10,9,12) -4.63 Grey META-SANDSTONE / META-SILTSTONE (wacke)* 13.30 CPT N=50 T 13.30 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated (dp:20deg), dark grey valued light greenish to pinkish minimate at minimate at minimate at minimate at minimate and minimate. 13.30-14.80 100 50 20 -5.23 Medium strong to strong, thin to thickly bedded, locally laminate at minimate at minimate at minimate at m													-
Image: Second			11.80	СРТ			12)	11.60	-3.53		Dense grey brown silty sandy fine to coarse roun GRAVEL with medium cobble and boulder conte	ded to angular nt*	- 12
Grey ME IA-SANDST ONE / ME IA-SALDST ONE (wacks)* 13.30 -CPT -14-50 13.30 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated (dp20deg), dark grey valued light greenish to pinkish gruh; bedded MET ANUDST ONE / ME IA-SALDST ONE (wacks)* 13.30-14.80 100 50 20 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated (dp20deg), dark grey valued light greenish to pinkish gruh; bedded MET ANUDST ONE / ME IA-SALDST ONE (wacks)* 13.30-14.80 100 50 20 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated (dp20deg), dark grey valued light greenish to 20mm Discontinuities. 13.30-14.80 100 50 20 -5.23 Medium strong to strong, thin to thickly bedded, locally laminated the detail for the strong strong, thin to thickly bedded, locally grin; bedded MET ANUDST ONE (wacks)* 14.80-16.30 100 69 67 -			11.80-13.30	в						× × × ×			
Image: Construction of the construction of								12.70	-4.63	· · · · · · · · ·	Grey META-SANDSTONE / META-SILTSTONE	(wacke)*	+
Image: Construction of the construction of										· · · · · · · · ·			-13
13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 13.30-14.80 100 50 20 14.80-16.30 100 69 67 14.80-16.30 100 57 74 14.80-16.30 100 97 74 14.80-16.30 100 97 74 14.80-16.30 100 97 74 16.30-17.90 100 97 74 16.30-17.90 100 97 74 17.90 -9.83 End of Borehole at 17:90 m			13.30	CPT	for 75m	N=50	or 75m	13.30	-5.23	• • • • • • • • •	Medium strong to strong, thin to thickly bedded, h	ocally	-
14.80-16.30 100 69 67 16.30-17.90 100 97 74 16.30-17.90 100 97 74 16.30-17.90 100 97 74 16.30-17.90 100 97 74 17.90 -9.83 End of Borehole at 17.90 m End of Borehole at 17.90 m 17.90 TOR SCR ROD TOR SCR ROD File SPT Hammer Scale Log Stale			13.30-14.80								grey, fine to coarse grained METASANDSTONE, thinly bedded METAMUDSTONE including quart locally. Slightly weathered. Discontinuities. Set1; 0-30deg extremely close to medium space intersection where seen, planar to undulating, sn tight to partly open. Set2; 45-90deg, very close to wide spaced, persi terminate at intersection where seen, planar to u smooth to rough, tight to part open.	with subordinate z veins to 20mm d, terminate at nooth to rough, stent to 160mm, ndulating,	- 14
Image: Second service clearance from GL - 1.2m 17.90 -9.83			14.80-16.30	100	69	67					Both sets with patchy dark reddish brown coating	to sub mm fill.	- 15
Image: Second service clearance from GL - 1.2m										· · · · · · · · ·			-
Remarks: Hand excavated service clearance from GL - 1.2m			16.30-17.90	100	97	74							- 17
Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Sta								17.90	-9.83		End of Borehole at 17.90 m		 - 18
Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Sta													F
Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Sta													
Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Sta													- 19
Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Sta													-
Remarks: Hand excavated service clearance from GL - 1.2m SPT Hammer Scale Log Sta				ТСР	SCB	ROD	EI	-					F
* Denotes visual assessment of description based on air flushed borehole returns Groundwater encountered at 2.8m Borehole terminated on engineers instruction 63mm diam HDPE Gas / Groundwater monitor installed to 12.0m	Rema	C E	* Denotes visu: Groundwater e Borehole termi	d service al asses incounte nated or	e clearand sment of red at 2.8 n enginee	ce from (descripti 3m ers instruc	GL - 1.2 on base	ed on air flu		ehole returns			

		Η	OLEQUE LIMITE	EST	Winst	uest Ltd on Road		BH1-C	le No)P7
			LIMITE	Ď	Galas Tel· 0	hiels 1896 7522	95	Sheet 1	
Project N	ame				oject N			Hole T	
-	Stewart FP	s			7/082		Co-ords: 241566E - 564717N	Rota	
	ethods:- Ro	otary op	en hole, Symetrix	170mm d	iam, GL	- 14.8m		Orienta	•
-	Ro	otary co	ored, T2101 water f	lush, 14.8	3 - 19.8r	n	Level: 5.22 m AOD	90	
Client:-		_					Dates: 17/01/2018-30/01/2018	Logge	d By
Dumfries	& Gallowa	•		-	1	, <u>,</u>	Dates. 17/01/2018-30/01/2018	MT / CE	/ FM
ell Water Strikes	Depth (m)	es & In Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description		
	0.20	в		0.20	5.02	Y////////	Brown clayey sandy gravelly TOPSOIL		
2. s	0.20 0.50	ES ES					Medium dense dark brown clayey sandy fine to coa organic to slightly organic with depth	rse GRAVEL	
	0.00								-
\Box	1.00	ES							-
	1.30	SPT	N=28						-
			(5,7/6,7,8,7)						-
				1.80	3.42		Dense grey brown silty fine to coarse SAND and fin		
	1.30-2.80	В					rounded to angular GRAVEL with medium to high c content, Gravel, cobbles and boulders of mixed lithe	obble and boulder	· -:
								biogles.	-
									-
	2.80	CPT	N=35 (7,8/8,9,8,10)						-
			()						
				3.50	1.72				
	2.80-4.30	В		5.50	1.72	××××× ××××	_oose light grey to grey very silty locally slightly gra ine to medium SAND*	velly	-
						× × × × × × ×			-
	4.30	SPT	N=9			× × × × × × ×			-
	4.30	551	(3,3/2,2,3,2)						-
						× × × × × × ×			-
	4.30-5.80	в				x x x x x x x x x x x			- 4
						x × × × x × × ×			-
						x			-
	5.80	SPT	N=6 (2,1/2,1,2,1)						-
			(2,1/2,1,2,1)			x x x x x x x			-(
						x × × × × × ×			F
	5.80-7.30	В				××××× ×××××			F
	7 20	SPT	N_C			x			F
	7.30	571	N=6 (1,1/2,1,2,1)			$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} $			F
						$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} $			Ē
	7.30-8.80	в				$\mathbf{x} \times \mathbf{x} \times \mathbf{x}$			-
						× × × × × × × ×			F
						$\times \times $			ļ
	8.80	SPT	N=6			$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x}$			ŀ
			(1,1/1,2,1,2)						- f
						$\times \times $			F
	8.80-10.30	В				$\mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x} \mathbf{x}$			ŀ
						×××× ××××			F
		Туре	Results	1		···· ··· ···	Continued next sheet		
emarks:	Groundwater e	encounter	e clearance from GL - 1. red at 1.0m and 2.8m		under state	holo	SPT Hammer	Scale Log	Statu
			sment of description bas engineers instruction	sed on air fl	ushed bore	enole returns	HQ03	1:50 F	inal

		Η	0L	EQ MI'I	UE	ST	Winst	uest Ltd on Road	Borehole No BH1-OP7
			LI	ĽIM	EL)	Galasl	niels 1896 752	
Project N	ame						oject N		Hole Type
•	Stewart FP	s					/082		Co-ords: 241566E - 564717N Rotary
Drilling M	ethods:- Ro	otary op	en ho	le, Sym	etrix 1	70mm di	am, GL	- 14.8m	Orientation
	Ro	otary co	ored, T	2101 w	ater flu	ush, 14.8	8 - 19.8m	n	Level: 5.22 m AOD 90
Client:-		_							Dates: 17/01/2018-30/01/2018
Dumfries	& Gallowa								Dates: 17/01/2018-30/01/2018 MT / CE / FM
ell Water Strikes	Sample Depth (m)	es & In Type		Testin Results	g	Depth (m)	Level (m CD)	Legend	Stratum Description
		. 76 -						×××××	Loose light grey to grey very silty locally slightly gravelly fine to medium SAND*
	10.30-11.80	В							Unable to undertake SPT Test at 10.3m due to differential hydrostatic head
	11.80-13.30	В							Unable to undertake SPT Test at 11.8m due to differential
	13.30-14.80	В				13.90 14.50	-8.68 -9.28		Unable to undertake SPT Test at 13.3m due to differential hydrostatic head Grey brown silty fine to coarse SAND and fine to coarse angular to subangular rarely rounded GRAVEL with medium cobble content* Reddish brown META-SANDSTONE*
				1		14.80	-9.58	· · · · · · · ·	
	14.80-15.60	42	0	0	NI				Strong locally weak to medium strong, dark reddish grey, fine to coarse grained METASANDSTONE including mainly steep dipping light yellowish grey quartz veins to 20mm and reddish brown haematite veins generally <2mm. Slightly to moderately, locally highly weathered. Discontinuities;
	15.60-16.30	0	0	0					Set1; 5-30deg, extremely close to close, terminating at intersection where seen, planar to undulating, rough, tight to open. Set2; (below 18.0m) 50-90deg, close spaced, terminating at intersection where seen, persistent to 150mm, planar to
	16.30-17.40	86	73	45					undulating, smooth to rough, tight to part open, with patchy greenish brown or reddish brown stain. Unstable conditions encountered between 14.8 - 16.3m - Additional casing installed
	17.40-18.40	95	50	40	15				- - - - - - - - - - - - - - - - - - -
	18.40-19.80	100	82	40					
						19.80	-14.58		End of Borehole at 19.80 m
		TCR		RQD	FI				
emarks:	Hand excavate Groundwater e * Denotes visua Borehole termi	ncounter al assess	red at 1. sment o	0m and 2 f descript	2.8m ion base		ished bore	hole returns	SPT Hammer Scale Log Statu HQ03 1:50 Final

		H	OLEQUE LIMITEI	ST	Winst	uest Ltd ton Road		Borehole No BH1-SP
			LIMITEI)	Galas	hiels 1896 752	295	Sheet 1 of 2
roiect	Name			Pr	oject N			Hole Type
•	n Stewart FF	s			7/082	vo .	Co-ords: 241243E - 565145N	Rotary
	Methods:- Ro	otary op	en hole, Symetrix 1	70mm di	am, GL	- 13.3m		Orientation
-	R	otary co	ored, T2101 water fl	ush, 13.3	8 - 18.7r	n	Level: 9.24 m AOD	90
Client:-							Dates: 21/12/2017-23/12/2017	Logged By
	es & Gallowa	-		1	1			CE / FM
ell Wa Strik	ter Sample (es Depth (m)	es & Ir Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend	Stratum Description	
	0.20	в		0.10	9.14		MADE GROUND comprising silty sandy Topsoil with rootle	h
	0.50	в		0.50	8.74		MADE GROUND comprising clayey slightly organic fine to Sand and fine to coarse rounded to angular Gravel that inc	coarse
							Plastic, Paper and Brick MADE GROUND comprising clayey gravelly fine to coarse	Sand
							intermixed with brown clayey sandy fine to coarse rounded angular Gravel with medium cobble content, locally slightly	to [.
	1.30	SPT	N=26				organic, Includes Bricks, fragments of Brick, Masonry, Gla: Coal.*	
			(5,6/7,6,6,7)					-
								-
	1.30-2.80	В						-:
								[-
								-
	2.80	SPT	N=28 (10,11/6,7,8,7)					- -:
								-
	2.80-4.30	в						-
	2.00-4.50							
								- 4
	4.30	SPT	N=50	4.30	4.94			
			(4,4/50 for 75mm)			×	Dark brown silty locally gravelly fine to coarse organic SAN with thin lenses of Clay, Gravel and Cobbles*	
								-
	4.30-5.80	В						
						× × × × × × ×		-
	Z 5.80	0.07		5.60	3.64	× × -	Dense locally medium dense grey silty fine to coarse SAN	Dand
	∽ 5.80	SPT	N=31 (8,9/7,7,8,9)				fine to coarse rounded to angular GRAVEL with low locally cobble and boulder content, Gravel, cobbles and boulders	vhigh f of f
							mixed lithologies.*	-
	5.80-7.30	в						- - -
								- - -
	7.30	СРТ	N=34					-
			(7,8/9,9,8,8)					-
	7.30-8.80	В						- 8
								- - -
	8.80	СРТ	NLOG					-
	0.00		N=26 (5,6/6,7,6,7)					
	8.80-10.30	в						-
								-
		Туре	Results				Continued next sheet	
emark	S: Hand excavate	ed service	e clearance from GL - 1.2 sment of description bas	im ed op cir fi	ished her		SPT Hammer Scal	e Log Statu
	Groundwater e	encounte		eu on alf ill	JOU DON	chole returns	HQ03 1:50	-
			s / Groundwater monitor i	nstalled to	13.0m			

	- 0	Н	0L	EQ MI'I	UE	ST	Winst Galas		Borehole No BH1-SP
Projo	ct Name						oject N	1896 7522 Io	295 Sheet 2 of 2 Hole Type
-	on Stewart FF	s					7/082	NO.	Co-ords: 241243E - 565145N Rotary
Drillin	g Methods:- R	otary op	pen hol	e, Sym	etrix 17	70mm di	am, GL	- 13.3m	Orientation
		otary co	ored, T2	2101 w	ater flu	ush, 13.3	3 - 18.7n	ו	Level: 9.24 m AOD 90
Client Dumf	t:- fries & Gallowa	ay Co	uncil						Dates: 21/12/2017-23/12/2017 Logged By CE / FM
Well N	Vater Sample	es & Ir Type		Testin Results	g	Depth (m)	Level (m CD)	Legend	Stratum Description
	10.30	CPT		N=32 8/8,9,6,	9)				Dense locally medium dense grey silty fine to coarse SAND and fine to coarse rounded to angular GRAVEL with low locally high cobble and boulder content, Gravel, cobbles and boulders of mixed lithologies.*
	10.30-11.80	B	(87	N=36 7/7,9,9,1	1)				-11
			(0,7	,,,,,,,,	,	12.40	-3.16		Grey META-SANDSTONE / META-SILTSTONE (wacke)*
	13.30	- CPT (25	for 75r	N=50 nm/50 f	or 75m	- 13.30 m)	-4.06		13 Medium strong to strong, thick bedded (Dipping approx 50 degrees at 16.0m), grey stained reddish brown (above 16.1 and below 17.1m, fine to medium grained META-SANDSTONE (wacke) including mainly intact, occasionally vugg, light grey Quartz veins
	13.30-14.80	73	64	39	AZCL				(occasionally with reddish brown hematite) dipping 10 - 90 degrees, slightly weathered, moderately weathered between 13.7 - 14.7m. Discontinuities (Excluding intact veins); Set 1: dipping 10 - 30 degrees, closely to wide spaced, terminating at intersection where seen, planar to undulating, smooth to rough, tight to partly open.
	14.80-16.40	100	93	86	15				Set 2: 50 - 90 degrees, very closely to wide spaced, persistance observed to 650mm, terminating at intersection or in rock where seen, planar to undulating, smooth to rough, tight to partly open. Both sets with reddish brown stains / coatings, occassionally polished, few re-activating Quartz veins.
	16.40-18.00	100	88	71	3				-17
					11				-18
	18.00-18.90	100	86	86	6	18.90	-9.66		End of Borehole at 18.90 m -19
		TCR	SCR	ROD	FI				
Rema	Irks: Hand excavate * Denotes visu Groundwater e Borehole term 63mm diam H	ed service al asses encounte inated or	e clearan sment of red at 5.8 n enginee	nce from f descript 8m ers instru	GL - 1.2i ion base	ed on air flu		hole returns	SPT Hammer Scale Log Status HQ03 1:50 Final

		H	OLEQUE LIMITED	ST	Winst	uest Ltd on Road		Borehole BH2-S	
			LIMITEL)	Galas Tel: 0	hiels 1896 7522	95	Sheet 1 c	
Project N	Name			Pr	oject N			Hole Ty	
-	Stewart FF	s			7/082		Co-ords: 241297E - 565149N	Rotary	•
Drilling N	lethods:- R	otary op	pen hole, Symetrix 1	70mm di	am, GL	- 10.3m		Orientatio	on
	R	otary co	pen hole, 115mm dia pred, T2101 water flu	am, 10.3 <u>ush, 10.3</u>	- 10.7m <u>3 - 10.5n</u>	n &	Level: 7.56 m AOD	90	
Client:-).7m - ′					Dates: 15/12/2017-20/12/2017	Logged I	•
	s & Gallowa	-			I		Balloo. 10, 12,2011 20, 12,2011	CE / FN	
ell Wate Strike	er Samples Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m CD)	Legend	Stratum Description		
							Dark brown clayey sandy becoming gravelly with depth with many rootlets	TOPSOIL	-
							-		-
				0.60	6.96		Brown silty locally slightly organic fine to coarse SANE fine to coarse rounded to angular GRAVEL with mediu	and and	-
							content		-
	1.30	СРТ	N=8	1.20	6.36	× × ×	Loose to dense becoming very dense with depth grey	silty sandy	-
	-		(1,2/2,2,2,2)			× × × × ×	fine to coarse rounded to subangular GRAVEL with his boulder content, Gravel, cobbles and boulders of mixe		-
	-					ו × × *	lithologies.*		-
	1.30-2.80	В				× × × ×			-2
						× × × ×			-
	2.80	CDT	N 24			×- × × × × ×			-
	2.80	CPT	N=31 (6,12/12,6,7,6)			× × × × × × ×			-:
•						× × × *			-
	2.80-4.30	в				× × × *			-
						×. * ×. * ×. * ×. *			-
* * *						× × × × × *			-4
	4.30	CPT	N=38 (7,8/14,7,8,9)			× × × *			-
			(1,0/14,1,0,3)			×- × × *			-
						× × × × ×			
	4.30-5.80	В				× * * *			-
						× × × × × *			-
	5.80	CPT	N=17			× × × × ×			-
			(8,5/5,4,4,4)			ו × × *			-6
						× × × * × × ×			
	5.80-7.30	в				× × × *			-
						× × × ×			F
						× × × × × *			-7
	7.30	CPT (25	N=50 for 75mm/50 for 75m	m)		× × × *			
						× × × × × × ×			ŀ
	7.30-8.80	В				× × × × × ×			-8
						× × × × ×			-
						× × * × × *			
	8.80	CPT	N=50	_)		× * × *			
		(25	for 75mm/50 for 75m	(1)		× × × *			-9
						× × × × × × ×			-
	8.80-10.30	В				× * × *			-
				9.90	-2.34	× * * * *			1
omarka	l llord E	Type	Results e clearance from GL - 1.2				Continued next sheet		
emarks	* Denotes visu	al asses	e clearance from GL - 1.2 sment of description base red at approx 1.8m	en ed on air flu	ushed bore	ehole returns	11000	cale Log S	
	Borehole term	inated or	n engineers instruction s / Groundwater monitor in	nstalled to	10.0m		HQ03	I:50 Fin	al

		Η	0L	EQ		ST	Winst Galasł	uest Ltc on Roac hiels 1896 75	BH2-SP			
Project N						Pr	oject N	lo.	Hole Type			
	Stewart FP						/082		Co-ords: 241297E - 565149N Rotary Orientation	_		
Drilling IV		tary op	oen hol	e, 115ı	mm dia	m, 10.3	- 10.7m		Level: 7.56 m AOD 90			
Client:-		<u>tary co</u> .7m - 1		2101 w	ater flu	<u>ish, 10.3</u>	<u>- 10.5m</u>	1&	Logged By			
Dumfries	s & Gallowa	iy Co	uncil						Dates: 15/12/2017-20/12/2017 CE / FM			
Well Wate Strike		es & Ir Type		Testin Results	g	Depth (m)	Level (m CD)	Legend	Stratum Description			
	10.30 10.30-10.50	CPT	fol 75r	N=50 nm/50 f 0	or 75mi	-			Dark reddish brown META-SANDSTONE / META-SILTSTONE (wacke)*			
	10.70-11.40	100	71	0		10.70	-3.14		Weak to medium strong, thickly bedded (dipping 35 - 60 degrees), dark reddish brown speckled light grey, fine to medium grained META-SANDSTONE (wacke), includes minor discontinuous light grey Quartz veins mainly <2mm thick and occasional platy "rip up"	-11		
	11.40-12.70	100	38	0	28				clasts of Siltstone to 15mm, moderately weathered. Discontinuities (Excluding intact veins); Set 1: dipping 0 - 30 degrees, very closely to medium spaced, terminating at intersection where seen, planar to undulating, rough, tight to partly open. Set 2: dipping 40 - 90 degrees, extremely closely to closely spaced, persistance observed to 400mm, terminating at intersection or in rock where seen, planar to undulating, tight to moderately wide. Both sets with reddish brown staining and occasional patchy greensih grey coating.	-12		
	12.70-13.60	100	56	0	>50	13.25	-5.69		Extremely weak to weak, laminated to thinly bedded (dipping 35 - 65 degrees), brecciated above 13.6m, dark reddish brown to			
	13.60-14.60	100	45	35	12 >50	13.75	-6.19		grey, fine grained META-SANDSTONE and META-SILTSTONE (wacke) with occasional light grey Quartz veins, moderately to highly weathered. Discontinuities (Excluding intact veins), random orientation, extremely closely spaced in brecciated rock, planar, smooth, tight to partly open. Between 13.6 - 13.75m mainly dipping 50 - 70 degrees, extremely closely to closely spaced, persistance observed to 100mm, terminating at intersection, planar to undulating, smooth,	-14		
	14.60-15.70	100	66	18	25	15.70	-8.14		tight. Medium strong, medium to thickly bedded (dipping 10 - 65 degrees) dark reddish brown, fine to coarse grained META-SANDSTONE (wacke), occasional intact light grey quartz veins to 20mm thick, moderately locally highly to completely weathered. Discontinuities (Excluding intact veins); Set 1: dipping 10 - 30 degrees, very closely to closely spaced.	-15		
									terminating at intersection where seen, planar to undulating, rough, tight to partly open. Set 2: dipping 50 - 90 degrees, very closely to closely spaced, persistance observed to 180mm, terminating at intersection or in rock where seen, planar to undulating, smooth to rough, tight to partly open. Both sets with reddish brown coating / sub-mm fill. Extremely weak to weak, brecciated, laminated reddish brown and green META-SILTSTONE between 14.25 - 14.5m End of Borehole at 15.70 m	-16		
										- 18		
		705	005	DOD						and Borehole Loo V		
Remarks	Hand Excavate	al asses	e cleara sment of	nce from descript	tion base		I Ished bore	hole return	SPT Hammer Scale Log Stat	US IS		
	Groundwater e Borehole termi 63mm diam HI	ncounte nated or	red at ap	prox 1.8 ers instru	m uction				HQ03 1:50 Final	Hold RACE 3.1 //		

			וחם	ΓΛ	IIFC	m I	Holequest Ltd			Trialpit I	No		
			HOL	LV			Winston Road Galashiels		-	TPW1-C	DP6		
							Fel: 01896 75229			Sheet 1			
Project N Newton						Proj 17/0	ect No.		93E - 565756N m AOD	Date 05/02/20			
		lethod:- I	Hand e	xcavat	ted GI			Dimensions:	1.00m	Scale			
Endavai				nouvu					1.0011	1:25	Í		
Client:								Depth 60 0.60m 0		Logged	Ву		
		Galloway C			Γ	[)		BMY / F	М		
	es & In Type	Situ Testing Result		Depth (m)	Level (m AOD)	Legend			Description				
						بنائد عائد بنائد ، بنائد بنائد بن بنائد بنائد	Dark reddish brow	n to black psuedofibrous	to fibrous PEAT		-		
0.20 0.20	ES B			0.30	7.96	ه مثالاه مثالاه . مثالاه مثالاه مثالاه د مثالاه مثالاه ب					-		
				0.50	7.50	× × × × ×	Black silty sandy fi	ne to coarse GRAVEL	vith low to medium cobble conte	ent	-		
0.50 0.50	ES B			0.60	7.66	× × × × × ×							
				0.00	7.00			Trialpit Compl	ete at 0.60 m		-		
											-1		
											-		
											-		
											-2		
											-		
											-		
											-		
											-3		
											-		
											-4		
											t I		
											-		
											-		
Remarks:		Trial pit s	sides sta	able du	Iring exe	cavatior	<u>ן</u> ו				tatus		
		Trial pit t	erminat	ed due	to wate	er ingre	SS				10, 10		
Groundwa	ater:	Groundw	vater en	counte	red at ().5m risi	ing to 0.3m after 3	30 mins		Fir	nal		

			ing H	Holequest Ltd Winston Road			Trialpit No	٦				
Galashiels Tel: 01896 752295												
		IITED	1		5		Sheet 1 of 1	İ				
Project Name		_	-				Date					
Newton Stew		overed CI	17/0			m AOD	05/02/2018	_				
Excavation iv	lethod:- Hand exca	avated, GL	- 1.0m	1	Dimensions:	1.00m	Scale 1:25					
Client:					Depth 2000		Logged By	-				
Dumfries & G	Galloway Council				1.10m C		BMY / FM					
Samples & In Depth (m) Type		epth Level m) (m AOD)	Legend		Stratum	Description						
0.20 ES 0.20 B 0.20 B 0.20 B 0.50 ES 0.50 B 0.50 B 0.50 B 0.50 B 1.00 ES 1.00 B 1.00 ES 1.00 B 1.00 B 1.00 Image: Complete all solution of the sol												
Remarks: Trial pit sides stable during excavation Trial pit terminated due to water ingress. Log Groundwater: Groundwater encountered at 1.0m F												

		ר MI	FED	(95		Sheet 1 of				
Project Na	ame			Proj	ect No.	Co-ords: 2409	65E - 566088N	Date	\neg			
Newton St	tewart FPS			17/0)82		s m AOD	25/01/2018	3			
Excavation	n Method:- 3T Mini	Exca	ator, C	GL - 1.6	îm	Dimensions:	2.00m	Scale				
						Depth 60 1.60m 0		1:25				
	& Galloway Council					1.60m Ö		Logged By FM	/			
	& In Situ Testing /pe Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription					
	:5	0.45	13.83		to high cobble and	I boulder content	layey sandy gravelly Topsoil with ttled light brown and yellowish lig sand and fine to coarse angular		-			
	B				to subangular Gra Includes Bricks, fra	vel with medium to high agments of Brick, Mason	cobble and boulder content, ry, Slate, Roots, Rootlets and ic to organic where dark grey.		- 1			
1.00 1.00 13.18 Soft orange brown slightly sandy gravelly silty CLAY of very high plasticity with low cobble and boulder content (Possible Made Ground) 1.30 D												
1.50 E	S	1.60	12.68		Boulder obstru	uction at 1.6m Trialpit Comple	ete at 1.60 m					
Remarks: Trial pit terminated on boulder obstruction and trial pit sides colapsing at depth Log S Groundwater: No groundwater encountered Fire												

Image Notes Trape Notes Project Name Project Name Project Name Project Name Date Project Name Trade Name Project Name Date 2501/2018 Scala Excavation Method: 37 Min Excavator, CL - 2.4m Dimensions: 2.00m Scale Iogenet Name Clent: 2.40m Scala Dimensions: 2.00m Scale Iogenet Name Strept = 8 Not testing Dimensions: 2.00m Scale Iogenet Name Scale Iogenet Name Output not Immensions: 2.00m Scale Iogenet Name Scale Iogenet Name Output not Immensions: 2.00m Scale Iogenet Name Scale Iogenet Name Output not Immension: Iogenet Name Name Scale Iogenet Name Scale Iogenet Name Output not Immension: Immension: Iogenet Name Scale Iogenet Name Iogenet Name </th <th></th> <th></th> <th></th> <th>EO</th> <th>UES</th> <th>T T</th> <th>Holequest Ltd Winston Road</th> <th></th> <th></th> <th>Trialpit No</th> <th></th>				EO	UES	T T	Holequest Ltd Winston Road			Trialpit No	
Project Name Project No. Co.ords: 241039E - 565942N Date Newton Stewart FPS 17/082 Lovel: 10.34 m AOD 2501/2018 Excavation Method: 31 Mini Excavator, GL - 2.4m Dimensions: 2.00m 2.00m Cliant: Durifies & Gailoway Council Depth §				IMI	LED	, T	Galashiels	5			
Newton Stewart FPS 17/082 Level: 10.34 m AOD 2501/2018 Excavation Method: 3T Mini Excavator, GL - 2.4m Dimensions: 2.00m Scale 125 Client: Dummfres & Sta Salloway Council Days Statum Description Scale 125 Depth of Type Result 0.00 Incertify Statum Description 125 Output for Status Discription MADE CRONNC correling regression model data will will will be model and bodds 100 55 MADE CRONNC correling regression model data will will will be model beam and bodds 100 55 100 10.20 MADE CRONNC correling regress of the analysin the statum Description 100 100 53 10.20 MADE CRONNC correling regress of the analysin the statum Description 100 53 10.20 10.20 MADE CRONNC correling regress of the analysin the statum Description 100 53 100 10.20 10.20 MADE CRONNC correling regress of the analysin the status analysin the status analysis of the analysis of the status analysis of the analysis of th	Droiset	News									1
Excavation Method: 3 Mini Excavator, GL - 2.4m Dimensions: 2.00m Scale Client: Dumfines & Galloway Council Statum Bescription Image of a law in training Image of a law in training Scale Simple a law in training 0.05 10.25 MADE GRUNDC comprising Ket and bascription Image of a law in training Image of a law in training Image of a law in training 0.00 ES 0.05 10.25 MADE GRUNDC comprising Ket and force in the observed in t	-					-					8
Client: Depth Emph Emph Emph Endpt Logged By Durthries & Calloway Council Image: Status Stratum Description Image: Str				i Exca	vator. G						0
Dummers & Galloway Council FM Deptin (in) Type Results Dight (in) Logend Stratum Description Image: Stratum					, -						
Dummers & Galloway Council FM Deptin (in) Type Results Dight (in) Logend Stratum Description Image: Stratum	Client:							2.40m		Logged By	v
Depth (m) Type Results (m) (m) (m) (m) (m) Stratum Description 0.00 E8 0.05 U.28 MADE GROUND comprising Regression single sized draws Stratum Description Train prison of the single sized draws Indepticit and the single sized si								0			
0.20 If 0.05 10.29 MADE CROUND compring Red single and Gravel 0.20 ES MADE CROUND compring Red single and Gravel MADE CROUND compring Red single and Gravel 0.40 B MADE CROUND compring Red single and Gravel MADE CROUND compring Red single and Gravel 0.40 B MADE CROUND compring Red single and Kancov, Tiles, Wire, and Rule, Packes of peak denote hours single wire, and Kancov, Tiles, Wire, and Rule, Packes of peak denote hours single denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of peak denote hours, tiles, Wire, and Rule, Packes of the hours, tiles, Wire, and Rule, And			-		Level (m AOD)	Legend		Stratum	Description		
L20 E3 Image: Second Second With high cockes and Pagements of Second With high cockes and Pagements of Second With high cockes and Pagements of Second Second With high cockes and Pagements of Second Second With high cockes and Pagements of Second	2 op an ()	. ,po	licound		10.29	XXXX	MADE GROUND	comprising Red single s	sized Gravel	/	
140 B ES 1.50 B ES 1.30 B ES 2.30 D 2.30 D 2.40 7.94 Orange brown motified yellow brown silly to very silly fine to medium SAND with possible lenses of a of Sill. Trapt Complexe at 2.40 m	0.40	В					silty to silty sandy content, Includes r	fine to coarse Gravel wi many Bricks and fragme	th high cobble and boulder ents of Brick, Masonry, Tiles, Wire		
1.50 ES B B B B B B B B B B B Camposities approx 1.8m	1.00	ES									- 1
2.00 ES 2.30 D 2.30 8.04 Orange brown mottled yellow brown silty to very silty fine to medium SAND	1.50	ES					Becoming ver	y clayey after approx 1.6	m		
Remarks: Trial pit sides collapsing with depth Trial pit terminated due to collapse.	2.00	ES									-2
Remarks: Trial pit sides collapsing with depth Trial pit terminated due to collapse.	2.30	D				\sum_{x}	Orange brown mo	ttled yellow brown silty t	o very silty fine to medium SAND		Ţ
Remarks: Trial pit sides collapsing with depth Trial pit terminated due to collapse.				20					lete at 2.40 m		-
Trial pit terminated due to collapse.											- 3
Trial pit terminated due to collapse.											
	Remarks	 s:	Trial pit sides co	ollapsin	g with d	epth				Log Sta	Itus
	Groundw	vater:	-			apse.					

			EQ	UES	51 3	Holequest Ltd Winston Road Galashiels			TP3-	oit No • OP6
						Tel: 01896 75229				t 1 of 1
Project		e /art FPS			Proj	ject No.		69E - 565831N 6 m AOD		ate /2018
		lethod:- 3T Min	i Evca	vator (Dimensions:	2.00m		cale
EXOUVU				vator, t				2.0011		25
Client:							Depth 60 2.00m 0			ed By
Dumfrie	es & G	Galloway Council					2.00111 0		BMY	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend			Description		
0.20 0.50 0.60 1.00 1.40 1.50 1.80 2.00	1.00 ES 0.51 9.11 MADE GROUND comprising Light yellowish brown mottled dark brown silty very gravelly fine to coarse and with low cobble content predominantly of Lime Mortar / Masonry fragments, Includes medium to coarse gravel and cobble sized pockets of peaty debris and Roots. 1.40 B 1.50 ES 1.50 B 1.80 B									
										- 3 - 3 - 3 - 4 - 4 - 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
Remarks	marks: Trial pit sides collapsing with depth Trial pit terminated due to collapse.									
Groundw	ater:	No groundwate	r encou	ntered						Final

			EQ	UES	ST 3	Holequest Ltd Winston Road Galashiels			Trialpit No TP4-OP	
			MI.	LED	7	Геl: 01896 75229	5		Sheet 1 of	1
Project						ject No.		087E - 565772N	Date	
Newtor					17/0			m AOD	29/01/201	8
Excava	tion M	ethod:- 3T Min	Exca	vator, C	JL - 2.0)m	Dimensions:	2.00m	Scale 1:25	
Client:							Depth 09 1.90m 0	-		
	26 & G	alloway Council					1.90m 0		Logged B 3MY / RR / I	
		Situ Testing	Depth	Level						
Depth (m)	Туре	Results	(m)	(m AOD)	Legend			Description		
0.20	ES		0.05	9.42		MADE GROUND c	comprising White single comprising Light grey m rse Sand with high cob variable quantities of A	nottled orange and black silty very ble content predominantly of		
0.50 0.50	ES B		0.40	9.07		clavev locally sligh	tly organic fine to medi	mottled light brown orange brown um Sand with roots throughout cludes rare specs of Coal and	ı very	
1.00 1.00	ES B		0.90	8.57		(generally <2mm the second sec	I locally stiff with depth hick) of silty fine to mec Locally with Roots / Ro	sandy silty CLAY with lenses fium Sand and organic debris otlets.		1 - - -
1.60	В		1.80 1.90	7.67 7.57		Reddish brown slig		coarse GRAVEL with high cobble		-2
										3
										- - - - -4
										-
Remarks	<u> </u> s:	Trial pit sides st Trial pit termina	able du ted at s	iring ex schedule	cavatior ed depth	ן ז ז.			Log Sta	
Groundw	vater:	Groundwater er	ncounte	ered at 1	1.4m (Se	eepage from west	terly face) and 1.8r	n	Fina	1

		L UI	[] F C	TT I	Holequest Ltd Winston Road			Trialpit No	>		
		ЪЧЧ мтт	ULC		Winston Road Galashiels			TP5-OP	6		
			ЕD		Tel: 01896 75229	5		Sheet 1 of	1		
Project Name Newton Stew				Proj 17/0	ect No.		245E - 565248N m AOD	Date 08/02/2018	8		
	ethod:- Hand ex	xcavate	ed, GL			Dimensions:	1.00m	Scale			
						Depth S		1:25			
Client: Dumfries & G	alloway Council					Depth E 1.20m o		Logged By BMY / FM			
Samples & In	Situ Testing	Depth		Legend		Stratum	Description				
Depth (m) Type	Results	(ṁ) (m AOD)		MADE GROUND o	comprising Dark brown	silty sandy gravelly Topsoil with ro	oots			
0.20 ES 0.20 B		0.40	7.66		and rootlets throug	hout, Includes fragmen	ts of Brick and Coal.		-		
0.50 ES 0.50 B		0.40	7.00		MADE GROUND of to angular Gravel v Concrete.	comprising Light grey br vith low cobble content,	own silty sandy fine to coarse rou Includes fragments of Brick and	nded	- -		
1.00 ES 1.00 B		0.80	7.26		MADE GROUND or rarely coarse sligh	comprising Brown silty t tly organic Sand, Includ	o very silty gravelly fine to mediun es occasional fragments of Coal.	1	- 1		
		1.20	6.86			Trialpit Comp	lete at 1 20 m				
Remarks:	Approx 400mm o	diam V0	C pipe	encount	tered at 1.0m			Log Sta	itus		
Groundwater:	Trial pit terminated at scheduled depth.										

			EQ	UES	ST y	Holequest Ltd Winston Road Galashiels					lpit No '-OP6	
			MI	l'ED]	Fel: 01896 75229	5				et 1 of	
Project	Name	9			Proj	ect No.)9E - 564969N		Date	\neg
		art FPS			17/0				m AOD		2/2018	3
Excavat	tion M	ethod:- 3T Mini	Exca	vator, C	L - 1.6	im	Dimensions:		2.00m		cale :25	
Client:							Depth	0.60m				_
	es & G	alloway Council					1.60m	o.			ged By ⁻ M	
		Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Strat	tum D	escription			
0.20 ES 0.30 7.61 MADE GROUND comprising Dark brown silty sandy Topsoil with some rootlets 0.50 ES 0.50 7.41 MADE GROUND comprising Soft to firm light orange brown silty landy very silty locally slightly organic Clay, includes some rootlets and occasional Coal fragments. 0.70 B 0.50 7.41 Firm to stiff locally very soft to soft light grey mottled orange and rareby black slightly sandy silty CLAY. Occasional silty partings at top becoming thinky laminated with depth (Laminae includes Silt, Clay, fine to medium and medium to coarse Sand). 1.00 ES 1.40 6.51 1.50 B 1.40 6.51 1.60 6.31 Orange brown mottled grey slightly sandy gravelly CLAY with low cobble and boulder content Districted on cobbles / boulders at 1.6m Triapit Complete at 1.60 m												
Remarks	:	Trial pit sides sta Trial pit termin of	able du	Iring ex	cavation	 ו ש				L	og Stat	tus
Trial pit termin ated at scheduled depth.										Final		

			EQ	UES	51	Holequest Ltd Winston Road Galashiels			Trialpit No TP11-OF	°6
						Tel: 01896 752295			Sheet 1 of	1
Project Newton					Proj 17/0			18E - 565298N m AOD	Date 31/01/2018	。
		ethod:- JCB 30		- 2 4m			Dimensions:	3.00m	Scale	<u> </u>
LACAVAL			JN, OL	. 2.70		Ľ	r	3.0011	1:25	
Client: Dumfrie	es & G	alloway Council					Depth 60 2.40m 0		Logged By FM	y
Sampl	les & In	Situ Testing	Depth	Level (m AOD)	Legend		Stratum D	escription		
Depth (m)	Туре	Results	(m)	(m aod)	XXXX	MADE GROUND con		g dark brown silty sandy Topsoi	l with	
0.20	ES		0.20	7.48		rootlets				
						MADE GROUND con rounded to angular G	mprising Grey silty loca Gravel with medium co	ally very silty sandy fine to coars bble and low boulder content	e	-
0.50	ES		0.40	7.28		MADE GROUND con	mprising Orange brow	n silty very sandy fine to coarse	rounded	
0.50	B					to subangular Gravel	I with low cobble conte	nt		-
										-
			0.80 0.90	6.88 6.78	$\mathbf{x}^{\mathbf{x}\mathbf{x}\mathbf{x}\mathbf{x}}$	Orange brown silty g	ravelly fine to medium	locally coarse SAND		‡
1.00	ES		0.30	0.70	×. × × ×		slightly silty sandy fine and COBBLES with h			-1
					× × × × × ×					-
					× × × ×					-
					× × × ×					-
1.50	В				× × × × × ×	Stained / coated	Black (Possibly Geoth	ite) from 1.5 - 1.8m		-
					× × × ×					
			1.80	5.88	× × × ×	Grev slightly silty san	dy fine to coarse roun	ded to angular GRAVEL with lov	N/	+
					× × × × × ×	cobble content			NV	-
					× × ×					-2
2.20	в				× × × × ×					-
			0.40		× × × × × ×					-
			2.40	5.28	A.B 2 / 11 - 4/		Trialpit Comple	ete at 2.40 m		
										-
										-
										-3
										-
										-
										4
										-
										-
										-
Remarks	:	Trial pit sides co Trial pit terminat	ollapsin ted due	g and u to colla	ndermir apsing /	ning with depth undermining.			Log Sta	tus
									Final	

			EQ	UE	51 3	Holequest Ltd Winston Road Galashiels	-		Trialpit No TP12-OF	°6
Project	Nom					Fel: 01896 75229			Sheet 1 of Date	1
-		art FPS			17/0			344E - 565291N m AOD	30/01/201	8
Excavat	tion M	lethod:- JCB 30	CX, GL	- 2.3n	n		Dimensions:	3.00m	Scale	
							Depth E 2.30m O		1:25	
		Galloway Council		1	1		ە 2.30m o		Logged B FM	y
Samp Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend			Description		
			0.10	7.56			-	silty sandy Topsoil with rootlets vn slightly silty sandy fine to coar	<u></u>	+
0.20	ES					rounded to subang with Topsoil	ular Gravel with low col	bble content locally intermixed	30	
			0.35	7.31		MADE GROUND c	comprising Grey silty loc Gravel with low cobble	cally very silty sandy fine to coars	e	
0.50	ES					rounded to angular	Gravel with low cobble	content		
0.70	в									-
			0.90	6.76						
1.00	ES		5.00			Brown silty gravelly	r fine to medium SAND			-1
1.20	в				XXXXX XXXXX					
0					***** *:****					-
			1.45	6.21	× × × × × × ×	Dark reddish brow	n silty sandy fine to coa	rse rounded to subangular GRA	/EL	
					× × × × × ×	with low cobble co				-
					× × × *					
					× × × × × × ×					-
2.00	В				× × × × × × ×					-2
					× × × × × ×					-
			2.30	5.36			Trialpit Comp	lete at 2.30 m		
										-
										-
										3
										-
										-
										-
										-
										-
										4
										[]
Remarks	;l	Trial pit sides st	able du	iring ex	cavation	<u>ו</u> ו ו			Log Sta	itus
Groundw	Trial pit terminated at scheduled depth. Eog of a Groundwater: Groundwater encountered at 1.5m Final									

HOLEQUEST LIMITED Holequest Ltd Galashiels Tel: 01896 752295 Tel: 01896 752295 Tel: 01896 752295										
			[MI]	ГЕД	(5			
Project	Name	9				ect No.		73E - 565304N	Date	
-		art FPS			17/0			m AOD	30/01/2018	8
Excavat	tion M	lethod:- JCB 30	CX, GL	- 2.3n	n İ		Dimensions:	3.00m	Scale	
0							Depth 60 2.30m 0		1:25	
		Galloway Council		1	1		2.30m o		Logged By FM	y
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	ES					Dark brown silty ve	ery sandy locally gravelly	TOPSOIL with many rootlets		-
0.40	в		0.30	7.14		Dark reddish brow	n very silty gravelly to ve	ry gravelly fine to medium SANE (Possibly slightly organic))	
0.50	ES		0.55	6.89	×××××					
			0.00	0.00		Dark reddish brow with low cobble co rounded to subrou	n silty sandy fine to coar ntent, Includes beds (<2 nded Gravel	se rounded to subangular GRA\ 50mm thick) of fine to medium	VEL	r r
1.00	ES				× × × × × × ×					-1
					× × × × × × ×					-
					× × × × × × ×					-
1.60	в				× × × × × ×	Stained / coate	ed Black (possibly Geoth	ite) after 1.5m		-
					× × × × × × ×					
					× × × × × ×					-
					× × × × × ×					-2
			2.30	5.14	× × × × × × ×					-
							Trialpit Comple	ete at 2.30 m		-
										-
										-
										-3
										-
										-4
										-
				l					1	
i nai pit terminated at scheduled depth.									Log Sta	
									Final	

			EQ			Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5		Trialpit No TP1-OP7 Sheet 1 of 1	7
Project	Name	<u> </u>				ect No.		38E - 564758N	Date	-
-		vart FPS			17/0			m AOD	06/02/2018	
Excavat	tion N	lethod:- 3T Mini	i Exca	vator, C	GL - 2.5	im	Dimensions:	2.00m	Scale	
							Depth E		1:25	
		Balloway Council		I	I		Depth E 2.50m o		Logged By FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	ES					Turf overlying light slightly organic CL	orange brown mottled g AY with rootlets	rey brown slightly sandy silty	-	
0.50	ES		0.35	8.75		mottled orange bro	own silty CLAY of high pl	soft after 2.0m grey locally asticity occasionally closely id includes pockets / lenses of		
1.00 ES B The second se										
2.00	В		3 50	6.60						-2
			2.50	6.60			Trialpit Comple	ste at 2.50 m		
									- - - - - - - - - - - - - - - - - - -	-3
									- - - - - - - - - - - - - - - - - - -	- 4
Remarks	:	Trial pit sides sta Trial pit terminat	able du ted at s	iring ex chedule	cavatior ed depth	יש <u></u> ו.			Log State	us
Trial pit terminated at scheduled depth.									Final	

			EQ	UES	· • (Holequest Ltd Winston Road Galashiels	Trialpit No TP2-OP	7	
				ιцη		Tel: 01896 752295	Sheet 1 of	1	
Project						ect No. Co-ords: 241579E - 564830N	Date		
Newtor					17/0		06/02/2018	8	
Excava	tion Me	ethod:- 3T Mini	i Exca	vator, G	GL - 2.5		Scale 1:25		
Client: Dumfrie	es & G	alloway Council				Depth 59 2.50m 0	Logged By FM	y	
Samp Depth (m)	les & In S	Situ Testing Results	Depth (m)	Level (m AOD)	Legend	Stratum Description			
0.20 0.50 0.60	ES ES B	1.count	0.35	9.35	Turf overlying light orange brown mottled grey brown slightly sandy silty slightly organic CLAY with rootlets Firm to stiff locally soft becoming soft locally very soft after 1.7m light orange brown mottled grey, orange brown and black silty CLAY of very hig plasticity occasionally fissured towards top with black coatings	h	-		
1.00 ES 1.00 B									
1.60									
2.50	В		2.50	7.20		Trialpit Complete at 2.50 m		-	
								-3	
								-4	
Remarks: Trial pit sides stable during excavation Trial pit terminated at scheduled depth. Log St									
Groundw	Groundwater: No groundwater encountered Fina								

			FΛ	IIFC	I mr	Holequest Ltd Winston Road			Trialpit No	0	
	Galashiels Tel: 01896 752295 Sheet 1 of										
			MI.	LED]		5		Sheet 1 of	1	
-					-				Date		
		vart FPS		4.0-	17/0)82		m AOD	31/01/201	8	
Excava	tion iv	lethod:- JCB 30	JX, GL	1.8n	ו		Dimensions:	3.00m	Scale 1:25		
Client:							Depth 60 1.80m 0		Logged B	N N	
	es & G	alloway Council					1.80m -		FM	y	
Samp	les & In	Situ Testing	Depth		Legend		Stratum [Description			
Samp Depth (m) 0.20 0.50 0.80 1.00	ES ES ES	Results	0.60 1.80	Level (m AOD) 5.18 3.98	Legend		andy TOPSOIL grading t htty organic Sand with r	escription o dark reddish brown silty gravel ootlets with depth ided to subangular GRAVEL with ste at 1.80 m			
										-4	
Remarks	 s:	Trial pit sides co	ollapsin	g with c	lepth				Log Sta	atus	
_		Trial pit termina	ted due	to colla	apse.						
Groundw	Groundwater: Groundwater encountered at 0.9m Final								l		

			ΕO	IIFC	n n I	Holequest Ltd Winston Road			Trialpit No	,
	(ΓŲ	UL	51 <u>y</u>	Winston Road Galashiels			TP4-OP7	7
			[MI]	ED		Fel: 01896 75229	5		Sheet 1 of	1
Project					-	ect No.		79E - 564830N	Date	
		vart FPS lethod:- JCB 30		1 0~	17/0)82		m AOD	31/01/2018	3
Excava			57, GL	1.011	I		Dimensions:	3.00m	Scale 1:25	
Client:							Depth 60 1.80m 0		Logged By	,
		alloway Council					0		FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	ES					Dark brown silty sa fine to medium slig	andy TOPSOIL grading t ghtly organic Sand with r	o dark reddish brown silty gravelly ootlets	/	-
0.80	В		0.60	9.10		Grey mottled oran interbedded with n	ge brown silty locally ver nedium to coarse SAND	y silty fine to medium		-
1.00	ES				× × × × × × × ×					-1
			1.15	8.55		Grey slightly silty s low to medium cot	andy fine to coarse roun	ded to subangular GRAVEL with		• • •
1.80	В		1.80	7.90	1.18.1.2		Trialpit Comple	ete at 1.80 m		-
Remarks	:	Trial pit sides co	ollapsin	g and u	ndermir	ning with depth			Log Sta	tus
Remarks: Trial pit sides collapsing and undermining with depth Log State Trial pit terminated due to collapse. Final Groundwater: Groundwater encountered at 0.6m Final										
2.00100		e.eananator or								adol

			ΓΛ	IIDO	i m	Holequest Ltd			Trialpit No)
			ЪЧ			Winston Road Galashiels			TP5-OP	7
				LED		Fel: 01896 75229	5		Sheet 1 of	1
Project					-	ect No.		93E - 564972N	Date	_
		vart FPS lethod:- JCB 30		- 2.2m	17/0)82	Level: 6.23 Dimensions:	m AOD	31/01/2018 Scale	8
Excava			JA, GL	2.211	1			3.00m	1:25	
Client:							Depth 60 2.20m 0		Logged By	y
		Salloway Council		1					FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	ES					Dark brown silty sa fine to medium slig	andy TOPSOIL grading t ghtly organic Sand with r	o dark reddish brown silty gravel ootlets with depth	ly	-
0.50	ES		0.60	5.63		Grey silty sandy fir medium cobble co	ne to coarse rounded to a ntent	angular GRAVEL with low to		-
0.80	В				× × × × × ×					-
1.00 ES										
1.80	В									2
			2.20	4.03	× × × ,		Trialpit Comple	ete at 2.20 m		-
Remarks		Trial nit sides re	latively	stable	durina	excavation			L a c 0 -	+
Remarks: Trial pit sides relatively stable during excavation Log State Trial pit terminated at scheduled depth. Final Groundwater: Groundwater encountered at 1.1m Final										
		2. 24								

			EQ	UES	ST g	Holequest Ltd Winston Road Galashiels			Trialpit No	
]	Fel: 01896 75229	5		Sheet 1 of	1
Project N					-	ject No.		47E - 565017N	Date	
Newton S			-		17/0			m AOD	19/12/2017	/
Excavatio	on Me	ethod:- 3T Mini	Exca	ator, C	5L - 2.0	m	Dimensions:	3.50m	Scale 1:25	
Client:							Depth Egg 2.00m O			_
Dumfries		alloway Council Situ Testing					2.00m 0		Logged By FM	/
	Type	Results	Depth (m)	Level (m AOD)	Legend		Stratum D			
	ES ES					grading to light bro	andy very gravelly TOPS(wn silty to very silty sligh a to medium Sand with r	DIL with many roots and rootlets tly gravelly locally potlets		
0.00			0.80	5.47		Brown mottled blad	ck silty fine to coarse SA	ND		-
0.90 1.00	B ES		1.00	5.27	$\begin{array}{c} \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times \times$	Omeral and the set		lish red staining slightly		[_1]
1.50 B 2.00 4.27										
2.00 4.27										
Remarks:		Trial pit sides ur	ndermir	ning with	h depth				Log Sta	tus
Trial pit terminated due to undermining. Log Ote Groundwater: Groundwater encountered at 0.95m										

			FO	UFS	TT T	Holequest Ltd Winston Road			Trialpit		
Project Name Project Name Project No. Co-ords: 241316E - 565056N Date Newton Stewart FPS 17/082 Level: 6.63 m AOD 19/12/201											
Droisst	Nors										
-					-						
		ethod:- 3T Mini	i Excav	vator. C			Dimensions:	4.50m	Scal		
				, ,			Г	1.00111	1:25		
Client:							Depth ^E OS 1.80m OS		Logged	Ву	
		alloway Council		1			G		FM		
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription			
0.20 0.50 0.50	ES ES B					arading to brown s	andy very gravelly TOPS ilty to very silty slightly g dium Sand with rootlets	OIL with many roots and rootlets ravelly locally slightly	5	-	
1.00 1.10	ES B		1.00	5.63		Grey slightly silty fi subangular GRAVI		fine to medium rounded to			
1.20 5.43 Grey to reddish brown with depth slightly silty very gravelly fine to coarse SAND with high cobble and boulder content, Gravel, cobbles and boulders of mixed lithologies. 1.60 B 1.80 4.83											
			1.80	4.83	X.X.X		Trialpit Comple	ete at 1.80 m			
										-2	
Remarks	 s:	Trial pit sides ur	ndermir	hing with	h depth					Status	
Trial pit terminated due to undermining.											
2.50.101			Groundwater encountered at 1.15m								

			FU	IIF	r i	Holequest Ltd			Trialpit No	
			ЪЧ	ULL		Winston Road Galashiels			TP8-OP7	7
						Fel: 01896 75229			Sheet 1 of	1
Project		e /art FPS			Proj 17/0	ect No.		340E - 564926N m AOD	Date 05/02/2018	
		lethod:- 3T Mini	Exca	vator. C			Dimensions:	2.00m	Scale	_
				, ,					1:25	
Client:							Depth 60 1.90m 0		Logged By	′
		Salloway Council Situ Testing	Durit		1				FM	
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend			Description		
0.20	ES		0.30	6.40		MADE GROUND of to coarse Sand an	comprising Light brown d fine to coarse rounde	silty sandy Topsoil with some roo to grey brown silty to very silty find d to angular Gravel with low to cks and fragments of Tile with		- - -
0.80	в					depth.				n n n
1.00	ES		1.20	5.50		MADE GROUND of Gravel with mediu	comprising Brown silty s	sandy fine to coarse rounded to ar	ngular	-1 -
1.50 ES										
1.80	В		1.90	4.80			Trialpit Comp	lete at 1.90 m		
Bemarko						eth. Trial pit cida		donth		
Remarks	:	Slight collapse of Trial pit terminat	of trial p ted due	oit sides to colla	with de apse / u	pth, Trial pit side ndermining.	s undermining with	depth	Log Stat	tus
Groundw	Trial pit terminated due to collapse / undermining. Log Otation Provide the second s									

				UES	ST 1	Holequest Ltd Winston Road			Trialpit No TP9-OP7	
			IMI	ΓĒD	(Galashiels Fel: 01896 75229	5		Sheet 1 of 1	
Project	Name	.				ect No.		74E - 564881N	Date	
-		art FPS			17/0			m AOD	05/02/2018	
Excava	tion M	ethod:- 3T Min	ni Exca	vator, C	GL - 2.1	m	Dimensions:	2.00m	Scale	
							Depth S		1:25	
Client: Dumfrie	es & G	alloway Council	I				Depth 50 2.10m 0		Logged By FM	
Samp Depth (m)	l es & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	Description		
0.20	ES					MADE GROUND (cobble and boulde	comprising Dark brown s r content, Includes rare (ilty sandy gravelly Topsoil with lo Glass fragments.	W -	
0.50 0.80	ES B		0.50	5.89		MADE GROUND (to coarse rounded	comprising Dark grey bro to angular Gravel, Includ	own silty fine to coarse Sand and des fragments of China and Tile.	fine	
1.00	ES		1.10	5.29		MADE GROUND (comprising Light grey bro	own very clayey very sandy fine to	-1	
			1.40	4.99		coarse angular to content, Includes of	tabular occasionally sub occasional fragments of	rounded Gravel with low cobble orange brown Tile.		
1.50	ES B					occasionally subro	lenses / pockets (up to a	e angular to tabular v to medium cobble content, Inclu cobble sized) of silty fine to	ides	
			2.10	4.29					-2	
									-3	
Remarks		Trial pit sides st Trial pit termina	ated at s	schedule	ed depth	٦.			Log Status	
Groundw	Groundwater: Groundwater seepages encountered after 1.4m									

			EO	UES	ς <u>π</u> ,	Holequest Ltd Winston Road			Trialpit No	
			[MI]	СЕД ГЕД	,	Galashiels Fel: 01896 75229	5		TP10-OP	
Project	Name					ject No.		99E - 564828N	Sheet 1 of 2 Date	1
-		, art FPS			17/0			m AOD	22/01/2018	3
Excavat	tion M	ethod:- JCB 30	CX, GL	- 2.4n	n		Dimensions:	3.00m	Scale	
							Depth E		1:25	
		alloway Council					Depth 50 2.40m 0		Logged By FM	'
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum E	Description		
0.20	ES		0.10	6.33		MADE GROUND	comprising Dark brown s comprising Dark brownis subangular Gravel	ilty sandy Topsoil h grey slightly silty sandy fine to		-
0.50	ES		0.40 0.50	6.03 5.93		MADE GROUND	comprising Firm to very	stiff grey sandy slightly gravelly		
0.30	В		0.50	5.95		MADE GROUND	ides fragments of Brick a comprising Brownish gre r Gravel with rare cobble	ev very clavey very sandy fine to	coarse	-
			0.85	5.58						
1.00 1.00	ES B						ark brown sandy siightiy i	gravelly slightly organic CLAY	-	- -1 -
1.40 5.03 Greyish brown slightly silty sandy fine to coarse rounded to angular GRAVEL										-
1.50 ES Greyish brown slightly slity sandy line to coarse rounded to angular GRAVEL with low cobble content, Gravel and cobbles of varying lithologies.										- -
2.00	В		0.40	4.00					-	2
2.40 4.03 Trialpit Complete at 2.40 m										
Remarks	:	Trial pit sides co Trial pit termina	ollapsin ted due	g with c to colla	lepth apse.				Log Stat	us
Trial pit terminated due to collapse. Log Groundwater: Groundwater encountered at 1.2m								Final		

			FO	IIFC	TT I	Holequest Ltd			Trialpi	
			JLV			Vinston Road Galashiels			TP11-	OP7
						Tel: 01896 75229	5		Sheet 2	
Project		e /art FPS			-	ect No.		41488E - 564768N 87 m AOD	Dat 22/01/2	
		lethod:- JCB 30	CX GI	- 2 3m	17/0	162	Dimensions:	3.00m	Sca	
			, <u> </u>		•		Depth		1:2	
Client:							2.30m	0.60m	Logge	d By
		alloway Council		Γ					FM	
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend			Im Description		
0.20 0.50 1.00 1.00	ES ES B		0.70	5.17		medium locally slig rootlets throughout	ghtly organic SAND t.	PSOIL grading to brown silty fine to with depth, including roots and fine to coarse rounded to angular ulder content		1
2.00 B 2.30 3.57										-2
2.30 3.57 Trialpit Complete at 2.30 m										
Remarks	:	Trial pit sides co	ollapsin	g with d	epth				Log	Status
								Final		

			ΓΛ	IID	י ת י 1	Holequest Ltd Winston Road			Trialpit No	'
	(JLV		51 (Winston Road Galashiels			TP12-OP	7
				LED	-	Tel: 01896 75229	5		Sheet 1 of 2	1
Project						ject No.		50E - 564740N	Date	
		ethod:- JCB 30		- 2 25	17/0	082	Level: 5.02 Dimensions:	m AOD	22/01/2018 Scale	5
LACava			57, GL	2.55	111		r	3.00m	1:25	
Client:							Depth 60 2.35m 0		Logged By	,
Dumfrie	es & G	alloway Council					2.0011 0		FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
Depth (m) 0.20 0.50 0.60 1.00 1.60	ES 0.50 4.52 B 0.50 4.52 Grey brown silty very gravelly fine to coarse SAND with low cobble content, Gravel and cobbles of mixed lithologies. 1.10 3.92 Includes a lense (approx 150mm thick) of bluish grey very silty fine to medium Sand along riverside TP face Grey brown becoming orange brown with depth slightly silty slightly sandy fine to coarse rounded to subangular GRAVEL and COBBLES with medium boul content, Gravel, cobbles and boulders encountered at approx 1.2m									
That pit terminated due to conapse.									Log Stat	
Groundw	vater:	Groundwater er	ncounte	ered at 0).9m				Final	

			FΛ	IIFC	n n	Holequest Ltd			Trialpit No	0
	(ЪЧ			Winston Road Galashiels			TP2-OP2	24
				LED		Геl: 01896 75229	5		Sheet 1 of	[:] 1
Project						ject No.		26E - 565185N m AOD	Date 14/12/201	_
		ethod:- JCB 30	CX GI	- 3 35	17/0 m	J8Z	Dimensions:	5.50m	Scale	<u>′</u>
Endura			<i>, 0</i>	_ 0.00			г	0.0011	1:25	
Client:							Depth 5.35m 5.35m		Logged B	y
		Salloway Council Situ Testing							FM	
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend		Stratum D			
0.20	ES					Dark brown silty sa roots and rootlets	andy becoming very grav	elly towards base TOPSOIL wi	th	-
0.50	ES		0.50	7.37		Dark reddish brow (possibly slightly o	n silty to very silty gravel rganic) (Non Plastic)	ly fine to medium SAND		+
0.80	В									-
1.00	ES		1.20	6.67						-1 -
1.20 6.67 Dark reddish brown slightly silty sandy fine to coarse rounded to subangular GRAVEL with low cobble content, Gravel and cobbles of mixed lithologies. 1.80 B										
			2.30 2.50	5.57 5.37		Grey silty fine to c				-2
2.80	В					rounded to angula	dash brown with depth s r GRAVEL with low to hig d boulders of mixed lithe	lightly silty sandy fine to coarse gh cobble and boulder content, ologies.	3	- - -3 -
			3.35	4.52	× × × ×		Trialpit Comple	ete at 3.35 m		
										- - - - - - - - - - - - - -
Remarks	:	Trial pit sides co Trial pit termina	ollapsin ted due	g and u e to colla	 ndermir apsing /	ning with depth undermining.			Log Sta	atus
									Fina	l

			FO	IIFS		Holequest Ltd Winston Road			Trialpit	
			уці мті	UĽk FED		Galashiels			TP3-OF	
						Fel: 01896 75229			Sheet 1	
Project Newton					Pro 17/0	ject No. 182		04E - 565173N m AOD	Date 13/12/20	
		ethod:- JCB 30	CX. GL	2.65		502	Dimensions:	5.50m	Scale	
			, -					0.0011	1:25	
Client:							Depth کې 2.65m ۲		Logged	Ву
		alloway Council		1	1	[FM	
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend			Description		
0.20 0.50 0.60	ES ES B		0.40	7.06		Dark orange brow		depth silty sandy TOPSOIL with nt towards base arse SAND with low cobble rootlets towards top	some	-
1.00	ES		1.30	6.16						- 1
1.50 B 2.10 5.36										- - - -2
2.50	В		2.10	4.81		Grey slightly sand with high cobble c boulders of mixed	ontent and low boulder o	rounded to subangular GRAVE content. Gravel, cobbles and	L	
			2.05	4.01			Trialpit Compl	ete at 2.65 m		
										-3 - - - -
										- - 4 - - - - -
Remarks	:	Trial pit sides co	ollapsin	g with c	lepth ar	nd undermining be	elow approx 2.1m		Log S	Status
I rial pit terminated due to collapsing / undermining.									Fir	nal

			ΓΛ	IIFC	1 T	Holequest Ltd			Trialpit No
			ЪĄ		01)	Winston Road Galashiels			TP4-OP24
				ГЕD		Tel: 01896 75229	5		Sheet 1 of 1
Project						ject No.		44E - 565163N	Date
		vart FPS lethod:- JCB 30		2.05	17/0	082		m AOD	13/12/2017
Excava			JA, GL	2.90	111		Dimensions:	5.50m	Scale 1:25
Client:							Depth E 2.95m C		Logged By
		alloway Council		1		[FM
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription	
0.20	ES		0.40	7.54		Dark brown silty sa after approx 0.25m	andy TOPSOIL with som	e rootlets. Becoming very gravel	ly
0.50	ES		0.40	7.54		fine to coarse SAN	n very silty gravelly beco ID with low cobble conte rganic towards top).	ming very gravelly with depth nt and rootlets towards top	-
0.80	В								-
1.00	ES								-1
			1.40	6.54	× × × × × × × × × × × × × × × × × × ×	Dark brownish gre with low to mediun	y silty sandy fine to coars	se rounded to subangular GRAV	/EL
1.80	В				× × × * × × * × × *	Shallow dippin 200mm thick c	g bed (<5 degrees) of p bserved in TP sidewall	ossibly very sandy Gravel approx at approx 1.7m.	(
									-2
2.70	в		2.60	5.34	× × ×	Grey slightly sandy cobble and boulde	r fine to coarse rounded r content	to subangular GRAVEL with low	1
			2.95	4.99	0.0		Trialpit Comple	No. of 2.05 m	-3
									- - - - - - - - - - - - - - - - - - - -
Remarks	 	Trial pit sides co	ollapsin	g with d	epth ar	nd undermining be	elow 2.6m		Log Status
I rial pit terminated due to collapsing / undermining.								Final	
Groundwater: Groundwater encountered at 2.6m Fina									

Climititizity Galachics It 10 1896 72225 Co-ords: 241379E - 565147N Date 13/122017 Excavation Method: JCB 3CX, GL - 2.3m Dimensions: 5.50m Scale Excavation Method: JCB 3CX, GL - 2.3m Dimensions: 5.50m Scale Optimizes & Saleway Council Depting the sale sale method of non-type Depting the sale sale method of non-type Statum Description Total provide the sale method of non-type Depting the sale sale method of non-type Depting the sale sale method of non-type Depting the sale sale sale sale sale sale sale sal				EO	IIFS	TT :	Holequest Ltd Winston Road			Trialp	
Project Name Project No. Co-ords: 241379E - 566147N Joate Excavation Method:- JCB 3CX, GL - 2.3m Dimensions: 5.50m 13/12/2017 Excavation Method:- JCB 3CX, GL - 2.3m Dimensions: 5.50m 12/2 Client: 2.30m E Loged By Dummfries & Saloway Council Dept E Loged By Dummfries & Saloway Council Dept E Loged By Dept Trime Excavation Method:- JCB Statum Description Statum Description 0.40 0.40 0.46 Park brown ality sandy TOPSOL E Loged brown ality sandy TOPSOL E 0.50 ES 0.40 0.46 Park brown ality sandy TOPSOL E E 1.50 ES 0.40 9.46 E <td< td=""><td></td><td></td><td></td><td>рпт [MI]</td><td>CED</td><td>) I (,</td><td>Galashiels</td><td>5</td><td></td><td></td><td></td></td<>				рпт [MI]	CED) I (,	Galashiels	5			
Newton Stewart FPS 17/082 Level: 6.86 m AOD 13/12/2017 Excavation Mothod:- JCB 3CX, GL - 2.3m Dimensions: 5.50m Scale 1.22 Client: Dage by 2.30m 9	Draigat	Nom							705 50544751		
Excavation Method:- JCB 3CX, GL - 2.3m Dimensions: 5.50m Scale Client: Domining & Galloway Council Domining & Galloway Council Stratum Description Service & Is No Testing Depth Image: Stratum Description Image: Stratum Description 0.20 E8 0.40 6.46 Date torown sity sardy TOPSOL Image: Stratum Description 0.20 E8 0.40 6.46 Date torown sity sardy TOPSOL Image: Stratum Description 0.20 E8 0.40 6.46 Date torown sity sardy TOPSOL Image: Stratum Description 0.20 E8 0.40 6.46 Date torown sity sardy transformed to coarse SAND printing to modum to coarse with doth. Includes thin Ionos of roddsh former site to sard and coarse of models Image: Stratum Description 1.00 E5 1.80 5.28 Image: Stratum Description Image: Stratum Description 1.70 B 1.80 5.28 Image: Stratum Description Stratum Description Image: Stratum Description 1.70 B 1.80 5.28 Image: Stratum Description Stratum Description Stratum Description Stratum Description Image: Stratum Description 1.70 B 1.80 5.28 Image: Stratum Description Stratum Description Image: Stratum Description 1.70 B 1.80<	-										
List Depth E List Logged By FM Depth Fee Results Depth Level Level Logged By FM 020 E8 Results Depth Level Depth Level Depth Statum Description Image: Comparison of the C				CX, GL	2.3m		502				
Dumines & Calloway Council Image: Calloway Council FM Semples in Sur Testing Perint Image: Calloway Council Statum Description 0.20 ES Image: Calloway Council Dark brown sity andy TOPSOL Image: Calloway Council Image: Callo											
Stratum Description Description 0x01 (m) Type Results (m) (m) (m) (m) (m) Dark brown sity sandy TOPSOL (m) (m) (m) (m) (m) Dark brown sity sandy TOPSOL (m) (m) (m) (m) (m) Dark brown sity sandy TOPSOL (m) (m) (m) (m) (m) (m) (m) (m) Dark brown sity sandy TOPSOL (m) (es & G	Galloway Council					2.30m			
0.20 ES 0.40 6.46 Dark brown silly samdy TOPSOL 0.30 ES 0.40 6.46 Light brown silly samdy TOPSOL 0.30 ES 0.40 6.46 Light brown silly samdy TOPSOL 1.00 ES 0.40 5.26 Light brown silly samdy TOPSOL 1.00 ES 1.60 5.26 Light brown silly samdy fine to come SMD 1.70 B 1.60 5.26 Circly becoming reddath brown silly samdy fine to come rounded to angular ORAUL with medium to high cobies content. Gravel and cobbles of moved lithologies. 1.70 B 1.60 5.26 Second samdy to the second samdy samdy fine to come rounded to angular ORAUL with medium to high cobies content. Gravel and cobbles of moved lithologies. -1 1.70 B 2.30 4.56 Taget complete at 2.30 m -1 1.70 Figure content. Circle at the second samdy complete at 2.30 m -1 -1 -1 1.70 B 1.80 5.26 Taget complete at 2.30 m -1 1.70 Circle at 2.30 1.56 Taget complete at 2.30 m -1 -1	Samp	les & In	Situ Testing			Legend		Stratum [Description		
0.50 ES Light forwards in view will signify unwell with the biochers SAUD 0.70 B Image: Saudi S			Results				Dark brown silty sa				-
0.70 B 1.00 FS 1.70 B 1.70 B 2.30 4.56 Trapit Complete at 2.30 m	0.50	ES		0.40	0.40		arading to medium	to coarse with depth Ir	ly fine to coarse SAND ncludes thin lenses of reddish		-
1.70 B 1.70 B 2.30 4.56 Trapit Complete at 2.30 m Trapit Complete at 2.30 m							brown staining tow	ards base.			1
Remarks: Trial pit undermining below 1.65m	1.70	В					Grey becoming red GRAVEL with med lithologies.	ddish brown silty sandy lium to high cobble cont	fine to coarse rounded to angula ent. Gravel and cobbles of mixe	ır d	-2
Remarks: Trial pit undermining below 1.65m				2.30	4.50			Trialpit Compl	ete at 2.30 m		-
											-
	Remarks	 s:	Trial pit underm	ining b	elow 1.6) 65m				Loc	Status
Trial pit terminated due to undermining. Log Ottata Groundwater: Groundwater encountered at 1.65m	Groundw	/ater:					g.				

			ΓΛ	IIFC	m I	Holequest Ltd			Trialpit	No
			ЪŲ	U L L VED		Winston Road Galashiels			TP6-OF	24
				ED		Tel: 01896 75229	5		Sheet 1	
Project						ect No.		357E - 565136N 4 m AOD	Date	
Newton Excavat		ethod:- JCB 30	CX GI	- 3.3m	<u> 17/0</u>	182	Dimensions:	5.50m	13/12/20 Scale	
Execute			5/1, OL	0.011					1:25	
Client:							3.30m		Logged	Ву
		alloway Council							FM	
Depth (m)	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend			Description		
0.20	ES		0.40	7.04		Dark brown silty sa after approx 0.3m.	andy TOPSOIL with so	ome rootlets, becoming very grave	lly	-
0.50	ES		0.40	7.24		Brown very silty graslightly organic)	avelly fine to coarse S	AND with some rootlets (Possibly		-
0.80	В		0.70	6.94	× × × ×			ry sandy fine to coarse rounded to e content, Gravel and cobbles of r		
1.00 ES										-1
2.30	В		2.30	5.34		rounded to subang	ular occasionally ang t and low boulder cor	n slighlty sandy fine to coarse ular or tabular GRAVEL with medi tent, Gravel, cobbles and boulder:	um to s	
3.30	В		3.30	4.34			Trialpit Con	plete at 3.30 m		
										- - - - - - - - - - - - - - - - - - - -
Remarks	:	Trial pit underm Trial pit termina	ining be ted due	elow ap to und	prox 2.5 ermining	ī īm g.			Log S	Status
Groundwater: Conditions becoming damp at 2.3m, Groundwater encountered at 2.5m									nal	

			٣٨	IID	י ד י ד <u>י</u> י	Holequest Ltd			Trialpit No)
			ĿЫ	ULI	<u>,</u> 10	Winston Road Galashiels			TP7-OP2	24
				LED	r	Tel: 01896 75229	5		Sheet 1 of	1
Project						ject No.		27E - 565111N m AOD	Date	,
		vart FPS lethod:- JCB 30		- 3 On	17/0	082	Level: 7.60 Dimensions:		13/12/2013 Scale	<u>′ </u>
LACava			JA, GL	3.011	1		r	5.50m	1:25	
Client:							Depth E 3.00m C		Logged By	y
		Balloway Council		1	1	T			FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	ES					Dark brown silty sa after approx 0.25m	andy TOPSOIL with som I.	e rootlets, becoming very gravel	ly	-
0.50	ES		0.45	7.15		Dark orange brow	n silty sandy fine to coars	se rounded to subangular GRAV	′EL	-
0.65	в				× × × × × ×	with low cobble co	ntent, Gravel and cobble	es of mixed lithologies.		-
					× × × × × × × ×					-
1.00	ES		1.00	6.60		Dark reddish brow lenses (<100mm t	n silty slightly gravelly fir hick) of fine and fine to n	e to coarse SAND, Includes nedium Gravel.		+1
1.50	В		1.00	5 70						
2.50	в		1.90	5.70		coarse rounded to	grey becoming reddish b angular GRAVEL with n bbbles and boulders of n	rown with depth sandy fine to nedium cobble and low boulder nixed lithologies.		-2
			3.00	4.60			Trialpit Comple	ete at 3.00 m		
										- - - -
										-
Remarks	:	Trial pit sides co Trial pit terminat	ollapsin ted due	g with c to colla	lepth ar apsing /	d undermining be undermining.	elow 2.4m		Log Sta	[itus
Groundw	ater:	Groundwater er	icounte	ered at 2	2.4m				Final	

			FΛ	IIFC	I mr	Holequest Ltd			Trialpit N	0
			ЪЙ	ULC		Winston Road Galashiels			TP10-OP	24
			MI	ΓED]	Fel: 01896 75229	5		Sheet 1 of	1
Project					-	ect No.		41300E - 565090N	Date	
Newton					17/0			.65 m AOD	19/12/201	7
Excavat	tion Me	ethod:- 3T Min	Exca	ator, C	il - 2.0	m	Dimensions:	4.50m	Scale 1:25	
Client:							Depth	0.50m	Logged B	N N
	es & Ga	alloway Council					2.00m	o l	FM	y
	les & In S Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratu	um Description		
0.20 0.50	ES	Results	()	(aradina to brown s	andy very gravelly T	OPSOIL with many roots and rootlets	5	-
0.80	В									
1.00	ES		0.95	5.70		Grey slightly silty f	ine to coarse SAND Jular GRAVEL	and fine to medium rarely coarse		-1
1.30	В		1.15	4.65		Grey mottled reddi coarse SAND with very soft Silt / Clay	ish brown and occa: lenses (generally < of low plasticity and ble and boulder con	sionally black slightly silty fine to c100mm thick) of medium to coarse to d fine to medium rounded Gravel. Intent after approx 1.5m	Sand,	-3 -3 -3 -44
Remarks	:	Trial pit sides ur Trial pit termina	ndermir	hing with	n depth	n			Log Sta	atus
Groundwa	ater:	Groundwater er				y. 			Fina	

			FΛ	IIFC		Holequest Ltd			Trialpit No)
			ЪЧ			Winston Road Galashiels		η	ГР11-ОР	24
			MIT	ED		Tel: 01896 75229	5		Sheet 1 of	1
Project						ject No.		50E - 565054N	Date	
		vart FPS lethod:- JCB 30		0.7~	17/0	082		m AOD	14/12/201	/
Excava			, GL	2.711	I		Dimensions:	5.50m	Scale 1:25	
Client:							Depth E 2.70m C		Logged B	v
		Galloway Council					2.7611 [FM	,
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20 0.50	ES ES		0.80	6.24		slightly organic fine	e to medium Sand with r	prading to brown very silty oots and rootlets throughout		
1.00 1.00	ES B		1.50	5.54		rootlets (Non Plast	v silty fine to coarse SAN	D		
						- Dorthy docomp	and trac surrounded by	Peaty debris encountered at ap	prov.	
2.00	В		1.80	5.24		1.7m Grey becoming red	ddish brown with depth s	lightly silty sandy fine to coarse ble content, Gravel and cobbles	/	-2
			2.70	4.34	X	*	Trialpit Comple	ete at 2.70 m		
										-3
Remarks		Trial pit sides co Trial pit terminat	ollapsin ted due	g and u	ndermii erminin	ning with depth g.			Log Sta	
Groundw	/ater:	Groundwater er	counte	ered at 2	.0m				Fina	l

		HOI	EQ	UES	ST y	Holequest Ltd Winston Road Galashiels			Trialpit No	
			IMI]	ΓED]	Fel: 01896 75229	5		Sheet 1 of	1
Project	Name	Э			Proj	ect No.	Co-ords: 2412	47E - 565157N	Date	
Newtor	n Stew	art FPS			17/0)82	Level: 8.63	m AOD	19/12/2017	7
Excava	tion M	lethod:- 3T Min	i Exca	vator, C	GL - 2.0	m	Dimensions:	3.50m	Scale	
							Depth E		1:25	
		alloway Council					. Depth کې 2.00m ح		Logged By FM	/
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum E	Description		
0.20 0.50 0.50	ES ES B		0.60	8.03		and fine to coarse cobble content, Inc Filters and many F	rounded to angular Gra Iudes fragments of Slat Roots / Rootlets.	ery clayey organic fine to coarse vel of low plasticity with low e, Brick, Masonry, rare Air		-
0.80 1.00	B ES					fine to coarse San lenses (<200 thick	d and fine to medium or) of very clayey organic	ttled brown and dark grey very cl: casionally coarse Gravel with Sand and low cobble content, Bricks and fragments of Brick,	ayey	- - -1
1.50	ES									
1.80	в					Intermixed with angular Grave	h reddish brown silty sar I between 1.7 - 2.0m	ndy fine to medium subrounded to	D	-
2.00	ES		2.00	6.63						
Remarks	 s:	Slight collapse of	of trial r	pit sides	with de	pth			Log Sta	tue
Groundw		Trial pit termina	ted at s	schedule	ed depth	1			Final	
Croanaw	2.011									

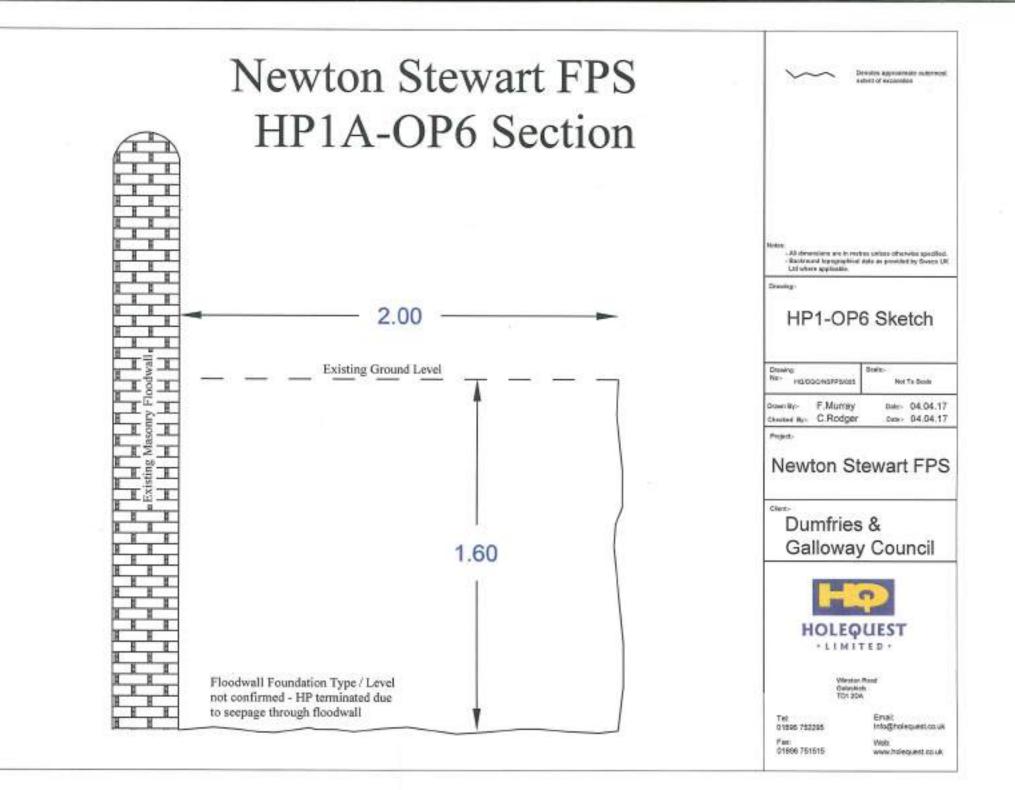
			ЕQ			Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5			Trialpit No TP2-SP Sheet 1 of	•
Project						ject No.			43E - 565135N	Date	
		art FPS			17/0		Level:		m AOD	19/12/2017	7
Excava	tion IV	lethod:- 3T Mini	I Exca	vator, C	JL - 1.8	35m	Dimension		3.50m	Scale 1:25	
Client:							Depth	0.35m			
	-s & G	Galloway Council					1.85m	Ö		Logged By FM	/
		Situ Testing	Depth	Level						1 101	
Depth (m)	Туре	Results	(ṁ)	(m AOD)	Legend				escription Ity sandy gravelly Topsoil with ma	201	
						rootlets	comprising light i	DIOWITSI	ny sandy graveny ropson with ma	iiy	-
0.20	ES		0.20	9.22		MADE GROUND of intermediate pla	comprising dark	brown ve	ery clayey organic fine to coarse S rounded to angular Gravel	Sand	
						with cobble sized	pockets of sandy	/ slightly	gravelly Clay and silty tent, Includes fragments of Coal,		-
0.50 0.50	ES B					China, Brick, Masc	onry, Glass, Clay	y Pipe ar	id some Roots / rootlets.		-
0.00											
											-
											-
1.00	ES										-1
											-
			1.35	8.07							
1.50	ES					slightly organic cla	vev locally very o	clayey ve	nottled light brown and black local ery sandy fine to coarse	y	
1.50	B					rounded to angula Includes lenses of	r Gravel with low Ash and fragme	v cobble ents of G	content predominantly of Bricks, lass / Glass bottles.		-
											-
1.80	ES		1.85	7.57	XXXX		possible corrac	nated Tir	n Sheet at 1.85m	1	
								=	ete at 1.85 m	/	-2
Remarks	 s:	Slight collapse of	of trial r	oit sides	with de	pth				Log Sta	
		Trial pit terminat	ted at s	chedule	ed depti	ı. 1.					
Groundw	vater:									Final	I.

			EO	UES	ST !	Holequest Ltd Winston Road			Trialpit No	
			[MI]	FED	- (Galashiels Fel: 01896 75229	15		Sheet 1 of	
Project	Name	Э				ject No.		03E - 565161N	Date	÷
-		art FPS			17/0			m AOD	15/12/2017	7
Excavat	tion M	lethod:- JCB 30	CX, GL	3.0n	า		Dimensions:	5.50m	Scale	
Olionti							کی 3.00m بے		1:25	
Client: Dumfrie	es & (-	Salloway Council					ين 3.00m		Logged By FM	/
Samp	les & In	Situ Testing	Depth	Level	Legend		Stratum	Description	1 101	
Depth (m)	Туре	Results	(m)	(m AOD)	Logona	Dark brown silty sa		epth TOPSOIL with rootlets and		
0.20	ES		0.40	7.02		low boulder conter	nt			- -
0.50	ES				× × × ×		n silty very sandy fine to ie roots and rootlets (loo	coarse rounded to subangular cally slightly organic)		-
0.70	В					Sand becomin	ig more predominant wit	th depth		-
1.00	ES				× × * × × *					-1 -
			1.20	6.22	× × × ×	Greyish brown slig	htly silty medium to coa	rse SAND		†
1.35 6.07 Image: state									ning	
			3.00	4.42			Trialpit Compl	 ete at 3.00 m		
Remarks	:	Trial pit sides co							Log Sta	tus
Groundw	ater:	Trial pit termina	ted due	to colla	apse.					10,70

			EQ	UES	ST 1	Holequest Ltd Winston Road			Trialpit No	
			MI	ſED	(-	Galashiels Fel: 01896 75229	5		Sheet 1 of	
Project I	Name	;			Proj	ect No.	Co-ords: 2413	03E - 565133N	Date	
Newton					17/0)82	Level: 7.34	m AOD	13/12/2017	7
Excavat	ion M	ethod:- JCB 3C	CX, GL	2.5n	n		Dimensions:	5.50m	Scale	
Client:							Depth Egg 2.50m C		1:25	
Dumfrie		alloway Council			1		2.50m 🕂		Logged By FM	/
	es & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.20	ES		0.40	6.94		with low cobble co	ntent towards base	e rootlets, becoming very gravelly		-
0.50 0.50	ES B		0.40	0.04		Dark reddish brow organic SAND with	n silty to very silty gravel n occasional rootlets	ly fine to coarse slightly		-
1.00	ES		0.85	6.49		with low cobble co	ntent, Gravel and cobble		L	-1
1.50	в					Brown very silty gr	avelly fine to coarse SAN	ID		
			1.70	5.64		to coarse GRAVE	Grey becoming reddish t _ with medium cobble ar ers of mixed lithologies.	prown with depth silty sandy fine d low boulder content, Gravel,		-2
2.50	в		2.50	4.84	× X X		Trialpit Comple	ete at 2.50 m		
Remarks		Trial pit sides co	llansin	g with c	ienth ar	d undermining b	Now 1 9m			
Remarks:		Trial pit sides co Trial pit terminat	llapsin ed due	g with c to colla	depth ar apsing /	d undermining be undermining.	elow 1.9m		Log Sta	tus
Groundwa	ater:				. 3				Final	

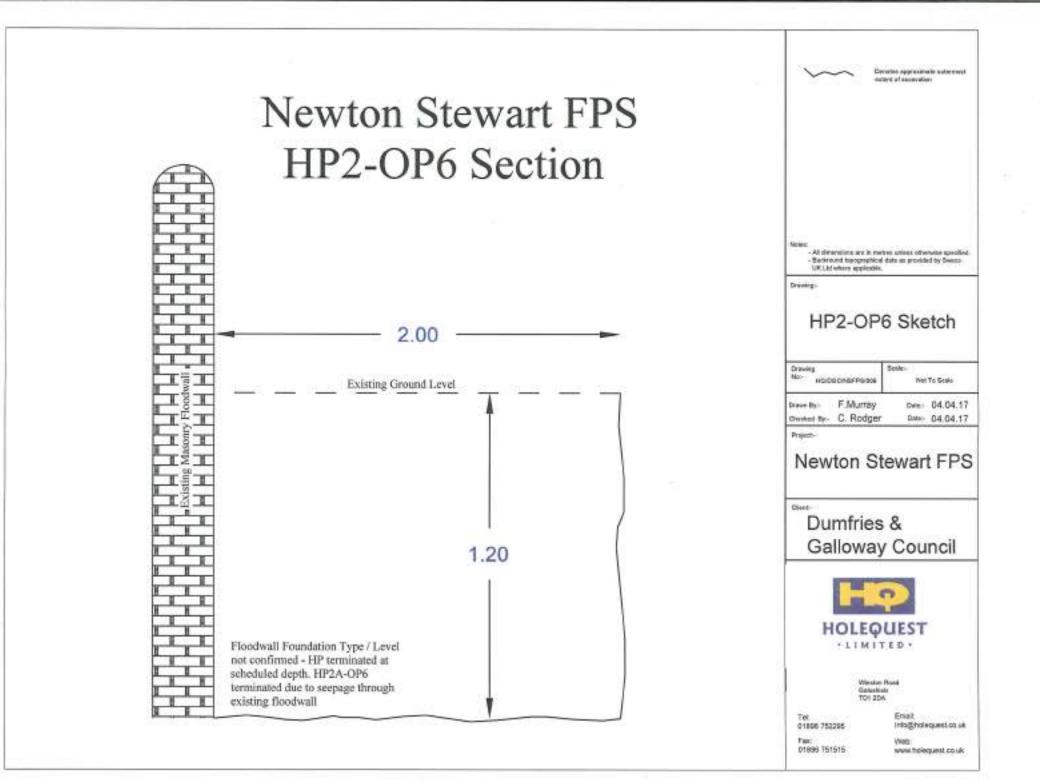
		H OI	LEO	UES	ST '	Winston Road			Trialpit No	
			[MI	ΓED	- (5		Sheet 1 of 1	
Project	Name	9						46E - 565929N	Date	
-									19/01/2018	
Excava	tion N	lethod:- Hand E	Excava	ted, GL	0.5n	n	Dimensions:	1.00m	Scale	
							Depth E		1:13	
							0.50m 0.50m		Logged By	
									MT / FM	
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend			•		
LIMITED Oradismess Tel: 01896 752295 Project Name Project No. Co-ords: 241046E - 565929N Newton Stewart FPS 17/082 Level: 10.29 m AOD Excavation Method:- Hand Excavated, GL - 0.5m Dimensions: 1.00m Client: Depth 6 Output Output Samples & In Situ Testing Depth Level Level Depth										.1
Remarks							d with 3T Mini Exca	vator to confirm wall base.	Log Statu	us
Groundw	ater:	No groundwate							Final	

			ΓΛ	IIFC	in I	Holequest Ltd			Trialpit No
			ЪЛ			Winston Road Galashiels			HP1A-OP6
				LED]	Геl: 01896 75229	5		Sheet 1 of 1
Project					-	ect No.)46E - 565929N	Date
		art FPS			17/0			9 m AOD	24/01/2018
Excava	tion M	lethod:- 3T Min	i Exca	vator, G	GL - 1.6	ŝm	Dimensions:	1.50m	Scale 1:13
Client:							Depth 09 1.60m 0		
		Galloway Council					1.60m 0		Logged By MT / FM
		Situ Testing	Depth	Level	1				
Depth (m)	Type	Results	(m)	9.29		high cobble and bound conjuders predomin	comprising Grey silty ve oulder content, Includes bined cobbles / boulder ant.	Description ry gravelly fine to coarse Sand w much Bricks and Masonry. Voic s with depth where cobbles / d yellowish brown and brown silt nd Boulders. Below approx 1.5m late and Masonry.	tage
1.50	ES		1.60	8.69			Trialpit Comp	lete at 1.60 m	
Domortes		Trial nit torming	tod due		or increa	es from ovisions f	oodwall Soo attac	had skatch for foundation	
Remarks		detail			_		rough existing wall	hed sketch for foundation	Log Status
					••	1 3	5 5 5		

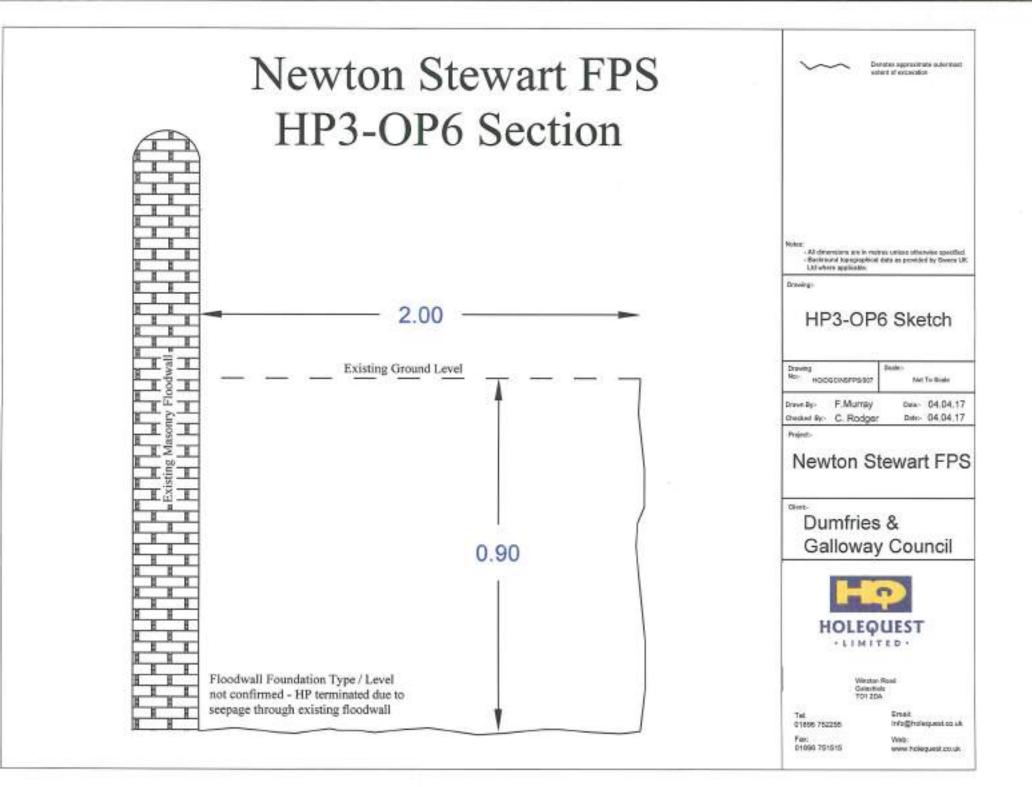


			LEQ IMI		51	Holequest Ltd Winston Road Galashiels Fel: 01896 752293	5		Trialpit No HP2-OP6 Sheet 1 of 1
Project					Proj	ect No.		91E - 565759N	Date
		art FPS			17/0			m AOD	19/01/2018
Excavat	tion IV	lethod:- Hand E	Excava	ited, Gl	L - 1.2n	n	Dimensions:	1.00m	Scale 1:13
Client:							Depth 60 1.20m 0		
	es & G	Galloway Council	I				1.20m 0.		Logged By MT / FM
Samp	les & In	Situ Testing	Depth	Level (m AOD)	Legend		Stratum D	escription	
Depth (m)	Туре	Results	(m)	(m aod)		MADE GROUND c	omprising Dark brown s		
			0.10	9.26					
						MADE GROUND c medium cobble co	omprising Brown silty ve ntent, Includes Ash, Bric	ry gravelly fine to coarse Sand v k and much Masonry.	vith
0.30 0.30	B ES		0.30	9.06		MADE GROUND c	omprising Black slightly	organic silty gravelly fine to coa	rse
0.30	ES					Sand with low cobb	ble content, Includes Ash	and some Brick.	
0.50 0.50	B ES		0.50	8.86		MADE GROUND c	omprising Brown silty lo	cally gravelly fine to coarse San	b
						orange brown sand	e content that includes A ly Clay with depth	Ash and cobble sized pockets of	-
									-
0.90	В								
0.00									
1.00	ES					- - -			-1
									-
			4.00	0.40					
			1.20	8.16			Trialpit Comple	te at 1.20 m	
									-
									-
									-
									-
									-
									ŀ
									ľ
									Ļ
									ŀ
									ŀ
Remarks	:	Trial pit termina	ted at s	chedul	ed denth	- To be re-excav	rated with 3T Mini e	xcavator to confirm wall	
	-	base. See attac	ched sk	etch for	foundat	tion detail			Log Status
Groundw	ater:	No groundwate	r encou	intered					Final

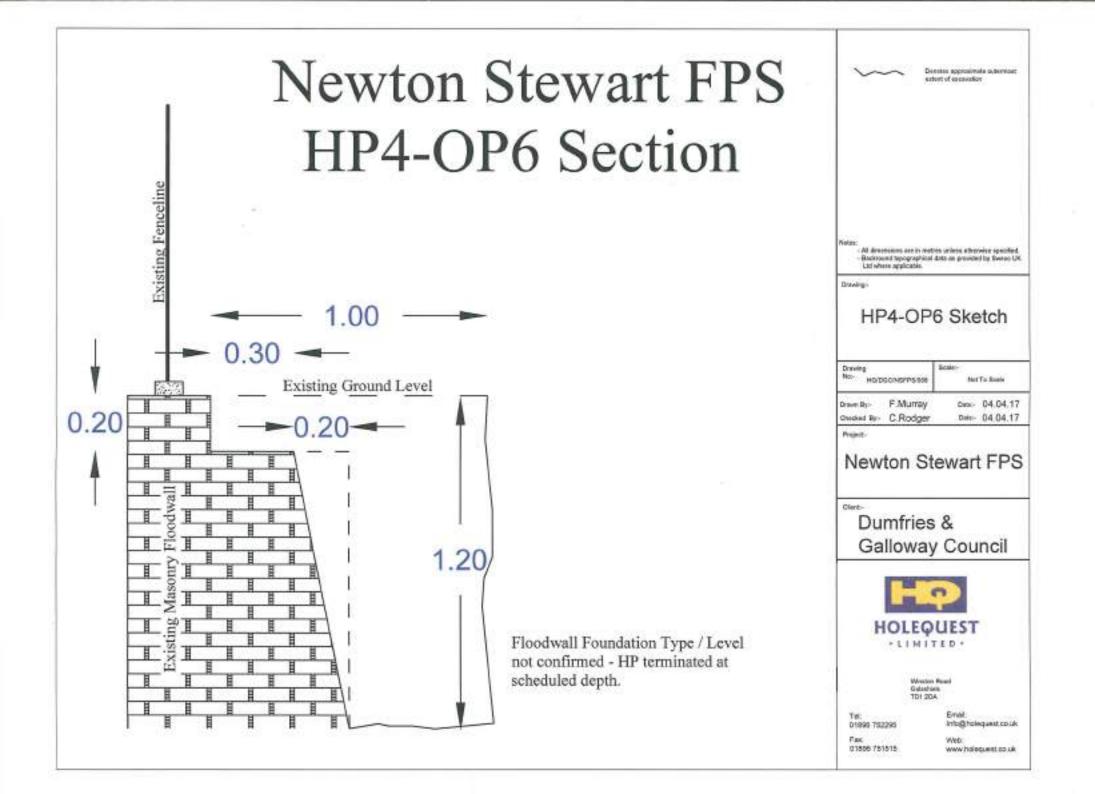
Holequest Ltd Winston Road Galashiels Tel: 01896 752295 Project Name											
Project Name				ject No.		91E - 565759N	Date				
Newton Stew	ethod:- 3T Mini Exc	ovotor (m AOD	24/01/2018 Scale				
		avalor, C	JL - 0.7		Dimensions:	1.50m	1:13				
Client:					Depth 60 0.70m 00		Logged By				
	alloway Council				0.70111 0		MT / FM				
Samples & In		h Level (m AOD)	Legend		Stratum D	escription					
Depth (m) Type	Results (m			MADE GROUND	comprising Dark brown s						
	0.1	9.26		MADE GROUND (medium cobble co	comprising Brown silty ve ontent, Includes Ash, Bric	ery gravelly fine to coarse Sand k and much Masonry.	with				
	0.3			fine to coarse San some Brick	comprising Black slightly d with low cobble conten	t, Includes Ash and					
0.50 8.86 MADE GROUND comprising Brown silty locally gravelly fine to coarse Sand with medium cobble content that includes Ash and cobble sized pockets of orange brown sandy Clay with depth 0.70 8.66											
Remarks:	Trial pit terminated of	ue to wat	er ingre	ss through existin	Trialpit Comple		Log Status				
	foundation detail						Log Status				
Groundwater:	Groundwater encour	ntered at ().7m - S	eepage through	existing floodwall		Final				



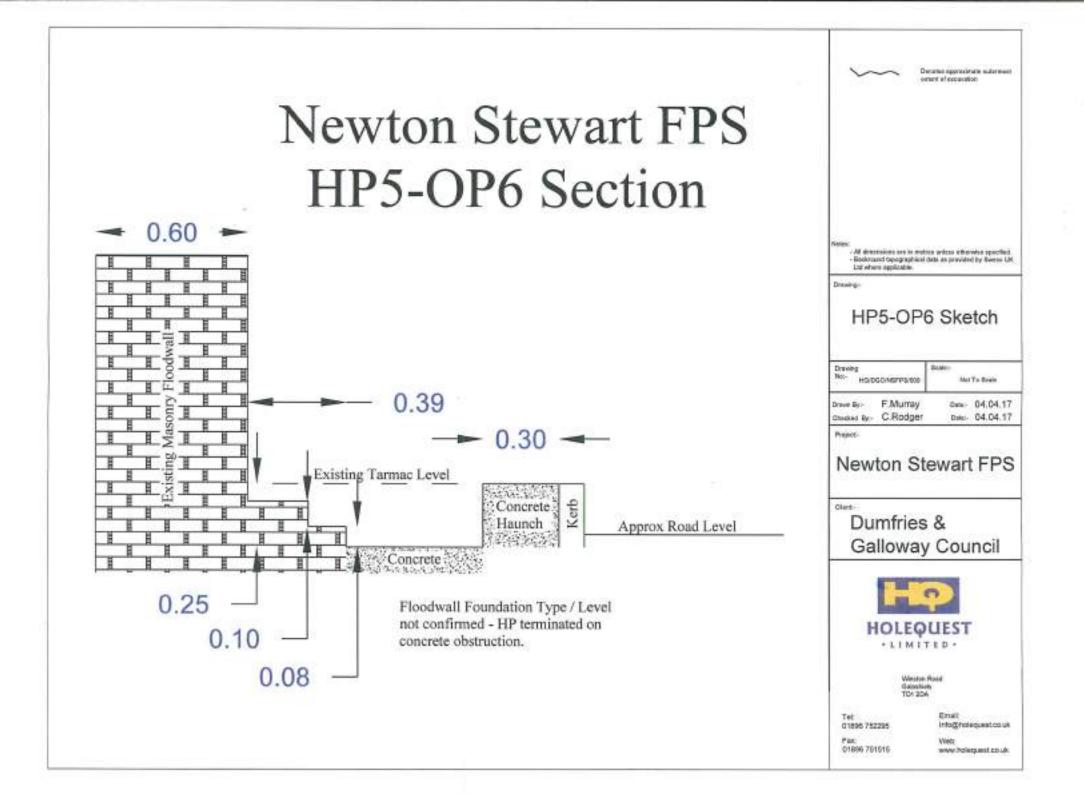
			FO	IIFC	I TT	Holequest Ltd				Trial	oit No
			ΓĿΥ	UL		Winston Road Galashiels				HP3-	OP6
				ГЕD]	Fel: 01896 75229	5				: 1 of 1
Project					-	ect No.			13E - 565673N		ate
		art FPS			17/0				m AOD		/2018
Excavat	tion Me	ethod:- 3T Mir	ni Exca	vator, G	SL - 0.9	m	Dimensions	Г	1.50m		cale 13
Client:							Depth	0.60m			
	es & G	alloway Counci	I				0.90m	Ö		LOGG MT /	ed By FM
Samp	les & In S	Situ Testing	Depth	Level	Legend		C+r	rotum D	escription	,	
0.20 0.20 0.50	ES B ES	T 1	0.90	(m AOD) 8.57		with medium cobb fragments of Brick	comprising Grey le and boulder cr and occasionally Trialp	brown s ontent w y Mason	itty very gravelly fine to coarse S ith depth, Includes Bricks, ry		
Remarks).	foundation deta	ails	to wate	er ingres	ss through existin	iy noodwall. S	bee allo	Laneu Skelch IOI	Lo	g Status
Groundw	vater:	Groundwater e	ncounte	ered at C).9m - S	eepage through	existing flood	wall			Final



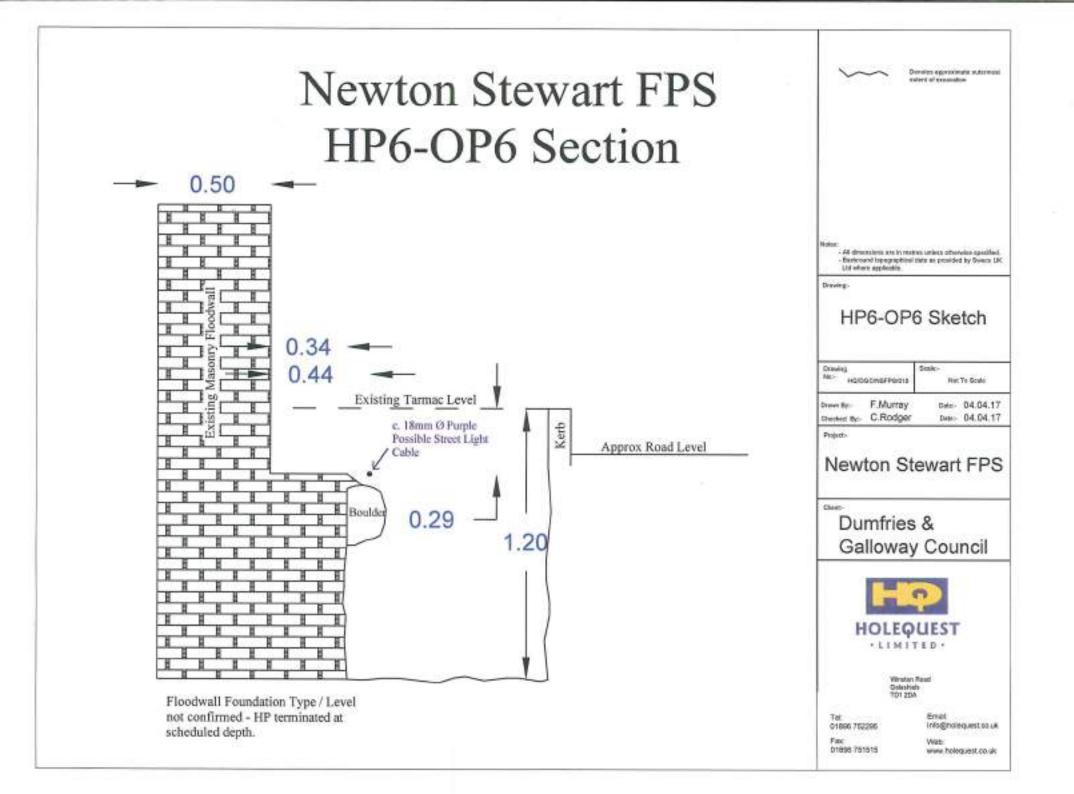
	HOLEO	UES	ST y	Holequest Ltd Winston Road Galashiels			Trialpit No HP4-OP6	
	LIMI'	ГED	T T	Tel: 01896 75229:	5		Sheet 1 of 1	
Project Name	Э		Proj	ect No.	Co-ords: 2411	27E - 565620N	Date	
Newton Stew			17/0			m AOD	25/01/2018	
Excavation M	lethod:- Hand Excava	ated, GL	1.2m	ı	Dimensions:	1.00m	Scale	
					Depth E		1:13	
Client:					Depth 60 1.20m 0		Logged By	
Dumfries & G Samples & In	Salloway Council						MT / FM	
Depth (m) Type	Situ TestingDepthResults(m)	Level (m AOD)	Legend			Description		
Depth (m) Type 0.20 B 0.20 C 0.20 ES 0.50 ES 1.00 ES	Results (m) 0.05 0.60 1.20 1.20	(m AOD) 9.15 8.60 8.00		MADE GROUND co with low cobble cor	omprising White single omprising Dark brown a ntent, Includes much As	sized Gravel silty very gravelly fine to coarse S shy debris and occasional Bricks.	-	1
Remarks: Groundwater:	Trial pit terminated at a		ed depth	n. See attached sk	setch for foundation	n detail	Log Status	IS



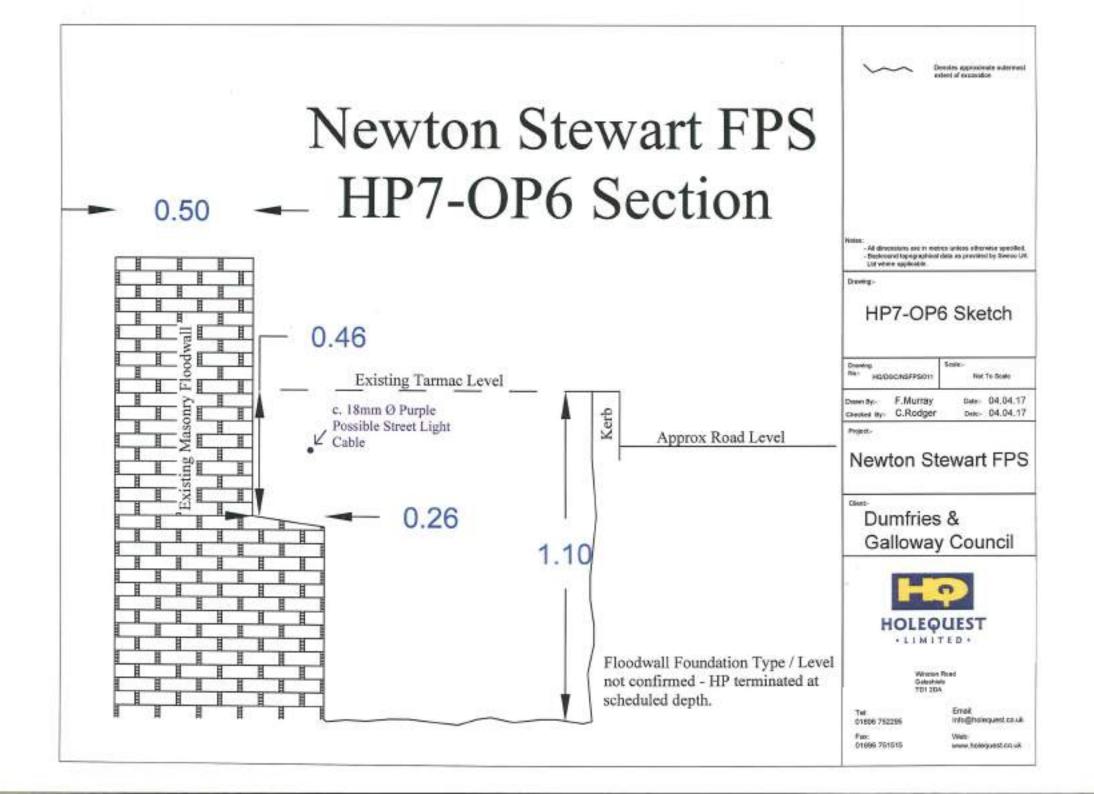
			LEQ MI		51 3	Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5		HP5-	oit No OP6 1 of 1]
Project					Pro	ject No.		1160E - 565560N		ate	1
		vart FPS			17/0			7 m AOD	06/02		
Excava	tion N	lethod:- Hand e	excavat	ted, GL	0.25	m	Dimensions:	0.60m		ale	I
Client							Depth			13	4
Client:	as 8. (Galloway Council					0.25m		Logge BMY /	ed By	I
				Level					DIVIT		-
Depth (m)	Туре	Results	(m)	(m AOD)				n Description			4
Samples & In Situ Testing Depth (m) Level (m AOD) Level (m AOD) Depth (m) Type Results 0.15 8.72 MADE GROUND comprising Tarmac 0.15 8.72 0.25 8.62 MADE GROUND comprising Grey silly sandy fine to coarse angular Gravel 0.25 8.62 Trapit Complete at 0.25 - 0.28m Trapit Complete at 0.25 m											
										-	ومعافدتا الانتفاقات المناقب المعادل والملاحدا والملاحدة
Remarks	 S:	See attached sł	ketch fo	r termir	l nation d	etail				n Statue	010 102 00
Groundw		No groundwate								g Status Final	A 11 11 12
											3



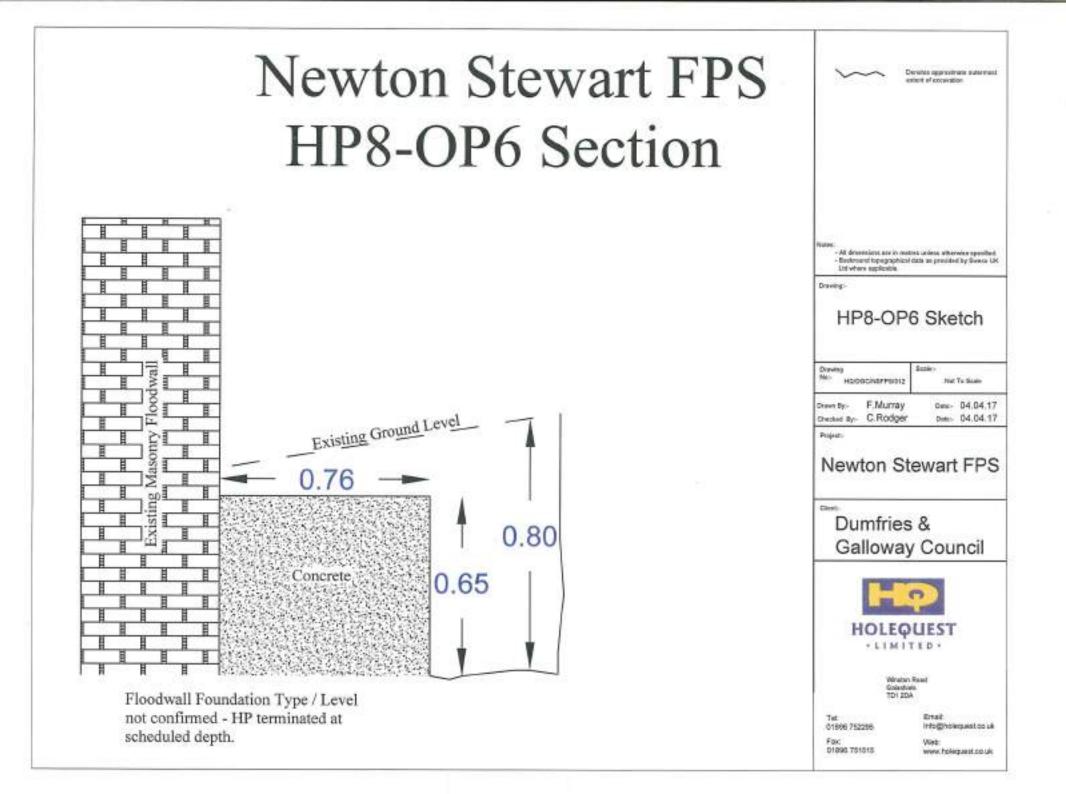
			EQ	UES	ST 3	Holequest Ltd Winston Road Galashiels			Trialpit No HP6-OP6]
				LED		Fel: 01896 75229	5		Sheet 1 of 1	
Project					-	ect No.		87E - 565501N	Date	
		art FPS			17/0		Level: 8.63	m AOD	06/02/2018	
Excava	tion M	lethod:- Hand E	Excava	ited, Gl	1.2n	n	Dimensions:	1.00m	Scale	
0							Depth 60 1.20m 0		1:13	4
Client:							1.20m 0		Logged By	
		Salloway Council			1				BMY / FM	4
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
						TARMAC				٦
			0.09	8.54		MADE GROUND	comprising Grev brown s	ilty sandy fine to coarse rounded	l to	
			0.15	8.48		angular Gravel	-			
0.20 0.20	ES B					MADE GROUND of sandy fine to coars	comprsing Dark grey bro se angular to subrounded	wn locally slightly organic silty ve d Gravel, Includes Tile, China an	ery d	
						Brick fragments.	Ū.		-	
						•			-	
0.50	ES		0.50	8.13						
0.50	B		0.00	0.15		sandv fine to coars	se angular to subrounded	wn locally organic very clayey ve d Gravel with low cobble content	ery	
						Includes Tile, Chir	a, Glass and Bone.		~	
									~	
									10	
									n.	
1.00	ES								-1	
1.00	B									
									r a	
			1.00	- 10		-				
			1.20	7.43	~ ~ ~ ~ ~ ~		Trialpit Comple	ete at 1.20 m		
									-	
									10.	
									-	
									-	
									-	
									F	
									-	
									Í	00
									ŀ	
										e e
									ŀ	
Remarks	5:	Trial pit sides st	table du	uring ex	cavatior	n. See attached s	ketch for foundation	details	Log Status	s
Groundw	undwater: No groundwater encountered Final									
		3								



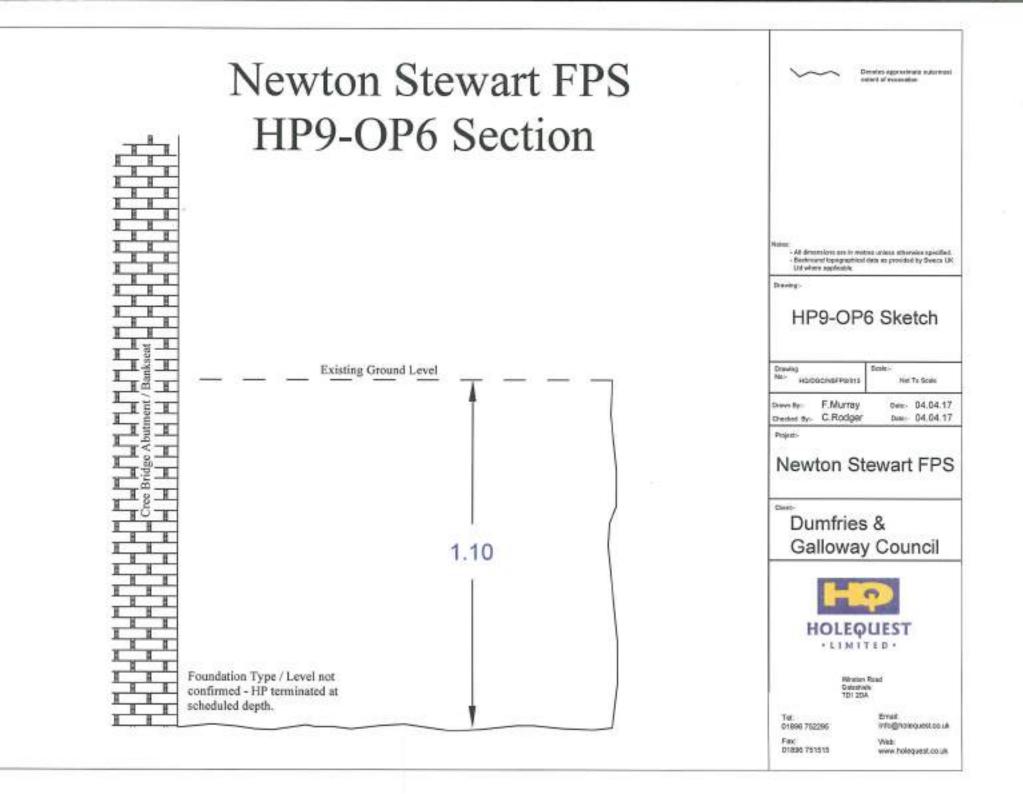
			LEQ IMI'	UES red		Holequest Ltd Winston Road Galashiels Fel: 01896 75229	5		Trialpit No HP7-OP Sheet 1 of	6
Project					-	ect No.		1217E - 565433N	Date	
		art FPS	_		17/0			29 m AOD	05/02/201	8
Excava	tion M	ethod:- Hand E	Excava	ted, Gl	1.1m	1	Dimensions:	1.00m	Scale 1:13	
Client:							Depth	0.60m		
		alloway Council					1.10m	0.0	Logged B BMY / FM	
		Situ Testing	Depth	Level						
Depth (m)	Туре	Results	(m)	(m AOD)	Legend		Stratu	m Description		
			0.05	8.24				wn silty sandy fine to coarse rour	uded to	
						angular Gravel	Somplising Grey bio	wit sitty sandy line to coarse rour		
0.20	ES		0.18	8.11		MADE GROUND	comprising brownish	grey silty fine to coarse Sand	· · · · · · · · · · · · · · · · · · ·	
0.20	В							5.,.,		
			0.34	7.95						
			5.07			sandy fine to coars	se subrounded to an	y locally mottled yellowish brown gular Gravel with low to medium	cobble	
						content, Includes f debris.	ragments of Brick, T	ile, Timber and lenses of Mason	ry	
0.50 0.50	ES B									
										-
										-
										-
1.00	ES									-1
1.00	B									
			1.10	7.19	XXXXX		Trialpit Co	omplete at 1.10 m		
										-
										-
										-
Remarks	⊥ s:	Trial pit sides st	able du	uring exe	cavation	. See attached s	ketch for foundat	tion detail	Log Sta	
				2						
Groundw	vater:	No groundwate	r encou	intered					Fina	l



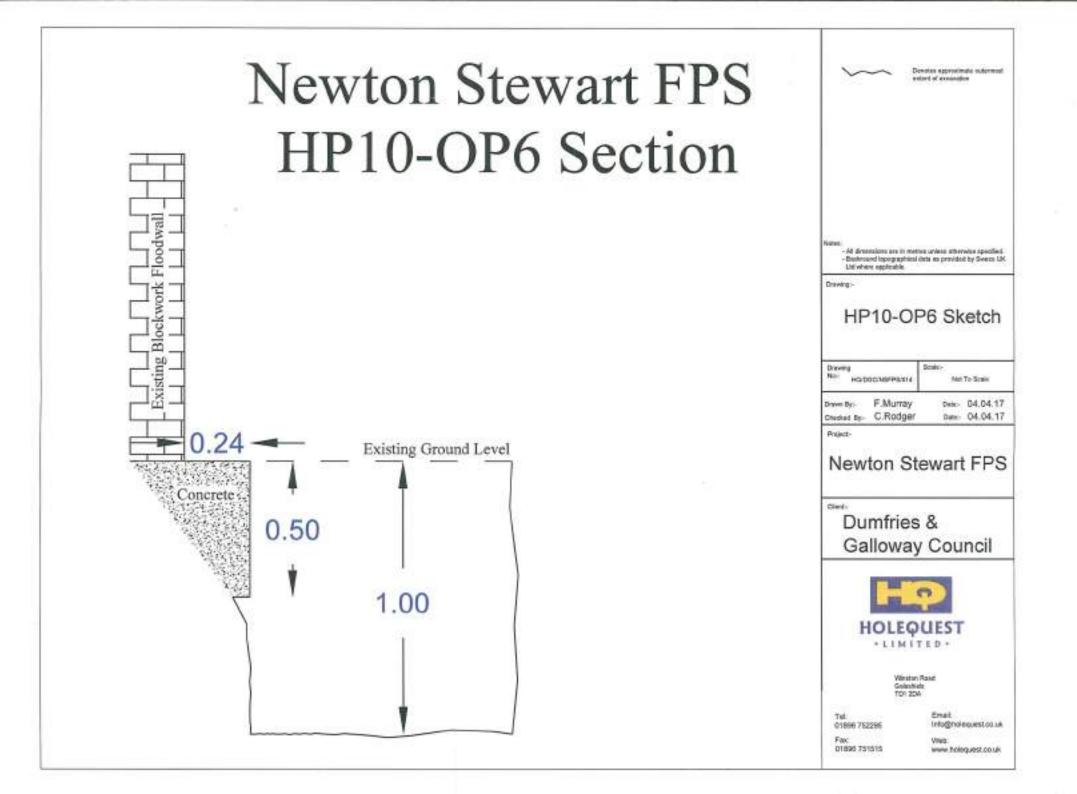
			EQ	UES	ST ¿	Holequest Ltd Winston Road Galashiels	Trialpit N	
						Fel: 01896 752295	Sheet 1 o	of 1
Project						ect No. Co-ords: 241237E - 565378N	Date	
		/art FPS			17/0		24/01/20	
Excavat	tion M	lethod:- Hand E	Excava	ted, Gl	0.8n		Scale	
						Depth 60.80m 0.80m 0.80m	1:13	
Client:						0.80m O		
		Salloway Council	Depth	Level			BMY / FN	/
Depth (m)	Туре	Results	(m)	(m AOD)	Legend	Stratum Description		
			0.05	7.78		MADE GROUND comprising Dark brown silty sandy Topsoil with many re		_
0.20 0.20	ES B					MADE GROUND comprising Dark brown silty slightly organic fine to coar Sand and fine to coarse rounded to angular Gravel with medium cobble content, Includes occasional Tar Scalps and Roots.	se	-
0.50 0.50	ES B							-
0.80 0.80	ES B		0.80	7.03		Trialpit Complete at 0.80 m		
								-
								-1
								-
								-
								-
								-
								-
								-
								-
								ł
								-
Remarks	:	Trial pit termina	ted on	enginee	ers instru	uction . See attached sketch for foundation detail	Log St	atus
Groundw	vater:	Groundwater er						



			LEQ	UE	ST y	Holequest Ltd Winston Road Galashiels			Trialpit No HP9-OP	
				ГED		Fel: 01896 75229	5		Sheet 1 of	
Project	Name	9				ect No.		97E - 565665N	Date	
Newtor	n Stew	art FPS			17/0)82		m AOD	30/01/201	8
Excavat	tion M	ethod:- Hand E	xcava	ted, Gl	1.1n	n	Dimensions:	1.00m	Scale	
							Depth 60 1.10m 0		1:13	
Client:							9. 1.10m 0		Logged B	
		Salloway Council Situ Testing	Depth	Level	I				BMY / FM	
Depth (m)	Туре	Results	(m)	(m AOD)	Legend		Stratum D			
0.20 ES 0.20 ES 0.20 B 0.30 8.89 0.30 8.89 0.30 8.89 0.30 8.89 0.30 8.89 0.30 8.89 0.30 8.89 0.30 8.89 0.30 8.89 MADE GROUND comprising Dark brown to black silty very gravelly fine to coarse slightly organic Sand with low cobble content, Includes fragments of China, Glass and Coal. 0.50 ES 0.50 B 0.50 B 0.50 B										-
1.00 ES 1.00 B 1.10 8.09 Trialpit Complete at 1.10 m										- 1
Remarks		Trial pit oideo et	abla di			Soo attached a	ketch for foundation	dotail		Ŀ
	». 			ining ex					Log Sta	
Groundw	roundwater: No groundwater encountered Final									



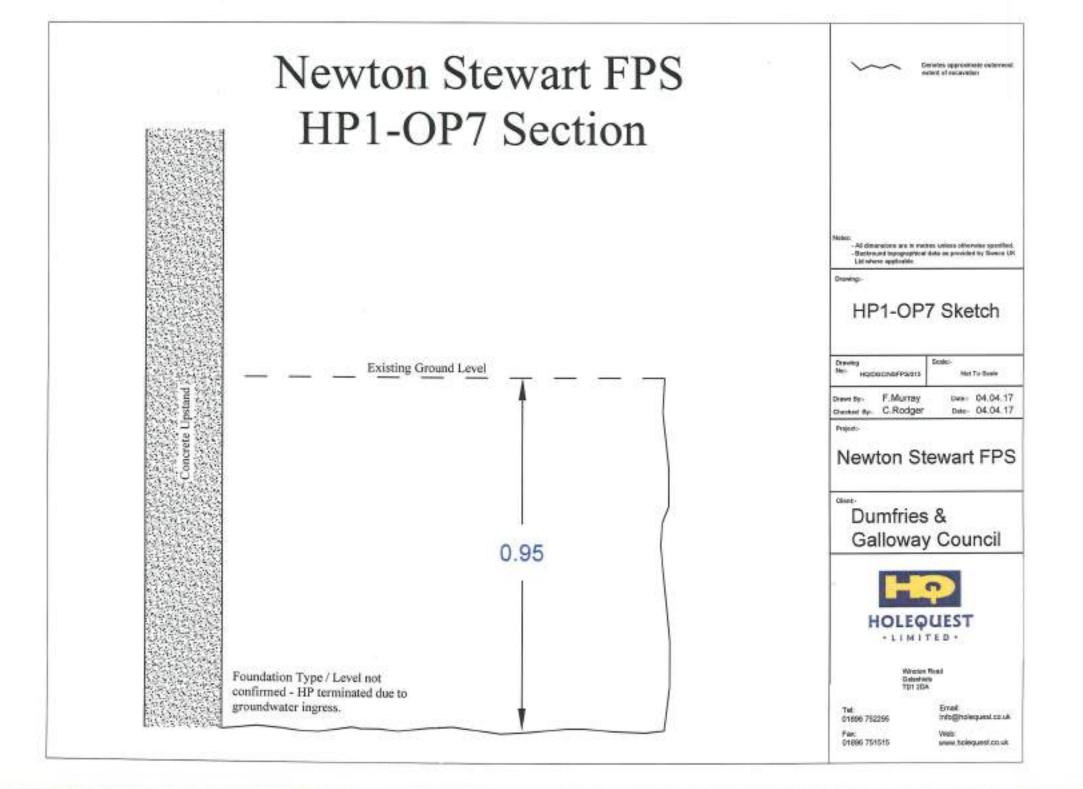
			FO	IIFC	TT I	Holequest Ltd Winston Road			Trialpit No	
			лга Гмти			Galashiels			HP10-OF	P6
						Tel: 01896 75229	5		Sheet 1 of	1
Project					-	ect No.		206E - 565630N 5 m AOD	Date	
		vart FPS lethod:- Hand E	Trava	ted GI	17/0		Level: 8.65 Dimensions:	1.00m	31/01/201 Scale	<u> </u>
LACAVA					_ 1.01	1			1:13	
Client:							Depth a		Logged B	v
		Galloway Council							BMY / FM	
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum	Description		
0.20 0.20 0.50 0.50	ES B ES B	Results				MADE GROUND	comprising Dark brow	n silty sandy gravelly Topsoil that		
1.00 1.00	ES B		1.00	7.65			Trialpit Cor	plete at 1.00 m		
Remarks	 s:	Trial pit sides st	able du	Iring ex	cavatior	n. See attached s	ketch for foundation	on detail	Log Sta	atus
									Log Sta	
Groundw	Groundwater: Groundwater encountered at approx 1.0m									



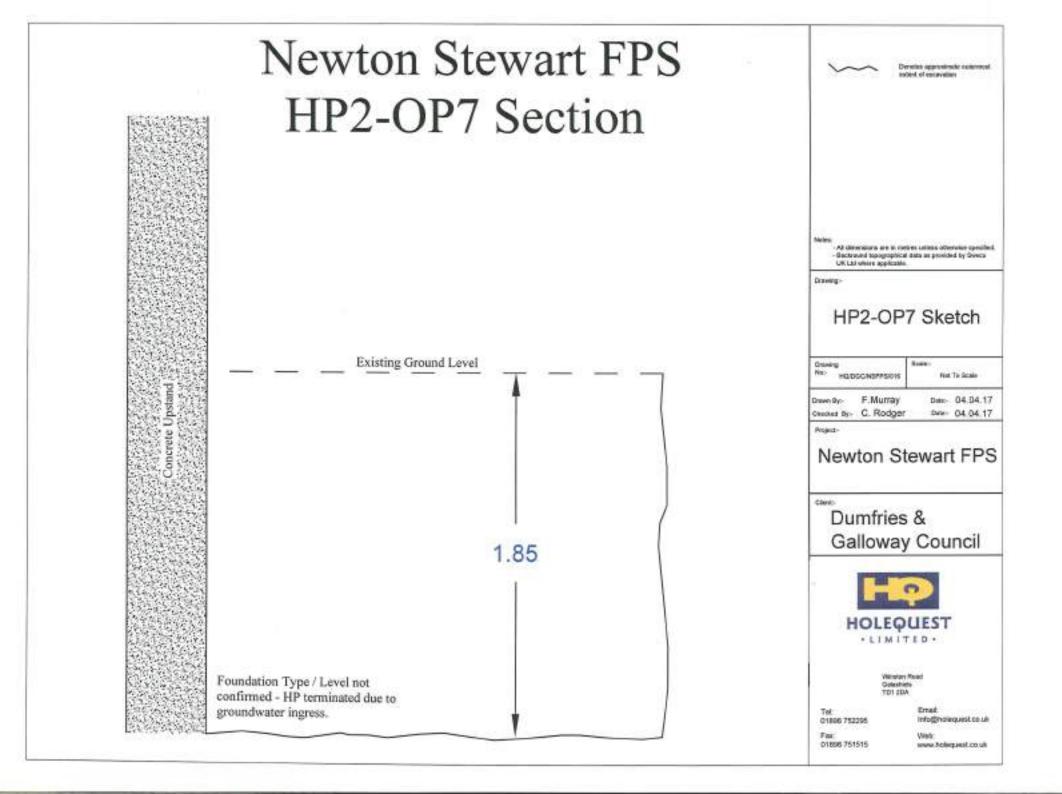
			EO	UES	T T	Holequest Ltd Winston Road			Trialpit N HP11-O	
			[MI]	ΓED	- (7	Galashiels Fel: 01896 75229	5		Sheet 1 c	
Project	Name				-	ect No.		67E - 566109N	Date	ווע
-		, vart FPS			17/0) m AOD	29/01/20	18
		ethod:- Hand E	Excava	ted, GL			Dimensions:	1.00m	Scale	
									1:13	
Client:							Depth 609 1.20m 0		Logged I	By
		Salloway Council					0		BMY / FN	N
Samp Depth (m)	les & In Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	Description		
0.20 0.20 0.50 0.50	ES B ES B	Results	(m)	(m AOD) 11.30		fine to coarse angu	omprising Dark brown o lar to rounded Gravel w ariable quantities of Gla	rganic silty fine to coarse Sand ith high cobble and boulder ss, China, Bricks, Masonry,	and	- 1
Remarks		Trial pit sides st			cavation	n Trial pit terminat	ed at scheduled de	pth.	Log Si	

			LEQ	UES	T T	Holequest Ltd Winston Road			Trialpit No HP12-OI		
			[MI]	ГЕД	(1	Galashiels Fel: 01896 75229	5		Sheet 1 of		
Project	Name	9				ect No.		82E - 566066N	Date	-	
-		art FPS			17/0) m AOD	29/01/201	8	
Excavat	tion M	ethod:- Hand E	Excava	ted, GL	- 1.2m	า	Dimensions:	1.00m	Scale		
							Depth E		1:13		
Client:							Depth 50 1.20m 0		Logged B		
		Salloway Council Situ Testing		Laural					BMY / FN		
Depth (m)	Туре	Results	Depth (m)	Level (m AOD)	Legend			Description			
0.20 0.20 0.50	ES ES		0.50	11.60	: 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	fine to coarse ang content, Includes v Roots.	ular to rounded Gravel w rariable quantities of Gla	organic silty fine to coarse Sand ith high cobble and boulder ss, China,Kitchen Sink and o coarse angular to subrounded a Made Ground)		1	
1.00	В		1.20	10.90			Trialpit Compl				
Remarks		i riai pit sides st	adle di	uring exc	cavation	i riai pit terminat	ied at scheduled de	ptn.	Log Sta	atus	
Groundw	ater:	No groundwate	r encou	marks: Trial pit sides stable during excavation Trial pit terminated at scheduled depth. Lo bundwater: No groundwater encountered Lo							

			EQ	UES	י די י	Holequest Ltd Winston Road			Trialpit N	
			мі'ї	TED		Galashiels Fel: 01896 75229	5		HP1-OP Sheet 1 of	
Project	Name					ject No.		628E - 564683N	Date	
Newton					17/0			5 m AOD	05/02/201	8
		ethod:- Hand E	xcava	ted, GL			Dimensions:	1.00m	Scale	
							Depth	Ę	1:13	
Client:							0.95m		Logged B	
		alloway Council Situ Testing							BMY / FN	1
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend			Description		
0.20 0.50 0.50	ES B		0.95	4.00		coarse angular to	subangular Gravel wit	rown silty to very silty sandy fine to h high cobble and boulder content		
Remains	•	ווומי אונ שועפט צו	abie uu		JavaliUl				Log Sta	2
Groundwater: Groundwater encountered at 0.9m Final									Hold ASE	



			EQ	UES	ST Z	Holequest Ltd Winston Road Galashiels			Trialpit No HP2-OP	
			MI	ΓED	r.	Tel: 01896 75229	5		Sheet 1 of	1
Project I	Name				Pro	ject No.	Co-ords: 2415	97E - 564683N	Date	
Newton		art FPS			17/0			m AOD	01/02/201	8
Excavati	ion Me	ethod:- JCB 30	CX, GL	- 1.85	m		Dimensions:	3.00m	Scale 1:13	
Client:							Depth E 1.85m O		Logged B	y
		alloway Council			1	[FM	
	Type	Situ Testing Results	Depth (m)	Level (m AOD)	Legend		Stratum D	escription		
0.40	ES		0.50	4.75		NADE GROUND	nt, Includes some Glass	ilty gravelly fine to coarse Sand v and leaf debris. vn silty to very silty locally very angular Gravel with medium cobb		
1.00 1.00	ES B									- 1
1.80	ES		1.80 1.85	3.45 3.40		MADE GROUND (Cobbles	comprising Reddish brov Trialpit Comple	vn silty gravelly fine to coarse ang te at 1.85 m	gular	
Remarks: Groundwa		Trial pit sides sta Trial pit terminat See attached sk Groundwater en	ed on etch fo	enginee or found	ers instru ation de	uction			Log Sta	3 1 (BV



APPENDIX IV

Laboratory Testing



LABORATORY REPORT



4043

Contract Number: PSL18/0518

Report Date: 23 February 2018

Client's Reference:

Client Name: Holequest Ltd Winston Road Galashiels TD1 2DA

For the attention of: Craig Rodger

Contract Title: Newton Stewart FPS

Date Received:	1/2/2018
Date Commenced:	1/2/2018
Date Completed:	23/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

R Gunson (Director) A Watkins (Director) R Berriman (Quality Manager)

Rabel

L Knight (Senior Technician)

C Marshall (Laboratory Manager) A Fry (Senior Technician)

Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP7		BD	0.50		Brown slightly gravelly very silty SAND.
TP7		BD	1.10		Brown gravelly SAND.
TP7		BD	1.60		Dark brown very gravelly slightly silty SAND with cobbles.

			Contract No:
$(\diamond \diamond)$		Newton Stewart FPS	PSL18/0518
	Professional Online Laboration		Client Ref:
4043	Professional Soils Laboratory		17636

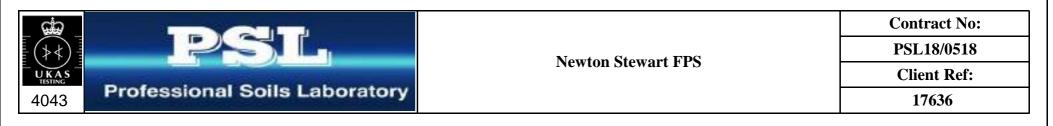
SUMMARY OF SOIL CLASSIFICATION TESTS

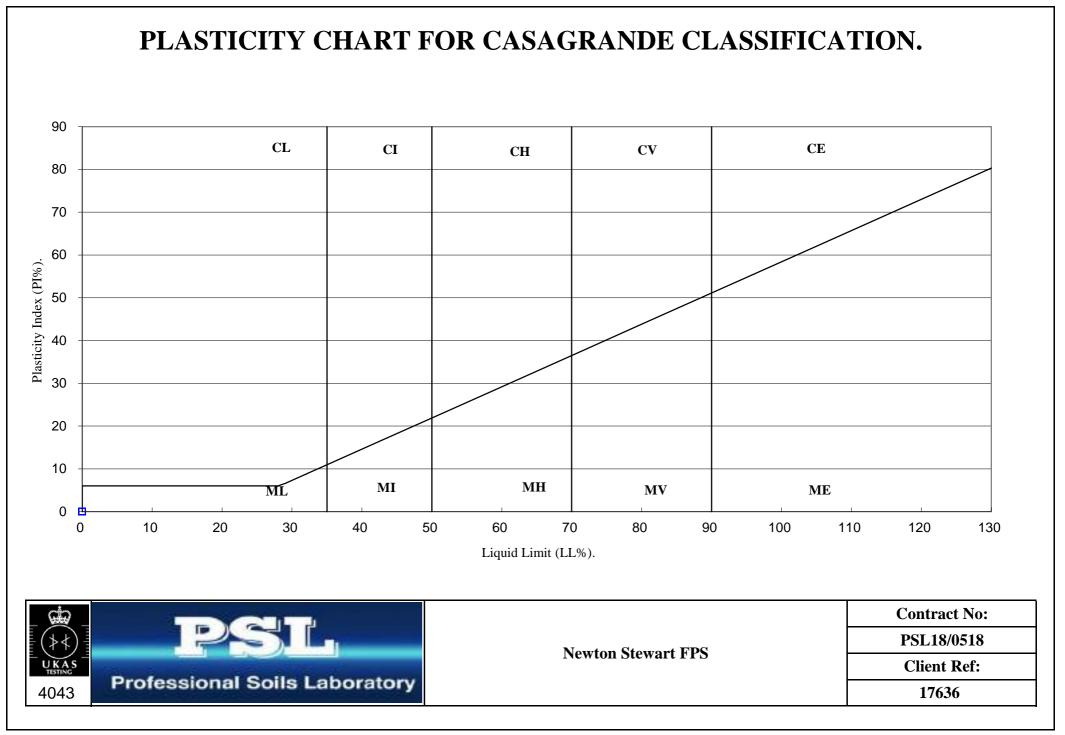
(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth	Base Depth	Moisture Content %	Linear Shrinkage %	Particle Density Mg/m ³	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing .425mm %	Remarks
		• •	m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP7		BD	0.50		28							
TP7		BD	1.60		5.6							

SYMBOLS : NP : Non Plastic

*: Liquid Limit and Plastic Limit Wet Sieved.

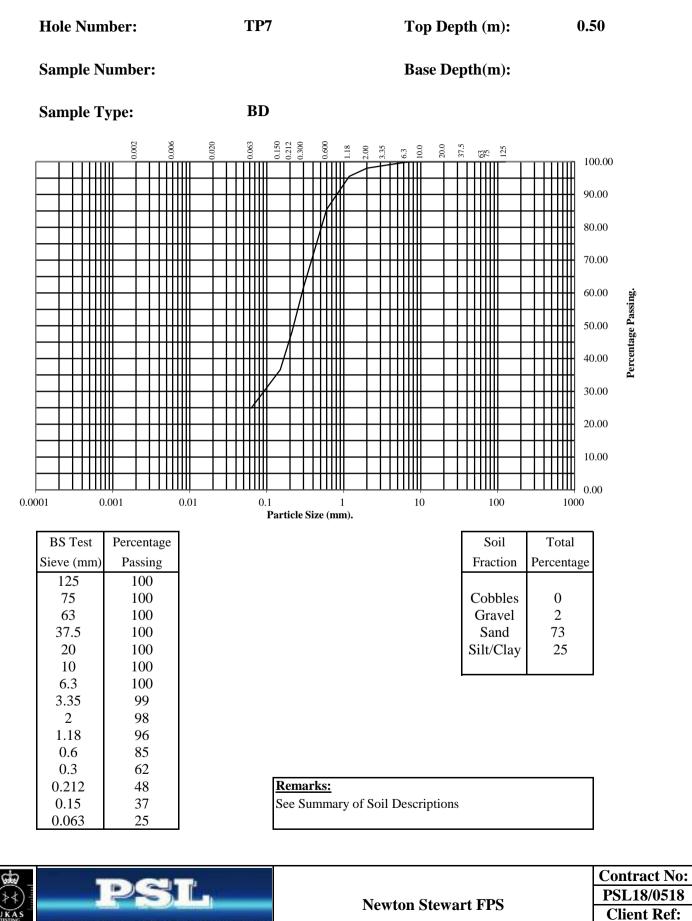




PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



Professional Soils Laboratory

4043

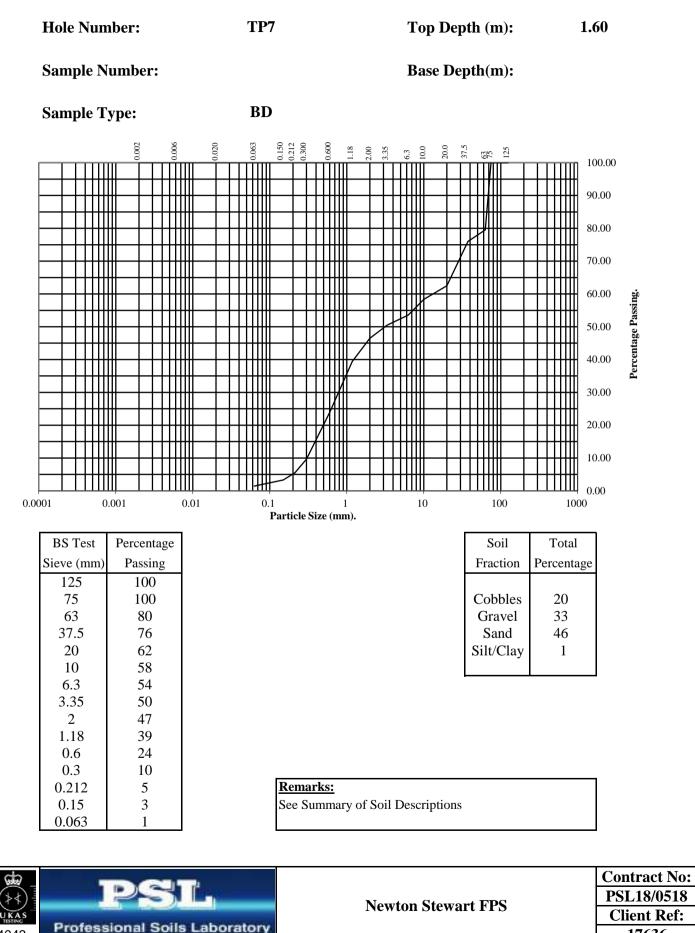
of

17636

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

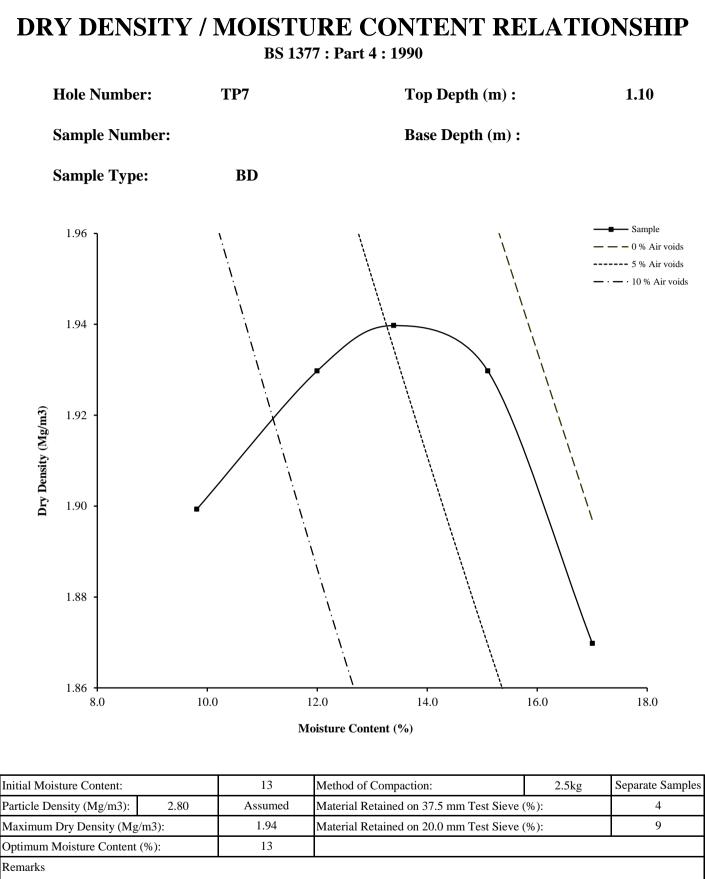
Wet Sieve, Clause 9.2



PSL005

4043

17636



See summary of soil descriptions.



Newton Stewart FPS

Contract
PSL18/0518
Client Ref
17636



LABORATORY REPORT



4043

Contract Number: PSL18/0518

Report Date: 23 February 2018

Client's Reference:

Client Name: Holequest Ltd Winston Road Galashiels TD1 2DA

For the attention of: Craig Rodger

Contract Title: Newton Stewart FPS

Date Received:	1/2/2018
Date Commenced:	1/2/2018
Date Completed:	23/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP2		BD	0.80		Brown SAND.
TP2		BD	1.80		Brown sandy silty GRAVEL with cobbles.
TP11		BD	1.00		Brown very silty SAND.
TP3		BD	0.60		Brown gravelly silty SAND.
TP4		BD	1.80		Dark brown sandy GRAVEL with cobbles.
TP5		BD	0.70		Brown gravelly very silty SAND.
TP6		BD	0.80		Brown very gravelly slightly clayey SAND.
TP7		BD	1.50		Brown gravelly very silty SAND.
TP10		BD	0.80		Brown gravelly very silty SAND.
TP10		BD	1.30		Brown slightly gravelly very sandy CLAY.

		Contract No:
	Newton Stewart FPS	PSL18/0518
		Client Ref:
4043 Professional Soils Laboratory		17636

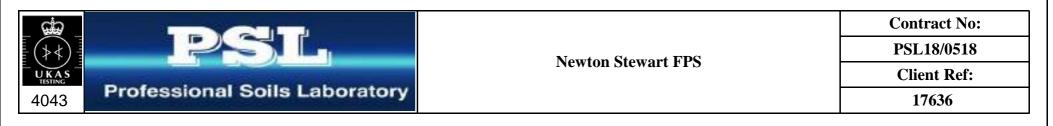
SUMMARY OF SOIL CLASSIFICATION TESTS

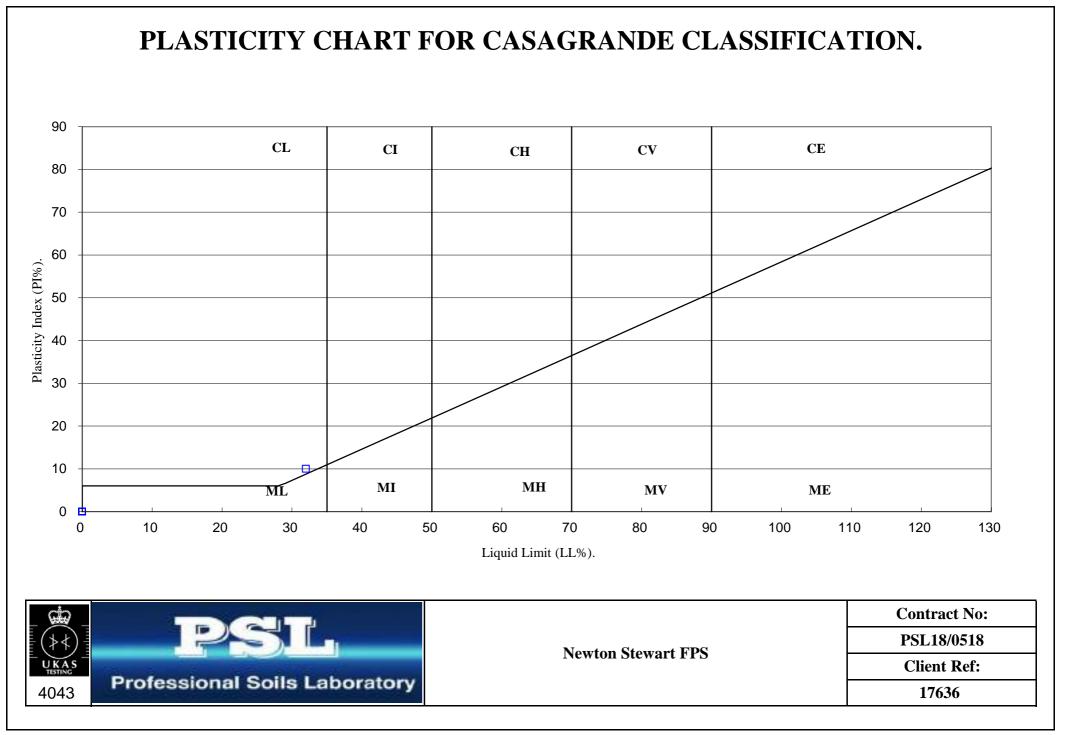
(BS1377 : PART 2 : 1990)

Hole	Sample	Sample	Тор	Base	Moisture Content	Linear Shrinkage	Particle Density	Liquid Limit	Plastic Limit	Plasticity Index	Passing .425mm	Remarks
Number	Number	Туре	Depth	Depth	%	%	Mg/m ³	%	%	%	%	
			m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP2		BD	0.80		20				NP			
TP11		BD	1.00		17				NP			
TP10		BD	1.30		23			32	22	10	93	Low plasticity CL.

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

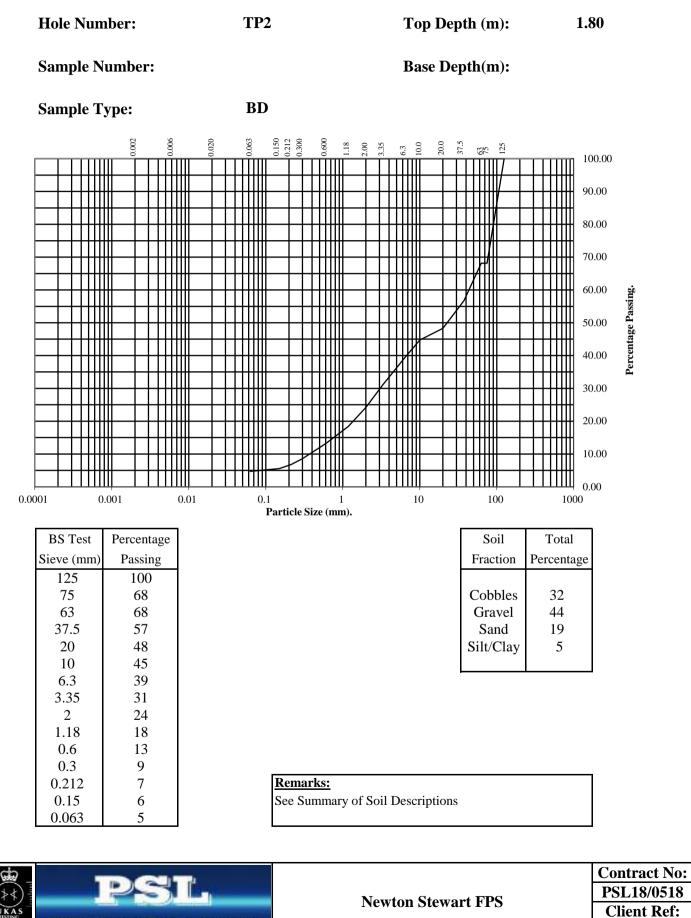




PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



Professional Soils Laboratory

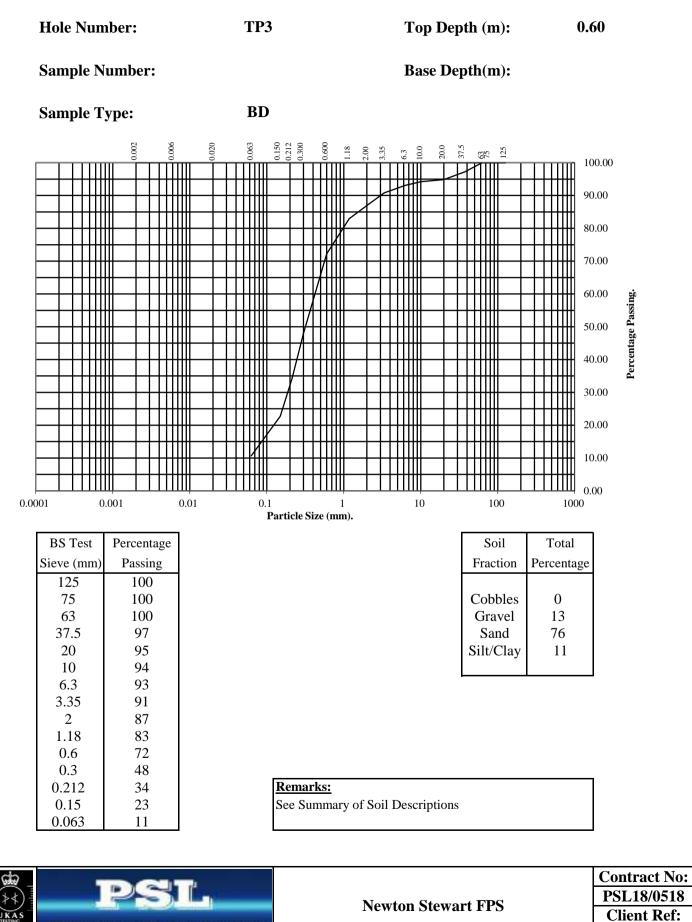
4043

of

17636

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

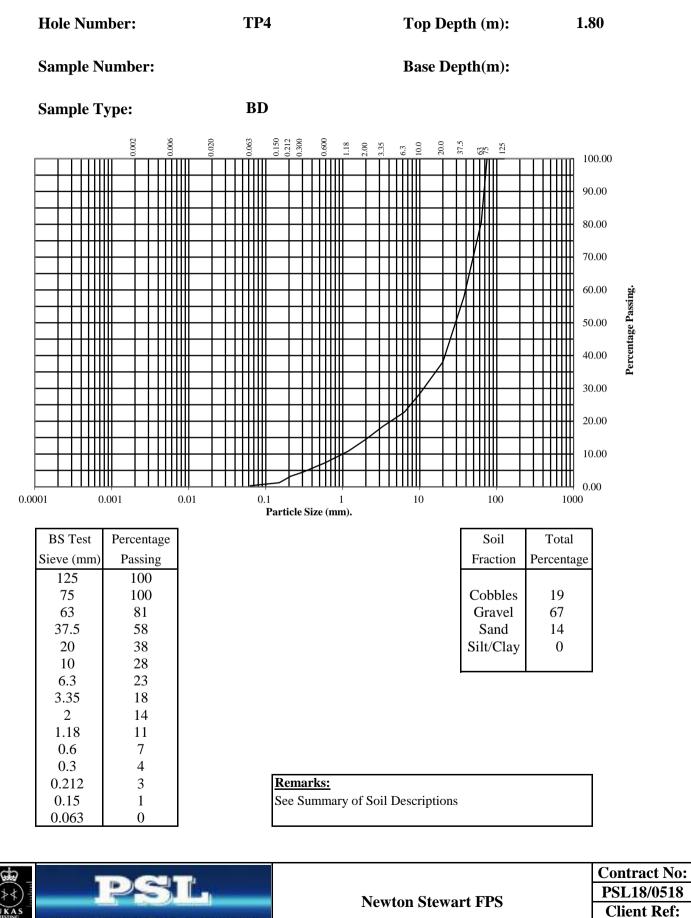


Professional Soils Laboratory

17636

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



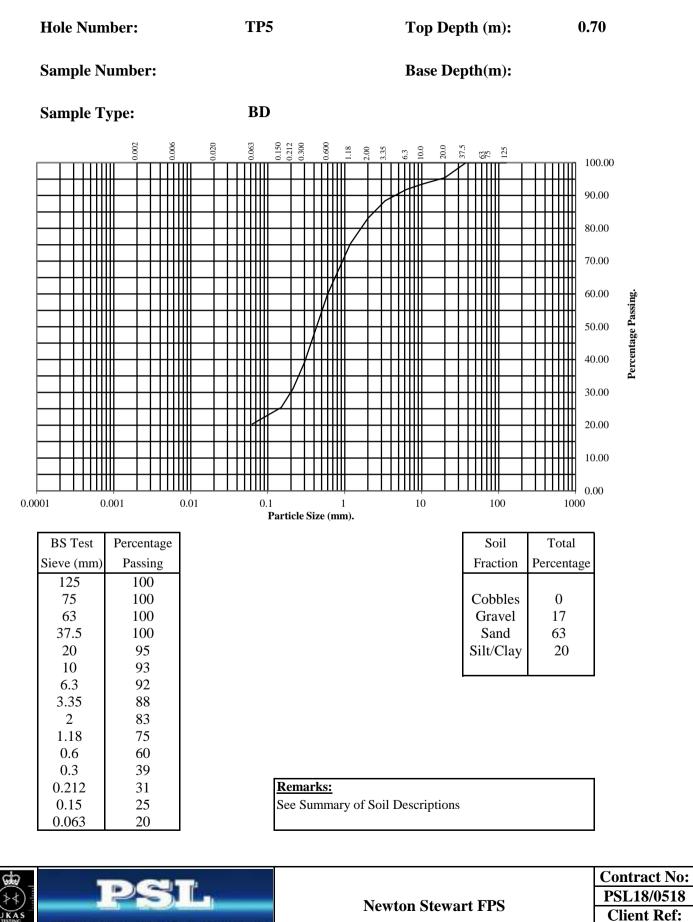
Professional Soils Laboratory

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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

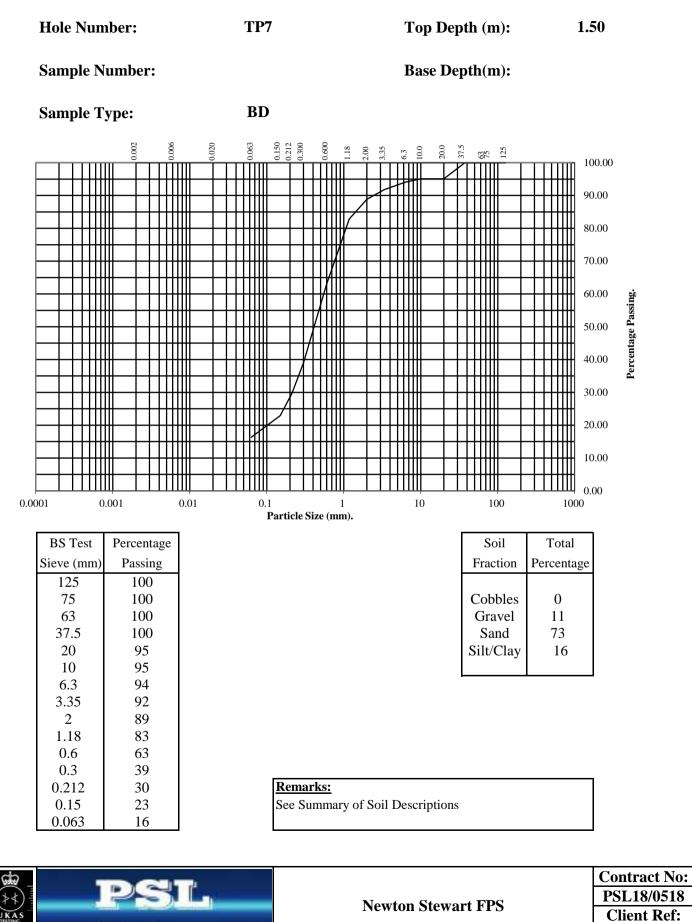


4043

Professional Soils Laboratory

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



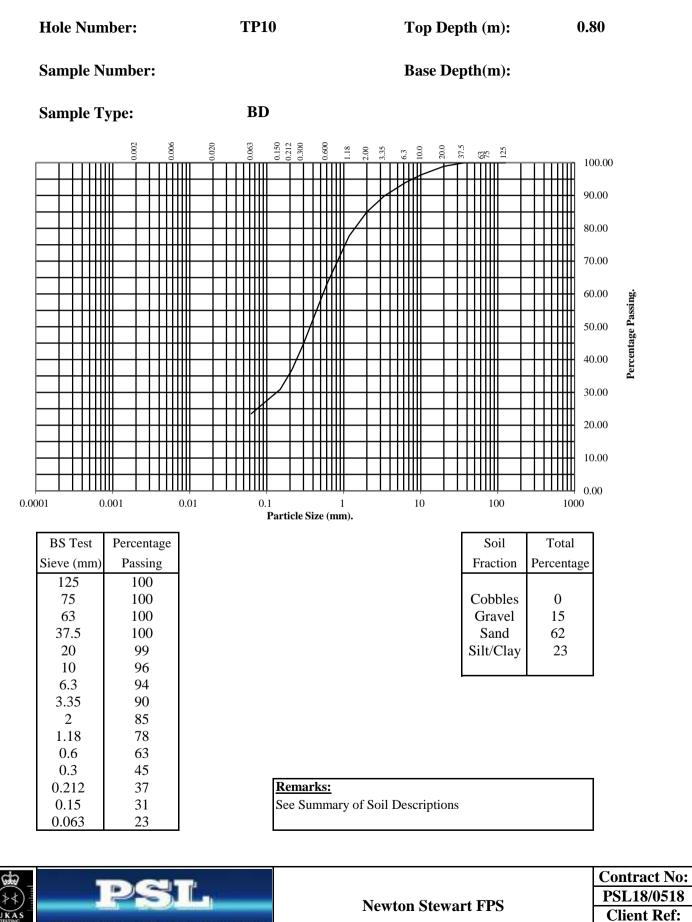
Professional Soils Laboratory

4043

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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



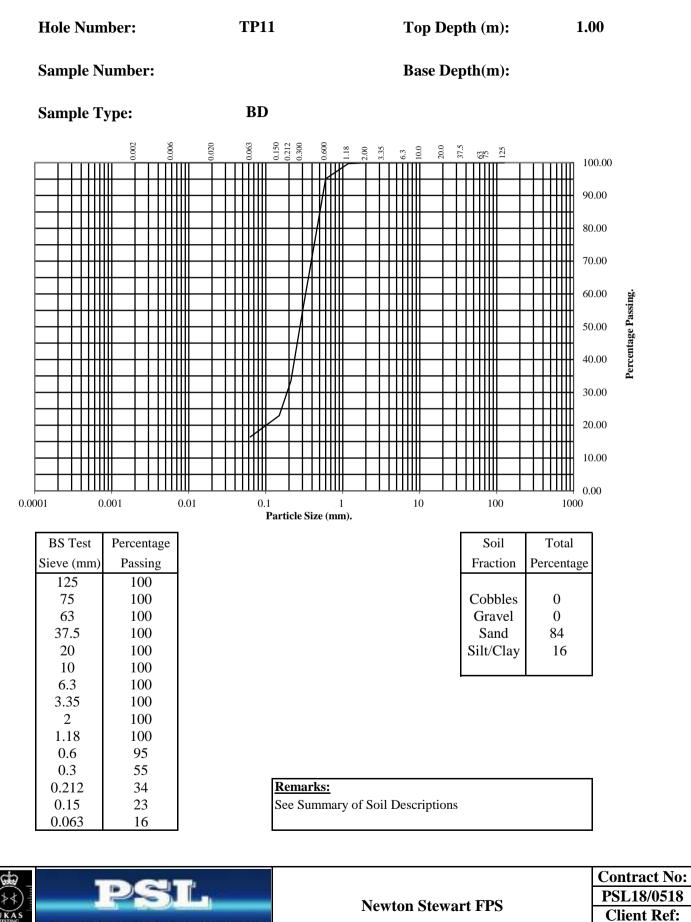
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BS1377 : Part 2 : 1990

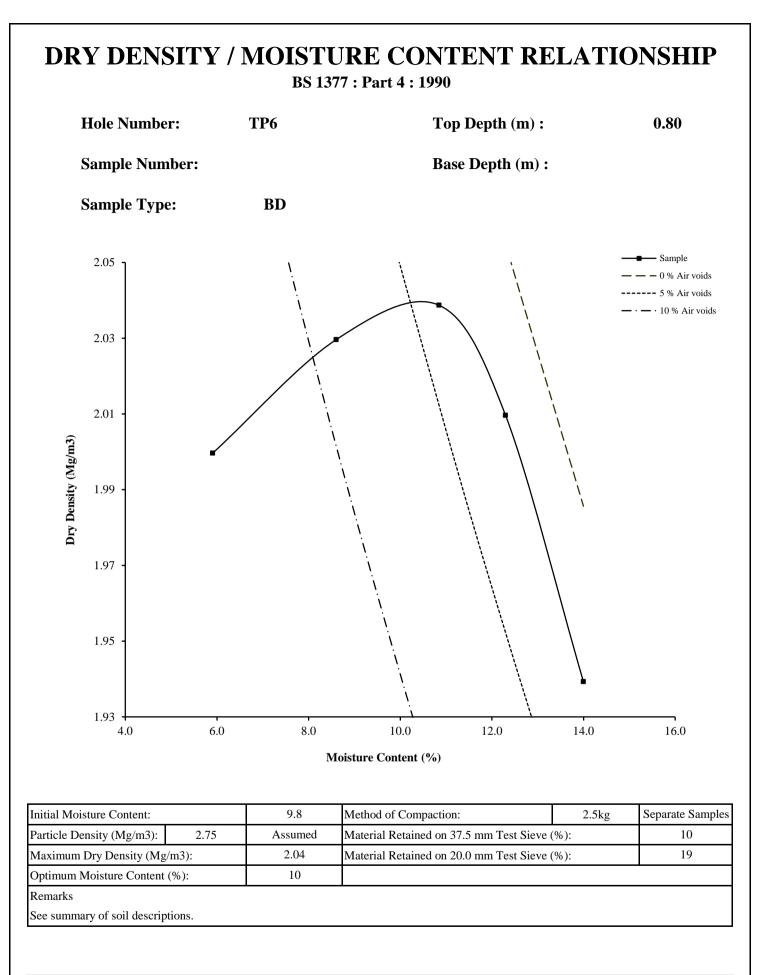
Wet Sieve, Clause 9.2



Professional Soils Laboratory

4043

of





Newton Stewart FPS

Contract PSL18/0518 Client Ref 17636

.



LABORATORY REPORT



4043

Contract Number: PSL18/0518

Report Date: 23 February 2018

Client's Reference:

Client Name: Holequest Ltd Winston Road Galashiels TD1 2DA

For the attention of: Craig Rodger

Contract Title: Newton Stewart FPS

Date Received:	1/2/2018
Date Commenced:	1/2/2018
Date Completed:	23/2/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Rabel

L Knight (Senior Technician)

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Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP1		BD	0.50		Brown gravelly very sandy CLAY.
TP1		BD	0.80		Dark brown very sandy very silty GRAVEL.
TP2		BD	0.50		Brown gravelly sandy CLAY.
TP2		BD	1.50		MADE GROUND dark brown very sandy silty gravel.
TP3		BD	0.70		Dark brown very sandy silty GRAVEL with cobbles.
TP4		BD	1.50		Dark brown gravelly very silty SAND.
TP4		BD	2.50		Greyish brown very sandy GRAVEL.

		Contract No:
	Newton Stewart FPS	PSL18/0518
		Client Ref:
4043 Professional Soils Laborat	tory	17636

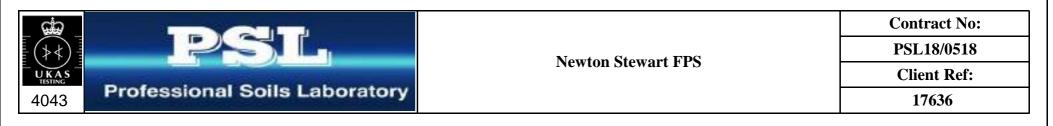
SUMMARY OF SOIL CLASSIFICATION TESTS

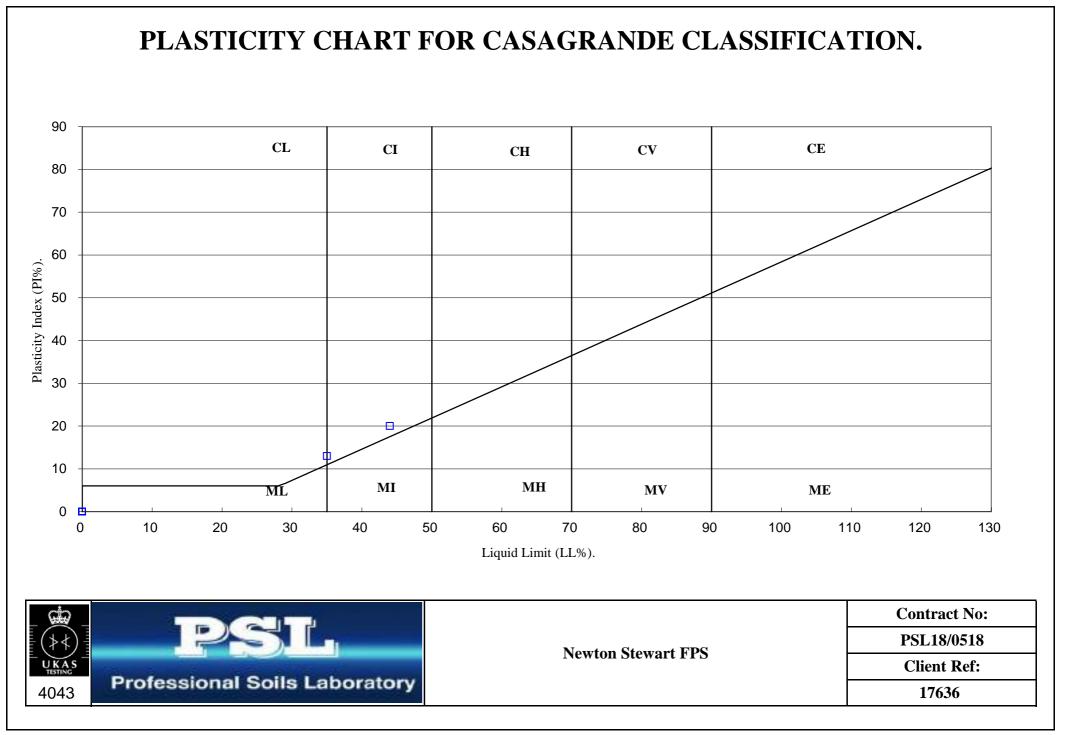
(BS1377 : PART 2 : 1990)

					Moisture	Linear	Particle	Liquid	Plastic	Plasticity	Passing	
Hole	Sample	Sample	Тор	Base	Content	Shrinkage	Density	Limit	Limit	Index	.425mm	Remarks
Number	Number	Туре	Depth	Depth	%	%	Mg/m ³	%	%	%	%	
			m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
TP1		BD	0.50		15			35	22	13	80	Low plasticity CL.
TP1		BD	0.80		28							
TP2		BD	0.50		18			44	24	20	84	Intermediate plasticity CI.
TP2		BD	1.50		25							

SYMBOLS : NP : Non Plastic

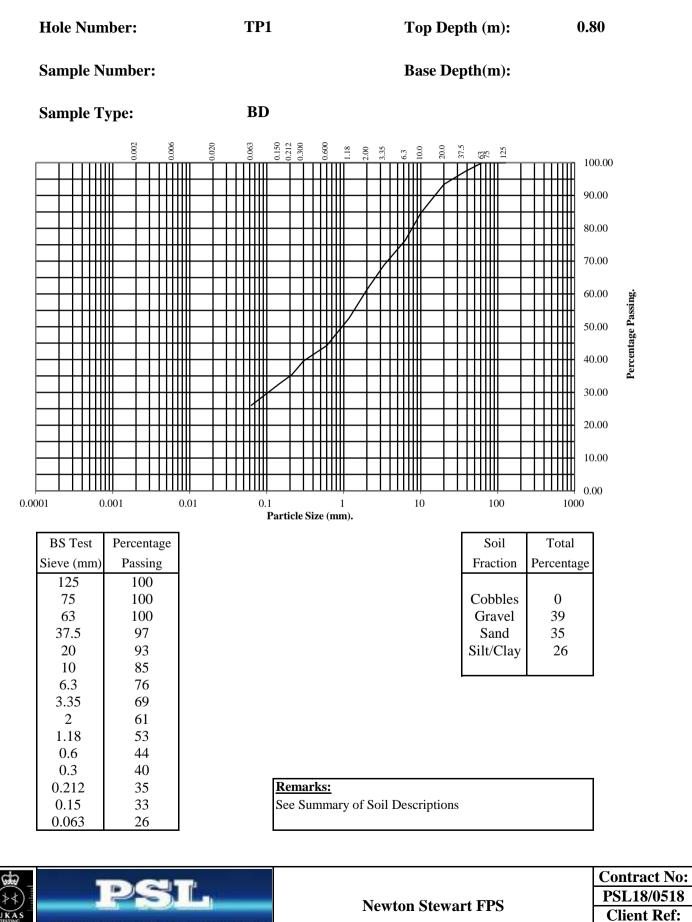
* : Liquid Limit and Plastic Limit Wet Sieved.





BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



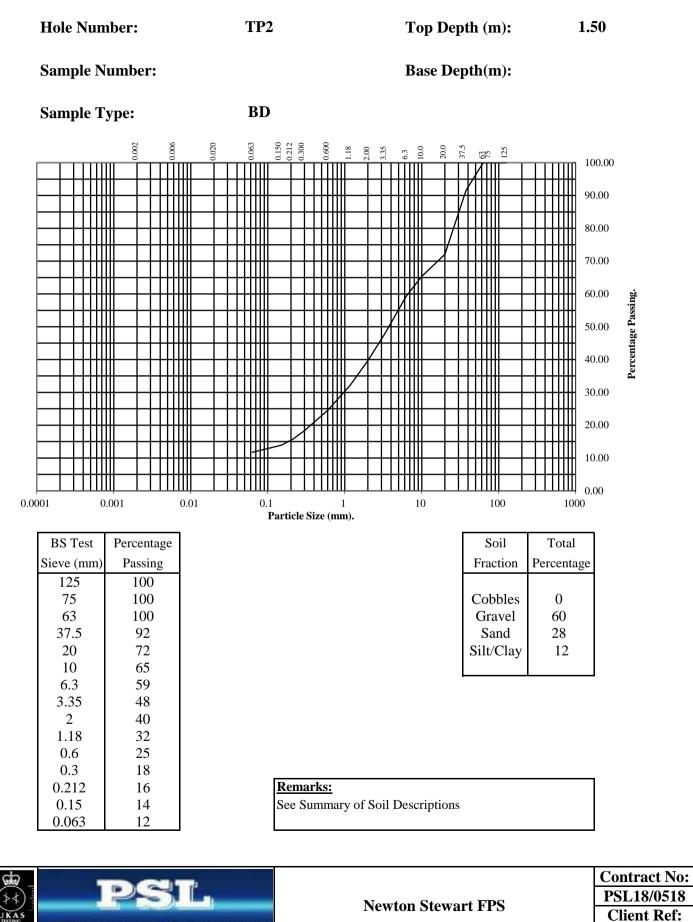
Professional Soils Laboratory

4043

PSL005

BS1377 : Part 2 : 1990

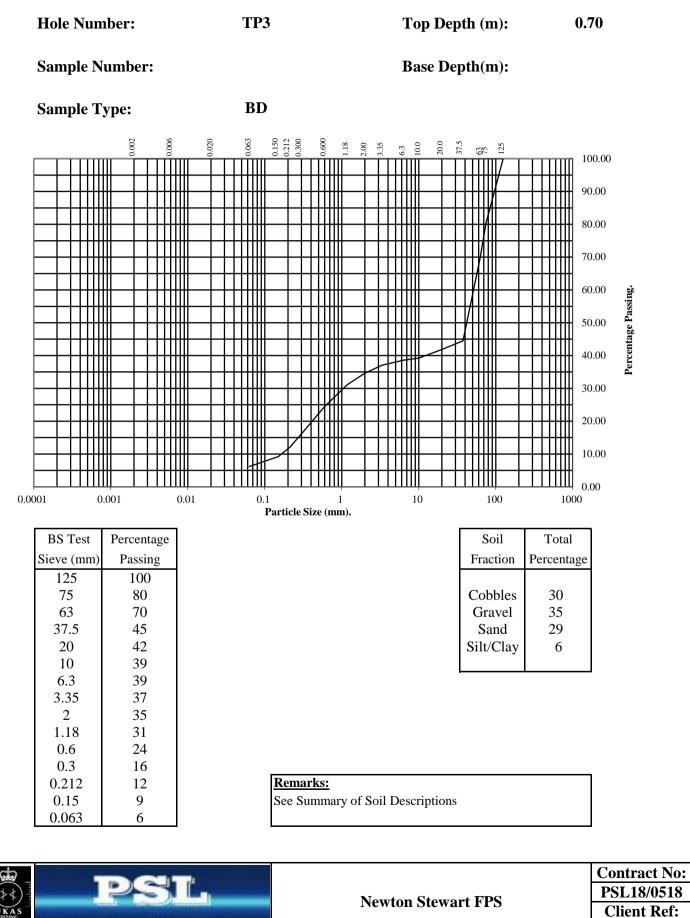
Wet Sieve, Clause 9.2



17636

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



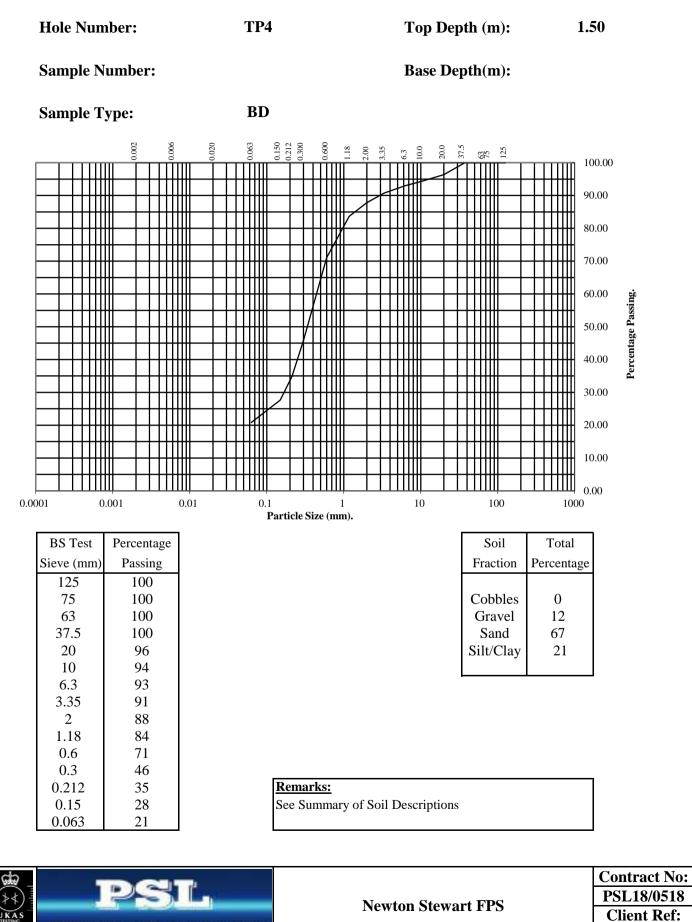
Professional Soils Laboratory

4043

of

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



Professional Soils Laboratory

4043

of

CONSOLIDATED DRAINED SHEARBOX TEST

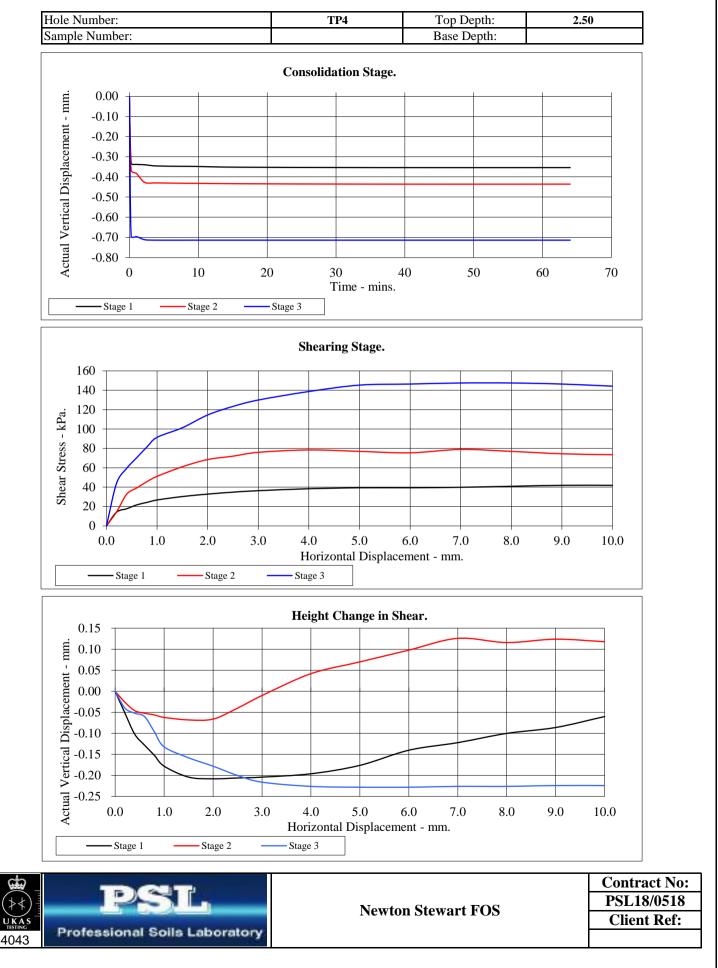
B\$1377.Part 7.1000 Clause A 5 A

		BS	1377:Part 7:1990 Cla	use 4.5.4			
Hole Nur	nber:		TP4	Top Depth:		2.5	50
Sample N	lumber:			Base Depth:			
Sample C	Conditions:		Submerged	Sample Type		B	D
Particle E	Density - Mg/r	n3: 2.65	Assumed	Remarks:		-	
	reparation:	Remoulde	d using hand tamped effor ested passing 2mm sieve	t.			
Sample D	Description:		ary of soil descriptions.				
STAGE	F	~~~~			1	2	3
/11102			Initial Conditions		-		
Height - r	mm.				19.54	19.54	19.54
Length - 1					60.03	60.03	60.03
	Content - %:				12	12	12
	sity - Mg/m3:				1.99	2.00	2.00
	ity - Mg/m3:	•			1.77	1.78	1.78
oids Ra					0.495	0.488	0.488
	ressure- kPa				50		
Normai P	Tessule- KFa		Comerlidetion Stee	-	30	100	200
1	atad Hat-14		Consolidation Stag	נ ו	10.10	10.10	10.02
onsolid	ated Height -	uum:	a • a		19.19	19.10	18.83
			Shearing Stage	1	0.000	0.000	0.000
	train (mm/mi				0.800	0.800	0.800
	nent at peak s				9.00	7.00	7.00
eak shea	ar Stress - kPa				42	79	148
			Final Consolidated Cond	litions		-	
	Content - %:				19	19	19
	sity - Mg/m3:				2.03	2.05	2.08
Dry Dens	ity - Mg/m3:				1.70	1.73	1.75
			Peak				
Angle of	Shearing Resi	istance:(0)				36	
	Cohesion - kl					5	
	250						
Shear Stress - (kPa).	200						
	0 0	50 • Peak sl	100 150 Normal Stress -(kPa near Stress - kPa:	ı).	0 Fit Line	250	
							Contract N
	P.A.				_		PSL18/051
			Newt	on Stewart F	TOS		Client Ref
Deefe	anianal Co	oils Laborator					

Professional Soils Laboratory 4043

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4





LABORATORY REPORT



4043

Contract Number: PSL18/1203

Report Date: 06 April 2018

Client's Reference: 17/082

Client Name: Holequest Winston Road Galashiels TD1 2DA

For the attention of: Graham

Contract Title:Newton Stwart FPSDate Received:14/3/2018Date Commenced:14/3/2018Date Completed:6/4/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

R Gunson (Director) A Watkins (Director) R Berriman (Quality Manager)

£K#

L Knight (Senior Technician) S Eyre (Senior Technician) A Fry (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk Page 1 of

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample	
TP11-OP7		BD	1.00		Dark brown sandy GRAVEL with cobbles.	
TPW1-OP6		BD	0.50		Dark brown sandy slightly clayey silty GRAVEL with cobbles.	
TP1-OP6		BD	0.80		MADE GROUND dark brown very sandy clayey gravel.	
TP1-OP6		D	1.30		Brown gravelly slightly sandy very silty CLAY.	
TP1-OP7		BD	1.00		Brown mottled grey slightly gravelly slightly sandy CLAY.	
TP1-OP7		BD	2.00		Brown slightly sandy very silty CLAY.	
TP2-OP6		BD	1.40		Brown sandy slightly clayey GRAVEL with cobbles.	
TP2-OP7		BD	0.60		Brown slightly gravelly slightly sandy CLAY.	
TP2-OP7		BD	1.60		Brown mottled grey slightly sandy CLAY.	
TP4-OP6		BD	1.00		Brown mottled grey slightly gravelly very sandy very silty CLAY.	
TP7-OP6		BD	1.50		Brown mottled grey very gravelly sandy very silty CLAY.	
TP8-OP7		BD	1.80		Brown sandy slightly silty GRAVEL with cobbles.	
TP9-OP7		BD	1.80		Brown sandy slightly clayey silty GRAVEL with cobbles.	
TP9-OP6		BD	1.00		Brown very gravelly clayey very silty SAND.	
TP9-OP6		BD	4.30		Brown mottled grey sandy slightly silty GRAVEL.	
TP9-OP6		BD	10.30		Brown very sandy silty GRAVEL.	
BH1-OP6		BD	1.60		Brown sandy GRAVEL.	
BH1-OP6		BD	2.70		Brown sandy slightly silty GRAVEL.	
BH2A-OP6		BD	2.80		Brown very sandy silty GRAVEL.	

			Contract No:
$(\downarrow \downarrow)$		Newton Stewart FPS	PSL18/1203
	Professional Califacture	Newton Stewart FI S	Client Ref:
4043	Professional Soils Laboratory		17/082

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample	
BH3-OP6		BD	1.20		Brown sandy slightly silty GRAVEL.	
BH3-OP6		BD	2.00		Brown gravelly SAND.	
BH4-OP6		BD	1.30		Brown slightly gravelly sandy CLAY.	
BH4-OP6		U	1.30		Soft brown very silty CLAY.	
BH5-OP6		BD	1.30		Grey sandy slightly silty GRAVEL.	
BH5-OP6		BD	10.30		Brown slightly gravelly slightly clayey SAND.	
BH5-OP6		BD	11.80		Brown slightly gravelly very sandy CLAY.	
BH7-OP6		U80	2.80		Very soft brown mottled grey very gravelly sandy CLAY.	
BH7-OP6		BD	2.80		Brown mottled grey sandy clayey GRAVEL.	
BH7-OP6		BD	4.30		Brown mottled grey very sandy slightly silty GRAVEL.	
BH7-OP6		BD	8.80		Grey slightly gravelly sandy CLAY.	
BH8-OP6		BD	1.30		Brown very sandy clayey silty GRAVEL.	
BH8-OP6		BD	4.30		Brown very sandy slightly clayey silty GRAVEL.	
BH9-OP6		BD	0.30		Brown slightly gravelly slightly sandy CLAY.	
BH9-OP6		U	1.30		Very soft brown slightly gravelly sandy CLAY with some organic material.	
BH9-OP6		BD	1.30		Brown very gravelly sandy CLAY with some organic material.	
BH11-OP6		BD	1.30		Brown gravelly slightly clayey SAND.	
BH11-OP6		BD	2.80		Brown mottled grey very gravelly very sandy CLAY.	
BH12-OP6		BD	1.30		Brown very sandy silty GRAVEL.	

			Contract No:
$(\diamond \langle)$		Newton Stewart FPS	PSL18/1203
		newion Stewart FI S	Client Ref:
4043	Professional Soils Laboratory		17/082

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH13-OP6		BD	1.30		Brown sandy clayey silty GRAVEL.
BH13-OP6		BD	4.30		Brown sandy clayey silty GRAVEL.
BH13-OP6		BD	5.80		Brown mottled grey slightly gravelly slightly sandy very silty CLAY.
BH13-OP6		U	7.30		Soft grey slightly sandy very silty CLAY.
BH14-OP6		BD	2.00		Brown slightly sandy slightly silty GRAVEL with cobbles.
BH1-OP7		BD	1.30		Brown sandy silty GRAVEL.
BH1-OP7		BD	2.80		Brown slightly gravelly slightly clayey silty SAND.
BH1-OP7		BD	4.30		Brown slightly gravelly silty SAND.
BH1-OP7		BD	5.80		Brown very silty SAND.

			Contract No:
		Newton Stewart FPS	PSL18/1203
		Newton Stewart FI S	Client Ref:
4043	Professional Soils Laboratory		17/082

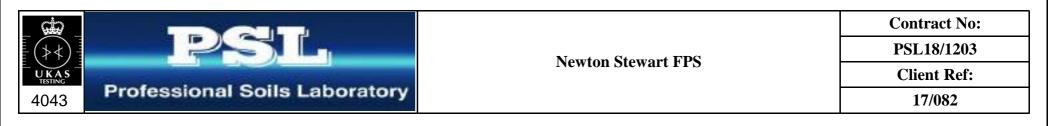
SUMMARY OF SOIL CLASSIFICATION TESTS

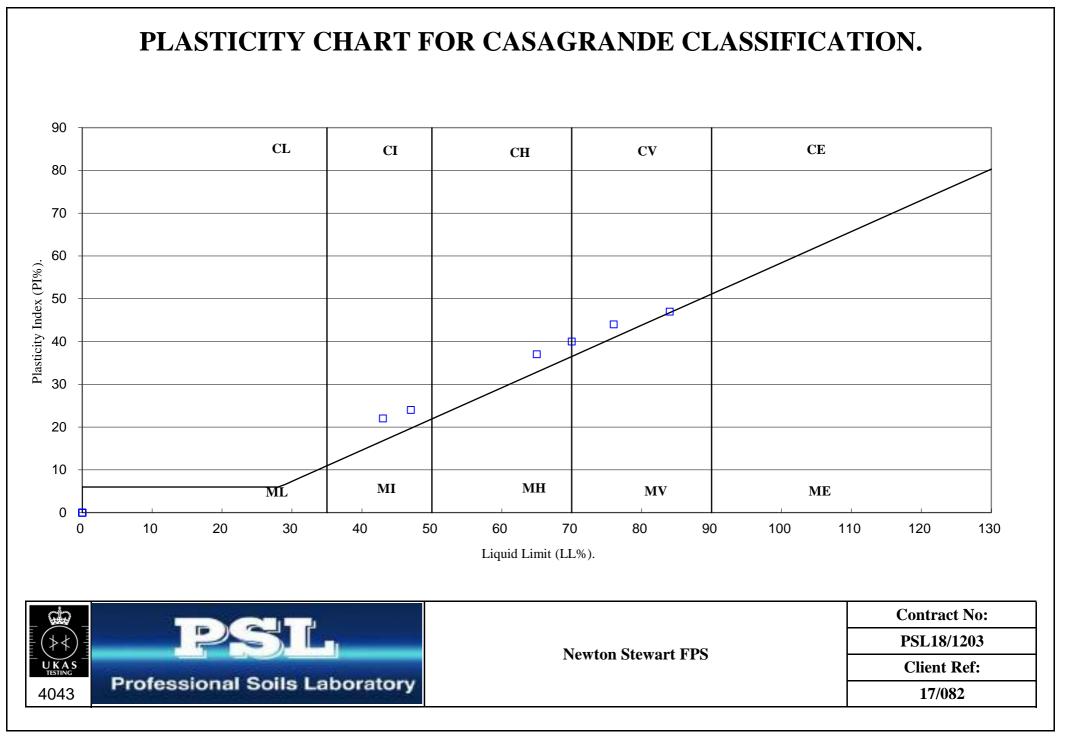
(BS1377 : PART 2 : 1990)

				Moisture	Linear	Particle	Liquid	Plastic	Plasticity	Passing	
Sample	Sample	Тор	Base	Content	Shrinkage	Density	Limit	Limit	Index	.425mm	Remarks
Number	Туре	Depth	Depth	%	%	Mg/m ³	%	%	%	%	
		m	m	Clause 3.2	Clause 6.5	Clause 8.2	Clause 4.3/4	Clause 5.3	Clause 5.4		
	D	1.30		35			84	37	47	78	Very high plasticity CV.
	BD	1.00		43			65	28	37	93	High plasticity CH.
	BD	0.60		32			70	30	40	93	Very high plasticity CV.
	BD	1.00		29							
	BD	1.60		5.1				NP			
	BD	1.30		31			47	23	24	92	Intermediate plasticity CI.
	BD	10.30		20				NP			
	BD	2.80		17				NP			
	BD	8.80		37			43	21	22	97	Intermediate plasticity CI.
	BD	0.30		41			76	32	44	91	Very high plasticity CV.
	BD	4.30		12				NP			
		NumberTypeDDBD	Number Type Depth Im Im Im Im	Number Type Depth Depth M M M M 1.30 M M M M M 1.30 M BD 1.00 M BD 0.60 M BD 1.00 M BD 1.00 M BD 1.60 M BD 1.30 M BD 3.80 M BD 8.80 M BD 0.30 M	Sample NumberSample TypeTop DepthBase DepthContent %nmmClause 3.2D1.30m35BD1.0043BD0.6032BD1.0029BD1.605.1BD1.3031BD1.3020BD2.8017BD8.8037BD0.3041	Sample NumberSample TypeTop DepthBase DepthContent %Shrinkage %MDepthDepthMClause 3.2Clause 6.5D1.30MClause 3.2Clause 6.5BD1.0035Clause 6.5BD1.0043BD0.6032BD1.0029BD1.605.1BD1.3031BD10.3020BD8.8037BD0.3041	Sample NumberSample TypeTop DepthBase DepthContent %Shrinkage Mg/m3mmClause 3.2Clause 6.5Clause 8.2D1.3035Clause 6.5Clause 8.2BD1.0043Clause 6.5Clause 8.2BD1.0043Clause 6.5Clause 8.2BD1.0029Clause 6.5Clause 6.5BD1.6029Clause 6.5Clause 6.5BD1.605.1Clause 6.5Clause 6.5BD1.3031Clause 6.5Clause 6.5BD1.3010.3020Clause 6.5BD2.8017Clause 6.5Clause 6.5BD8.8037Clause 6.5Clause 6.5BD0.3041Clause 6.5Clause 6.5	Sample NumberSample TypeTop DepthBase DepthContent %Shrinkage %Density Mg/m3Limit %MDepth%%%%%%%MMClause 3.2Clause 6.5Clause 8.2Clause 4.3/4D1.3035Clause 6.5Clause 8.2Clause 4.3/4BD1.0043Clause 6.5Clause 8.2Clause 4.3/4BD1.004316565BD1.002917070BD1.605.11147BD1.3031147BD1.3020147BD2.80171143BD8.8037143BD0.3041176	Sample NumberSample TypeTop DepthBase DepthContent %Shrinkage %Density Mg/m3Limit %Limit %NumberTypeDepthDepth%%Mg/m3%%%mmClause 3.2Clause 6.5Clause 8.2Clause 4.3/4Clause 5.3D1.3035Clause 6.5Clause 8.2Clause 4.3/4Clause 5.3BD1.0043-6528BD0.6032-7030BD1.0029NPBD1.3031-4723BD10.3020NPBD2.8017-NPBD8.8037-4321BD0.3041-7632	Sample NumberSample TypeTop DepthBase DepthContent %Shrinkage %Density Mg/m3Limit %Limit %Index %MMClause 3.2Clause 6.5Clause 6.2Clause 4.34Clause 5.3Clause 5.4D1.30G35Clause 6.5Clause 6.2Clause 4.34Clause 5.3Clause 5.4BD1.00G43I652837BD0.60G32I652837BD1.00G29IINPIBD1.60S1IIIYPIBD1.30G31IINPIBD1.30G20IINPIBD1.30G37IINPIBD1.30G37IIIIIBD1.60G5.1IIIIIBD1.30G31IIIIIIBD1.30I10IIIIIIIBD1.30G31IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Sample Number Sample Type Top Depth Base Depth Content % Shrinkage % Density Mg/m ³ Limit % Limit % Limit % Index % 425 mm m m Clause 3.2 Clause 6.5 Clause 8.2 Clause 4.3/4 Clause 5.3 Clause 5.4 D 1.30 35 Clause 6.5 Clause 8.2 Clause 4.3/4 Clause 5.3 Clause 5.4 BD 1.00 43 Clause 6.5 Clause 6.5 2.8 37 93 BD 0.60 32 Claus 655 2.8 37 93 BD 1.00 29 Claus 70 30 40 93 BD 1.60 5.1 Claus M MP - BD 1.30 31 Claus 47 2.3 2.4 92 BD 10.30 20 Image MP MP - - BD 2.80 37 G G 43

SYMBOLS : NP : Non Plastic

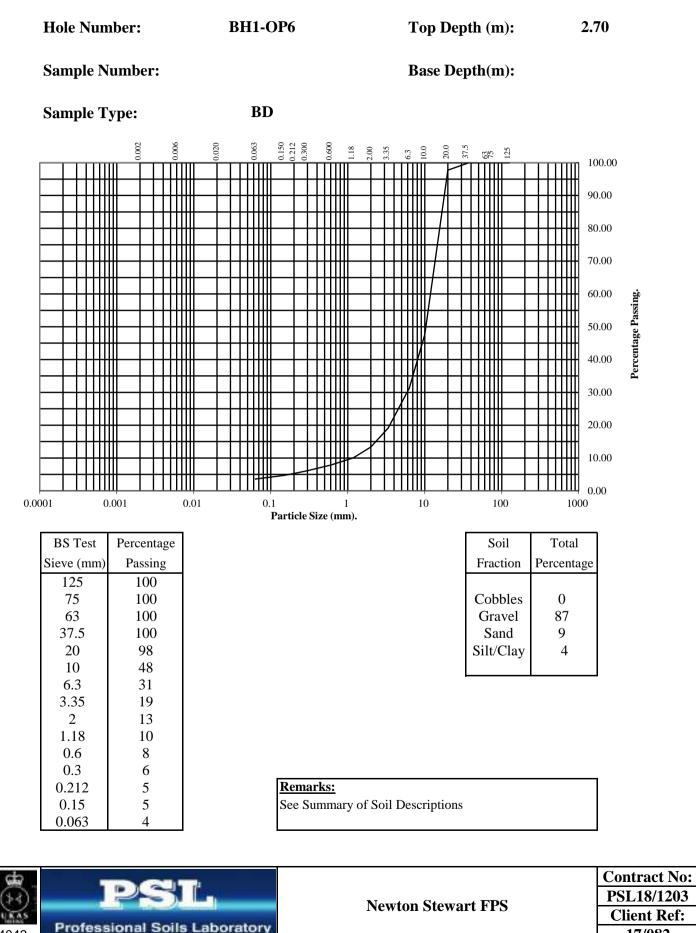
*: Liquid Limit and Plastic Limit Wet Sieved.





BS1377 : Part 2 : 1990

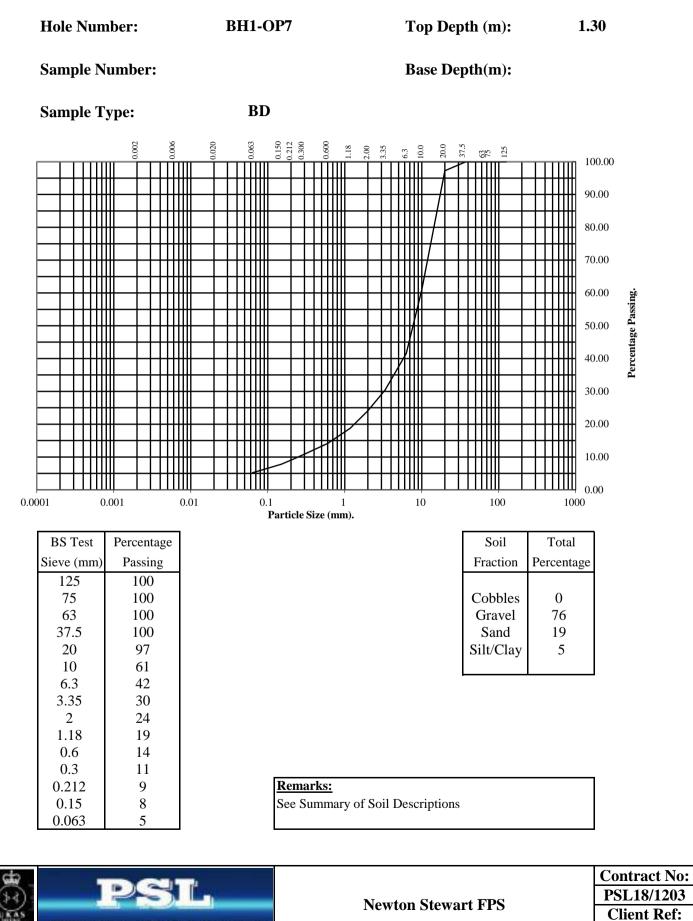
Wet Sieve, Clause 9.2



4043

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



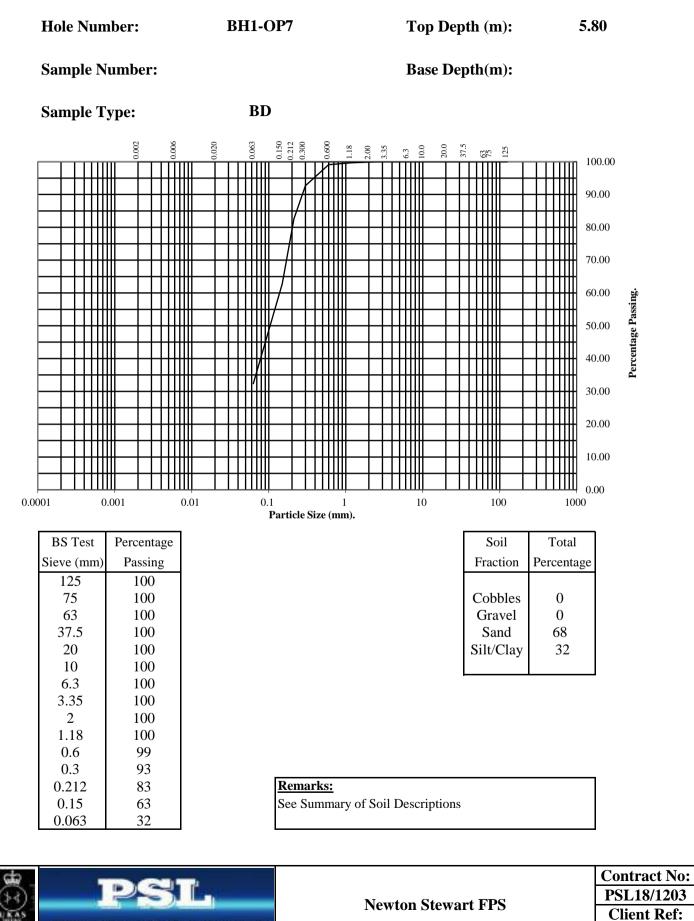
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of

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

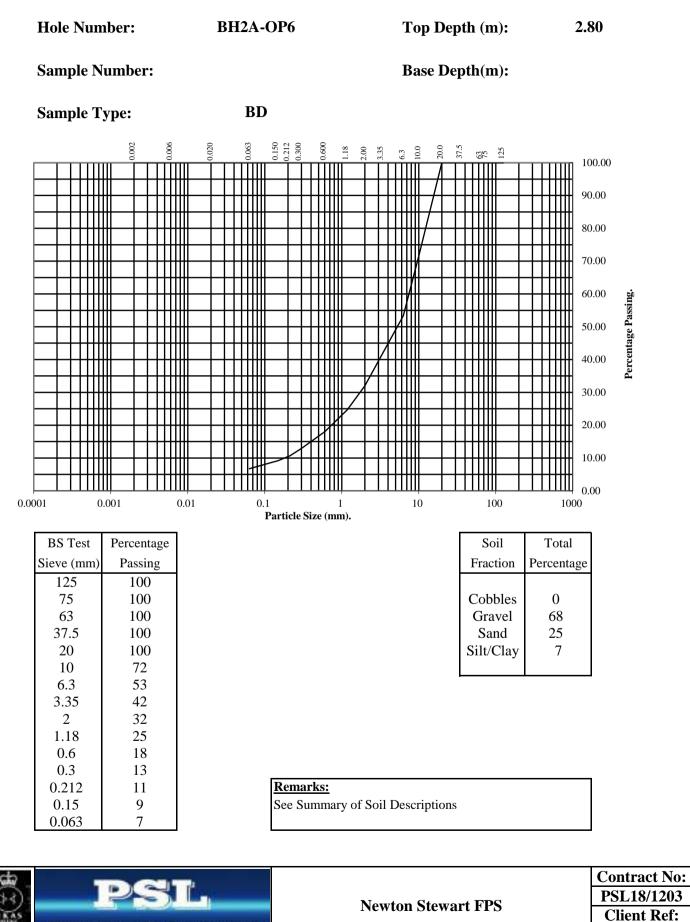


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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

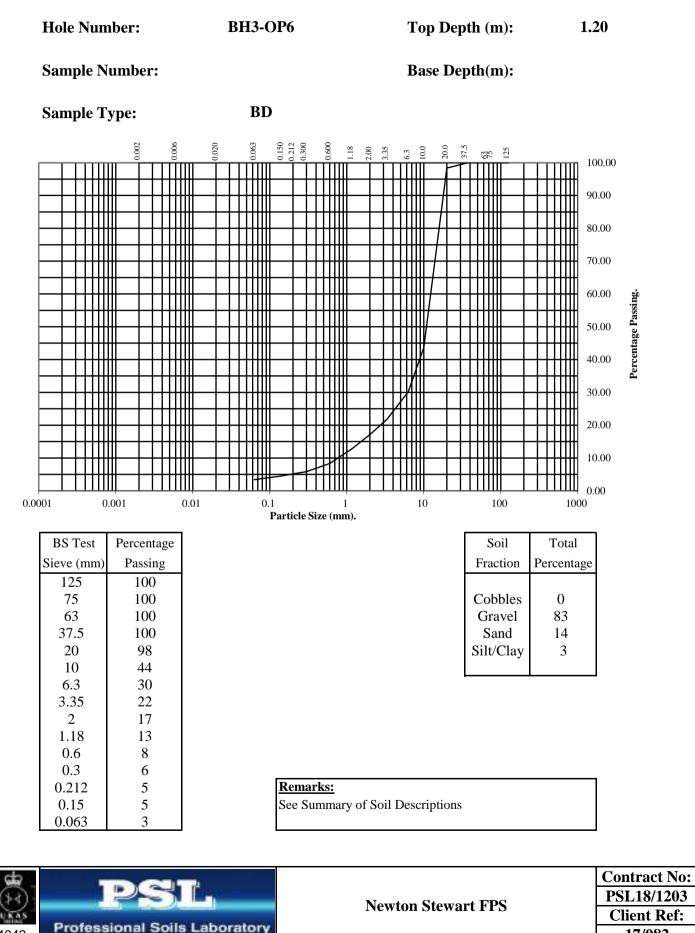


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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

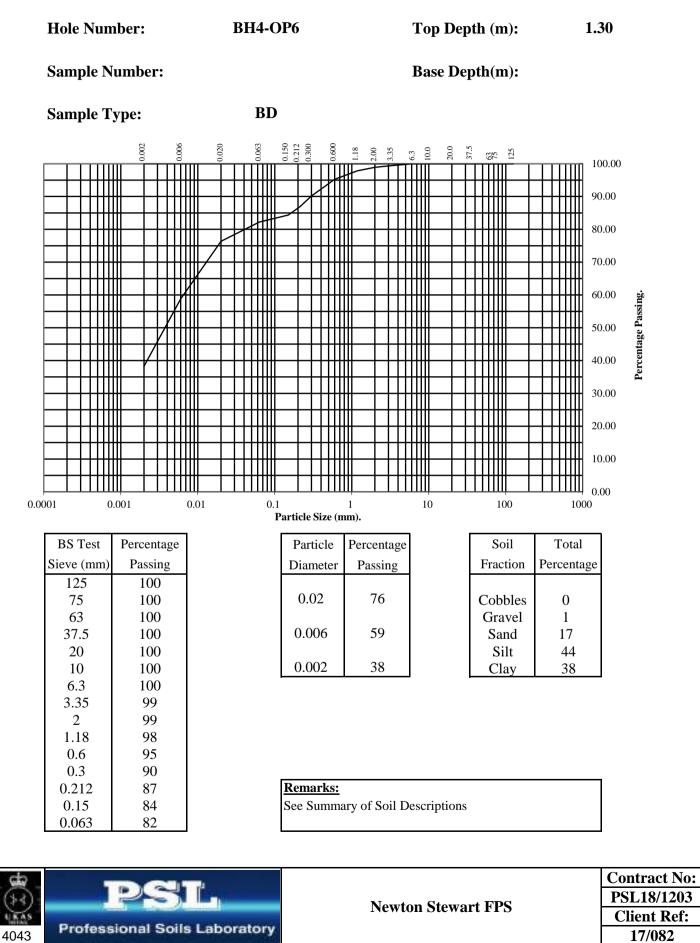


PSL005

4043

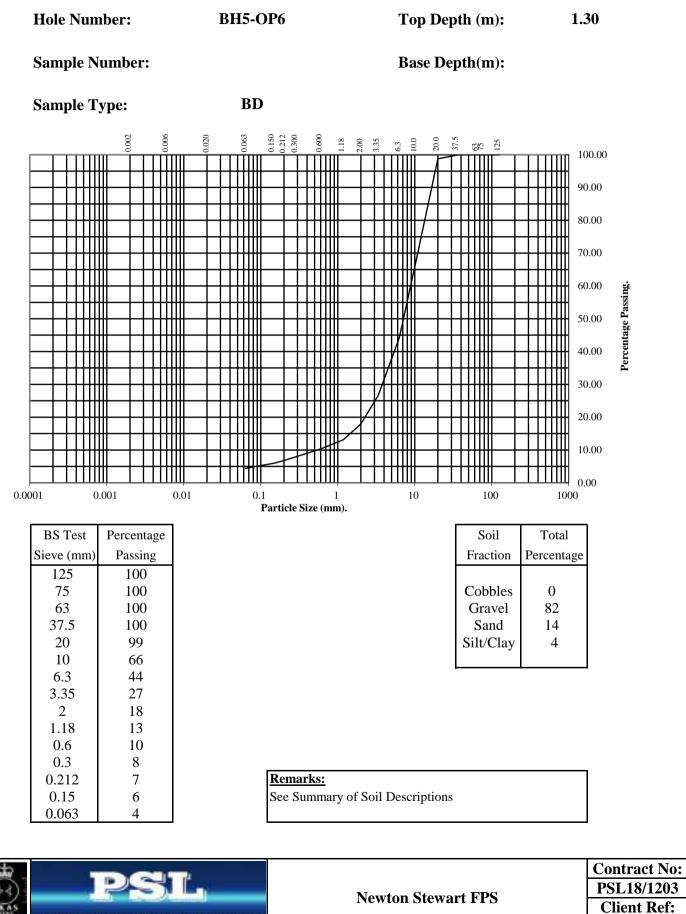
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

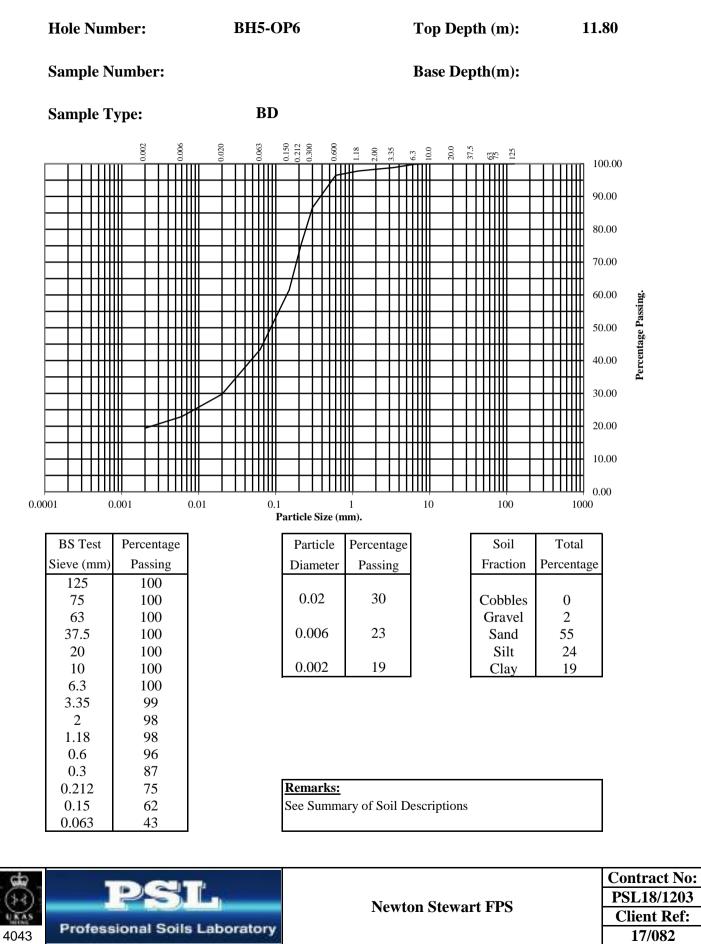


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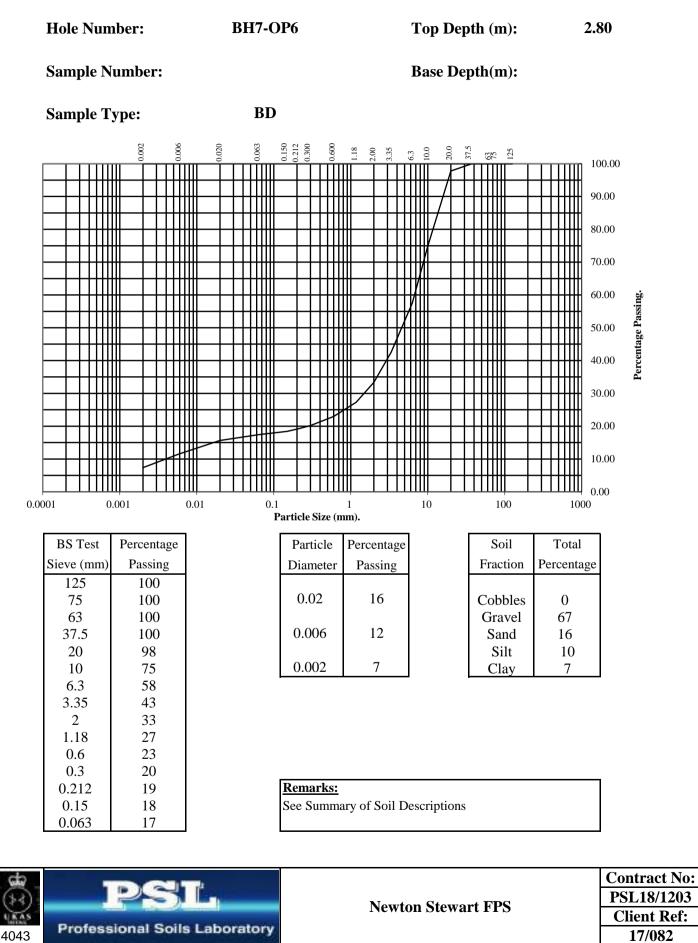
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

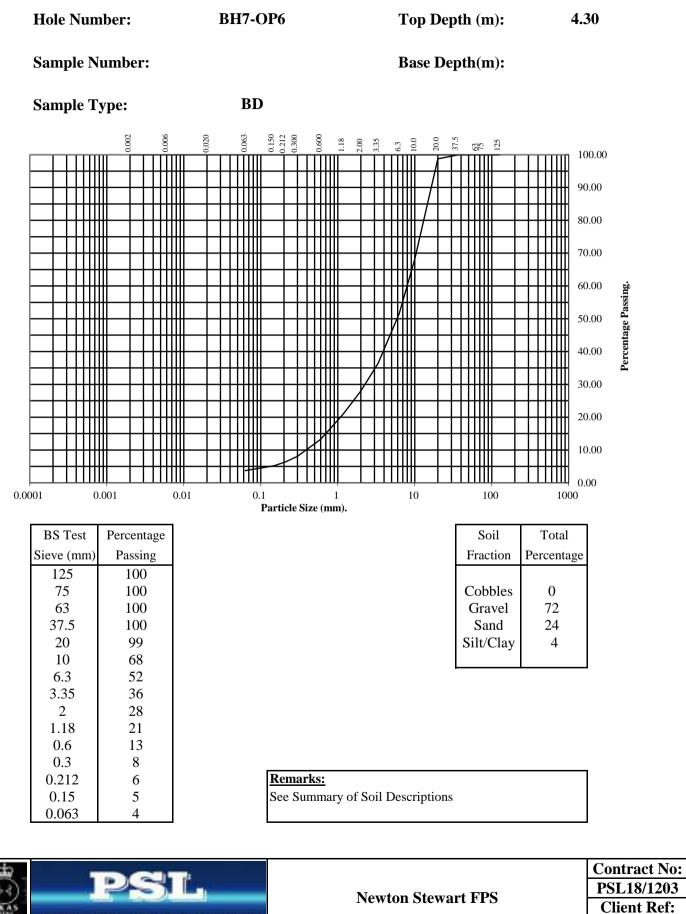
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



PSL005

BS1377 : Part 2 : 1990

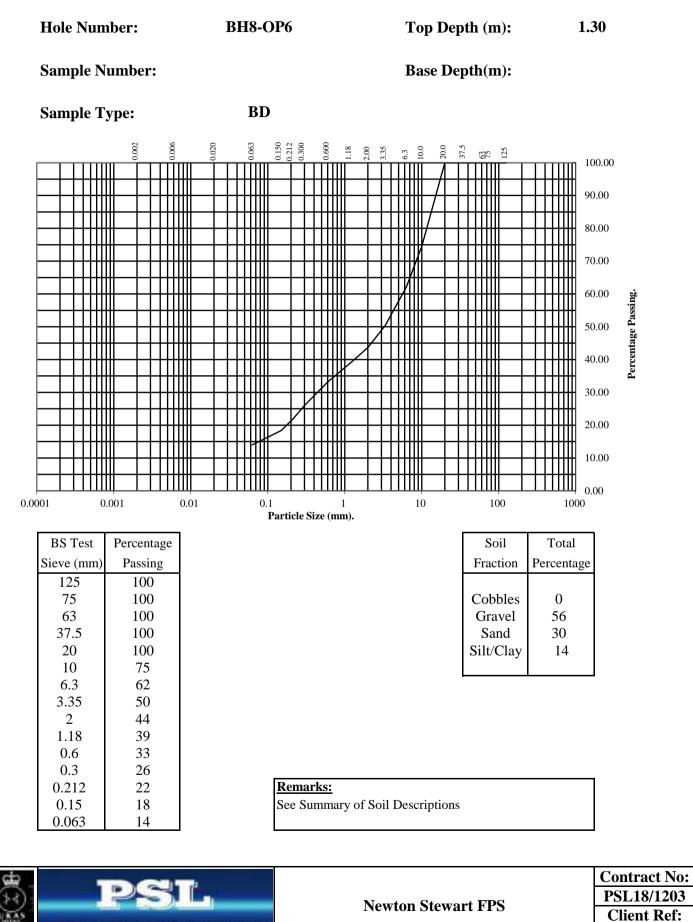
Wet Sieve, Clause 9.2



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



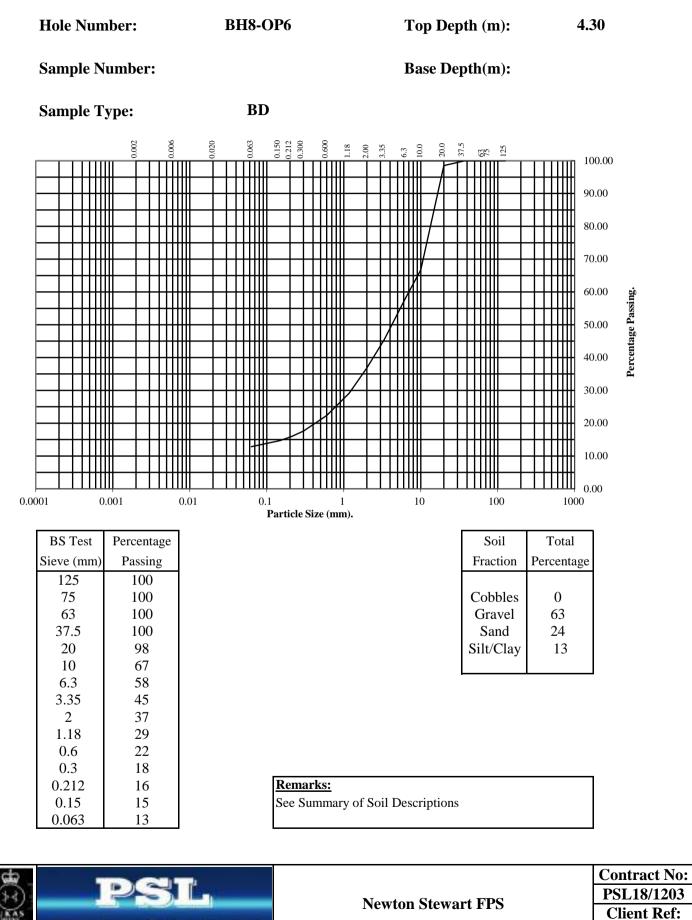
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PSL005

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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



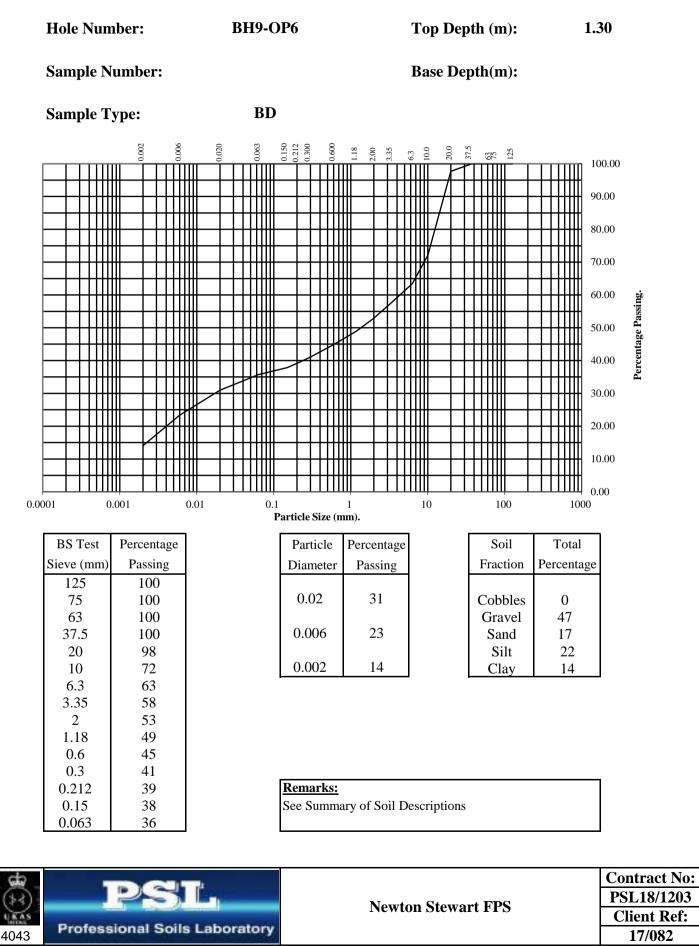
Professional Soils Laboratory

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of

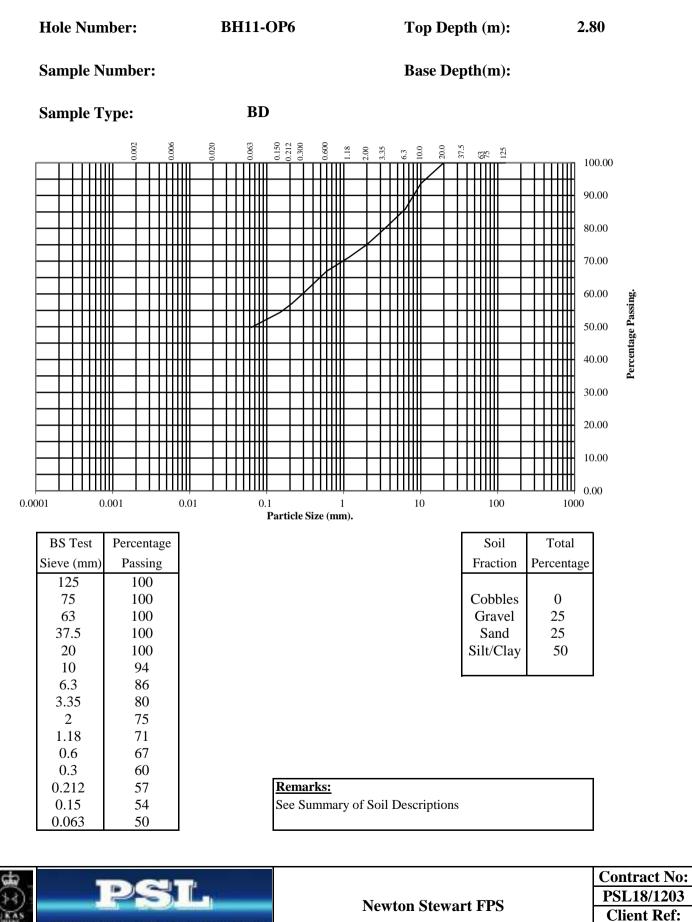
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



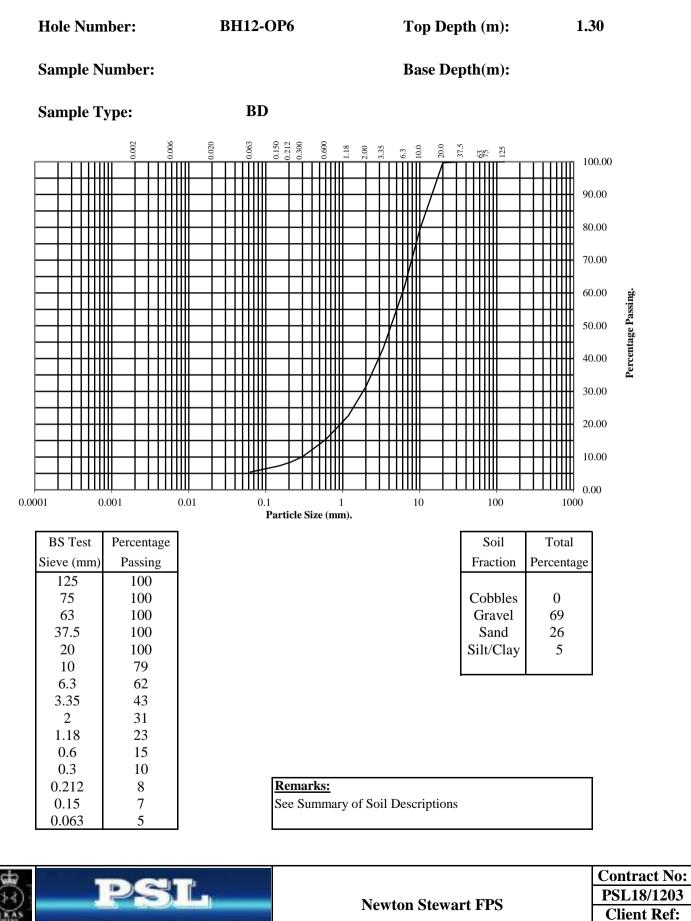
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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



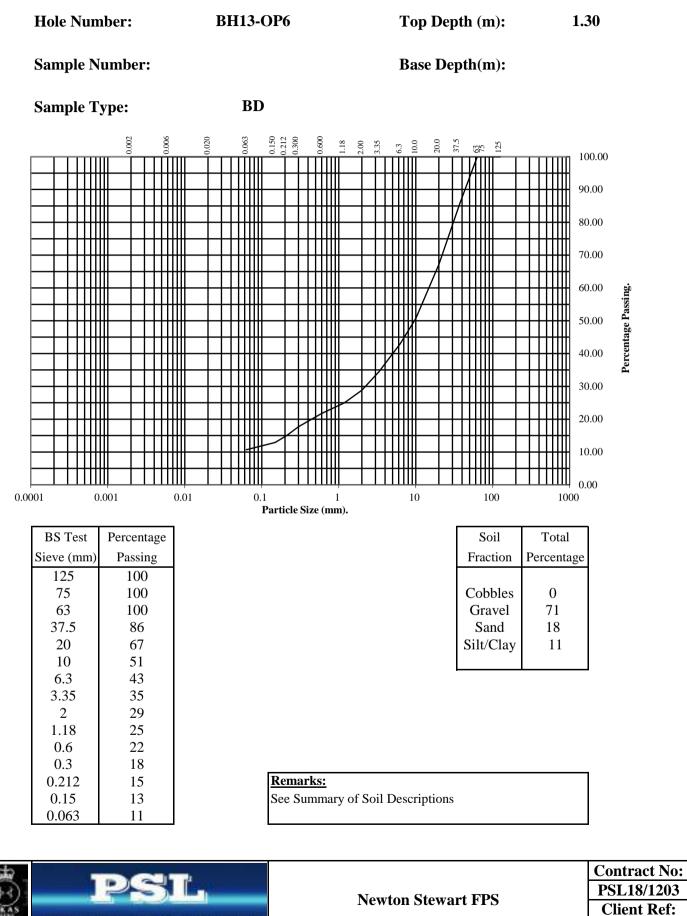
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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

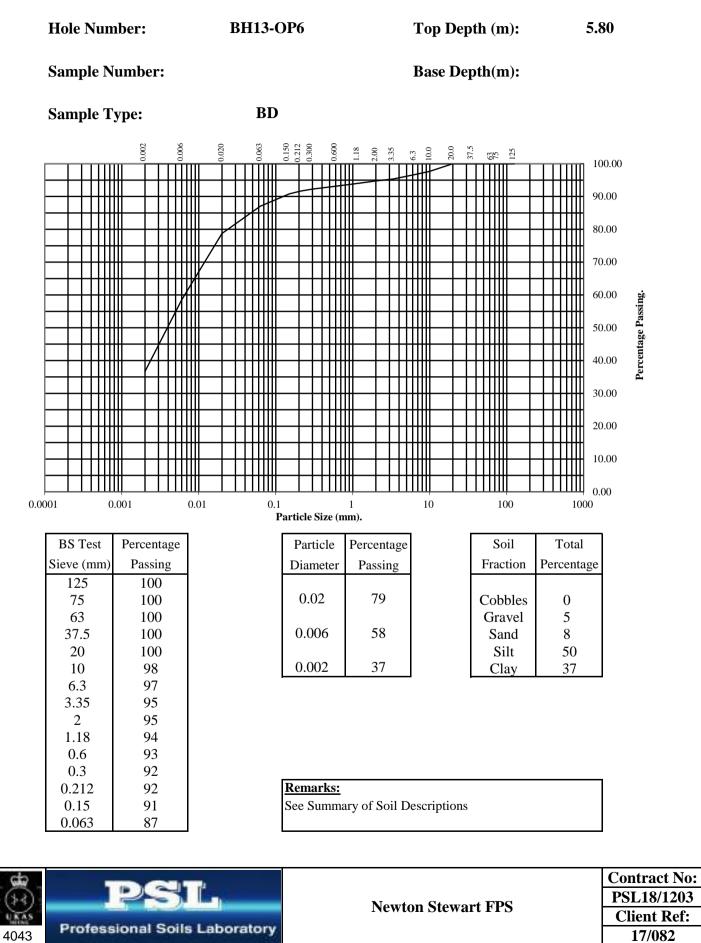


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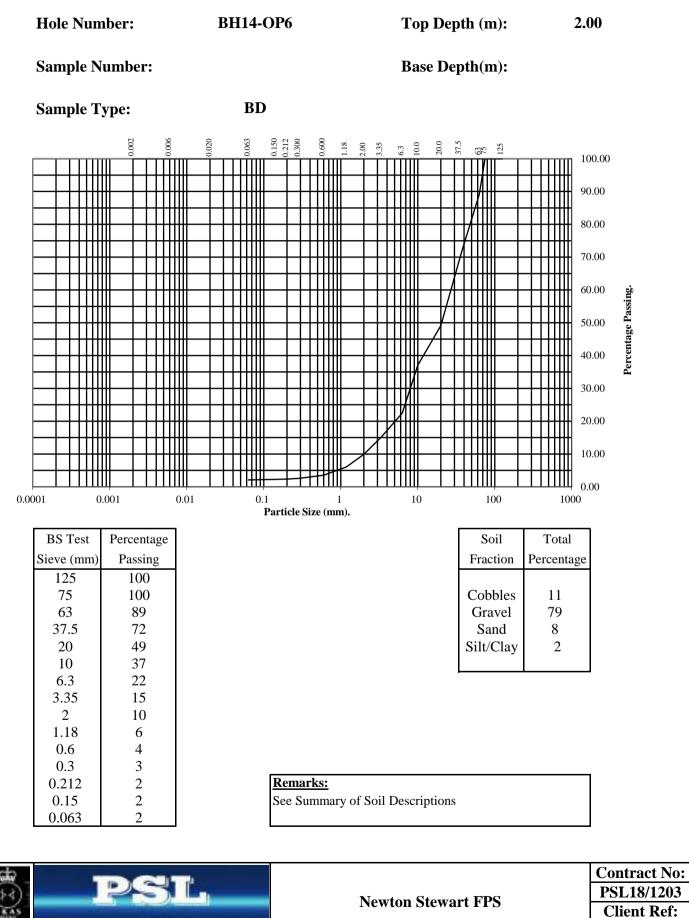
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Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



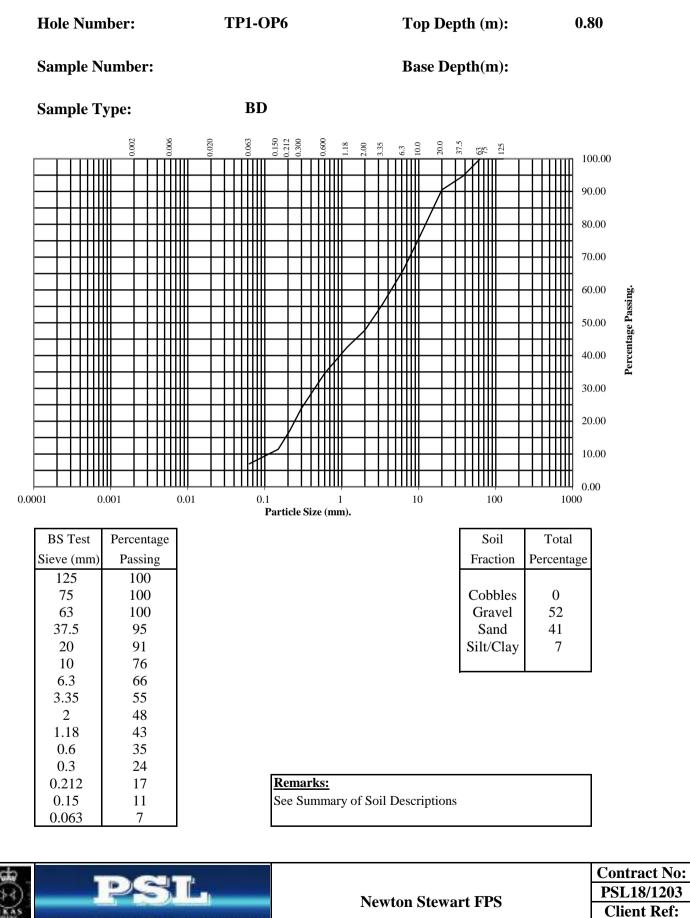
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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



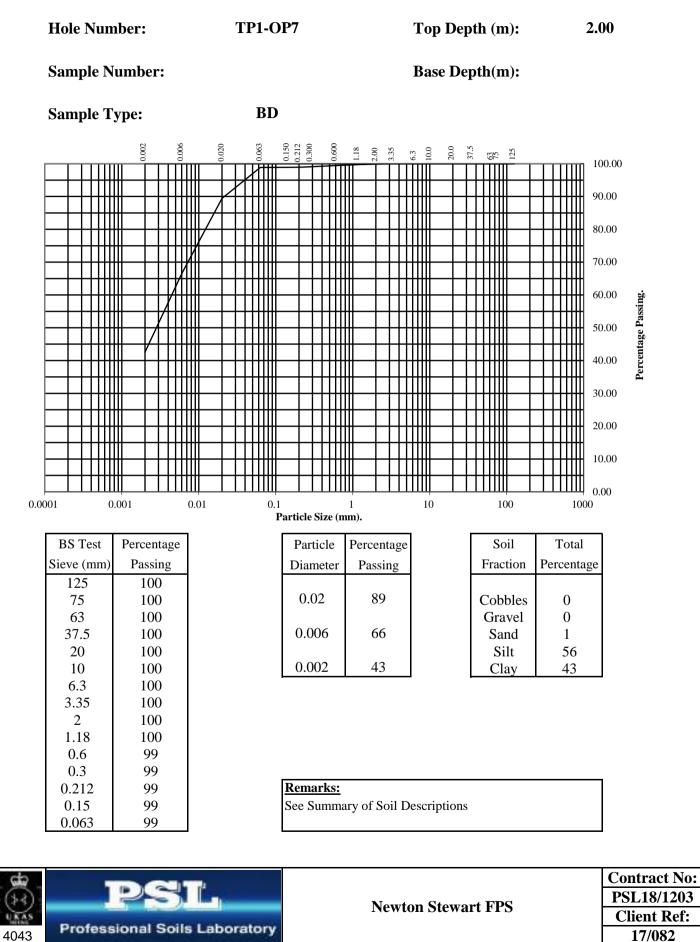
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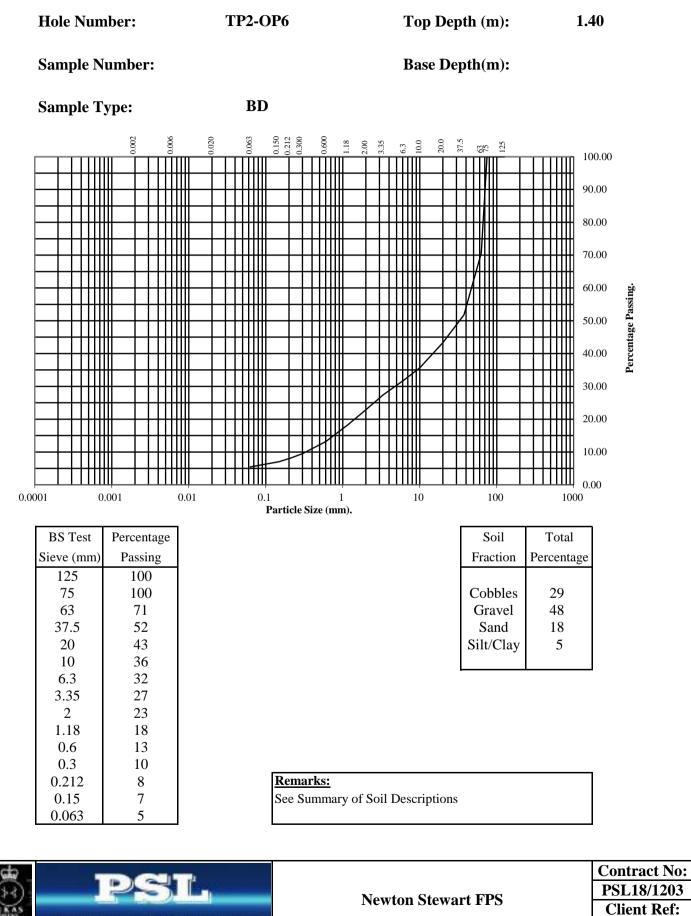
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



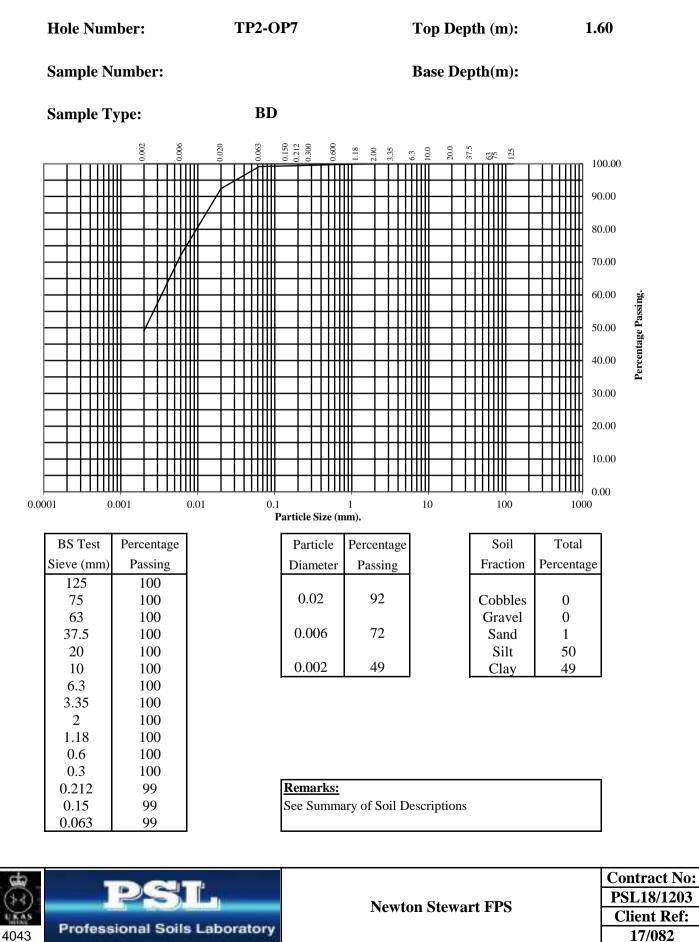
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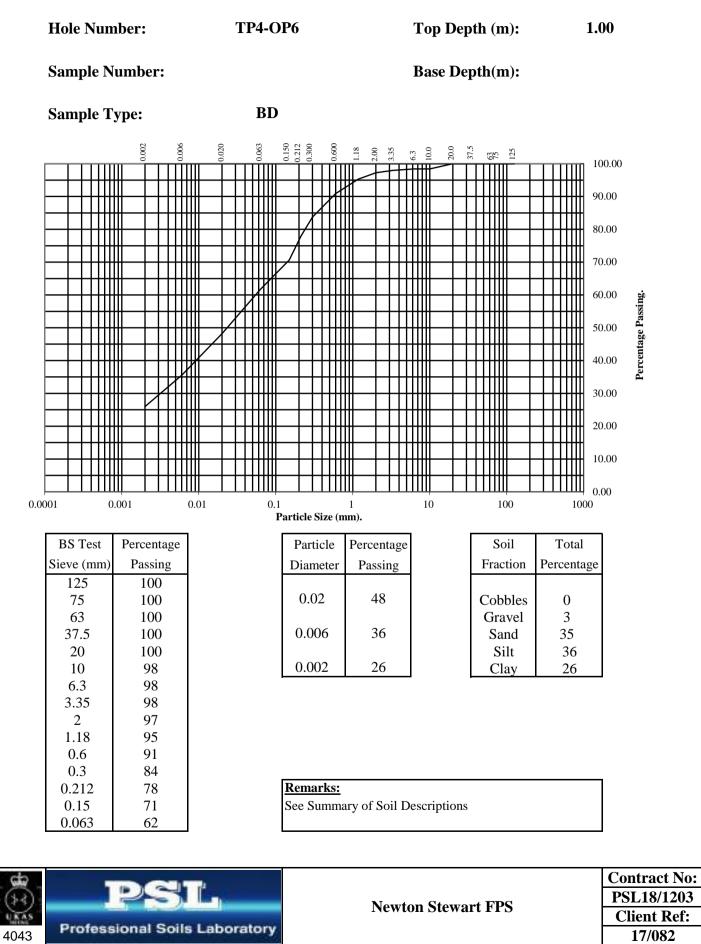
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



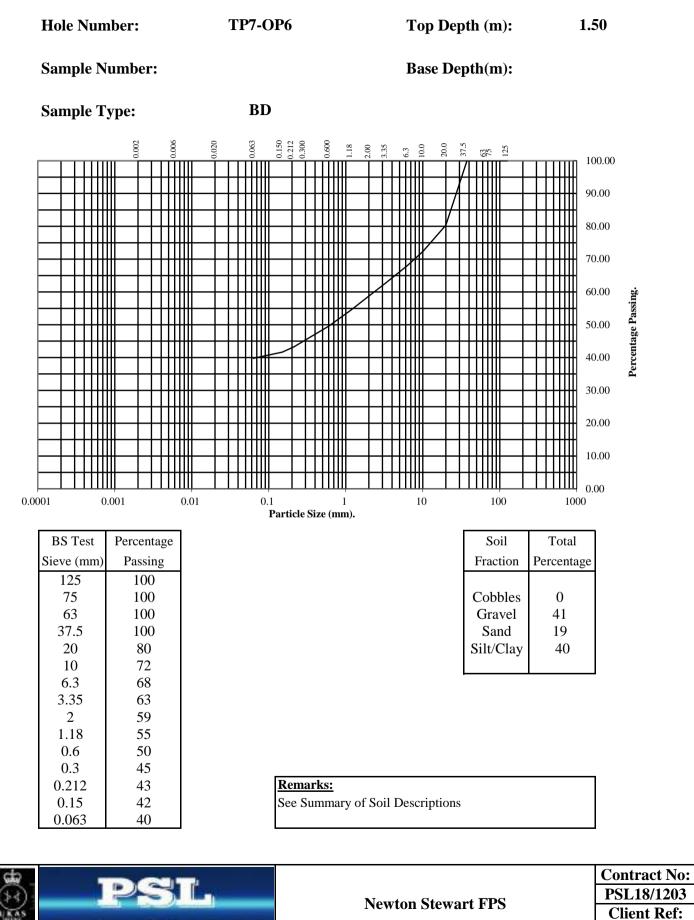
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



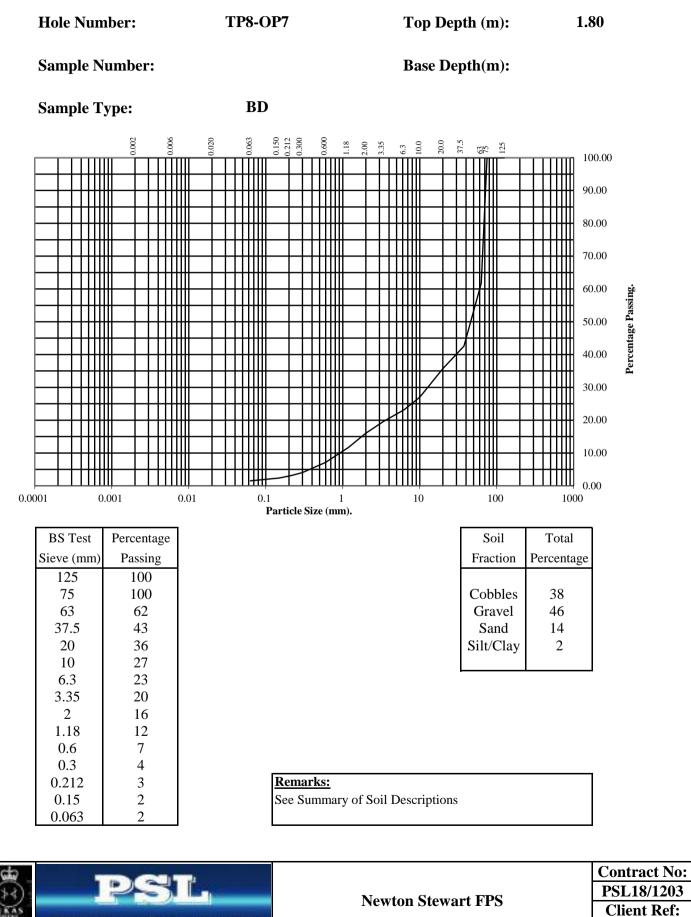
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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



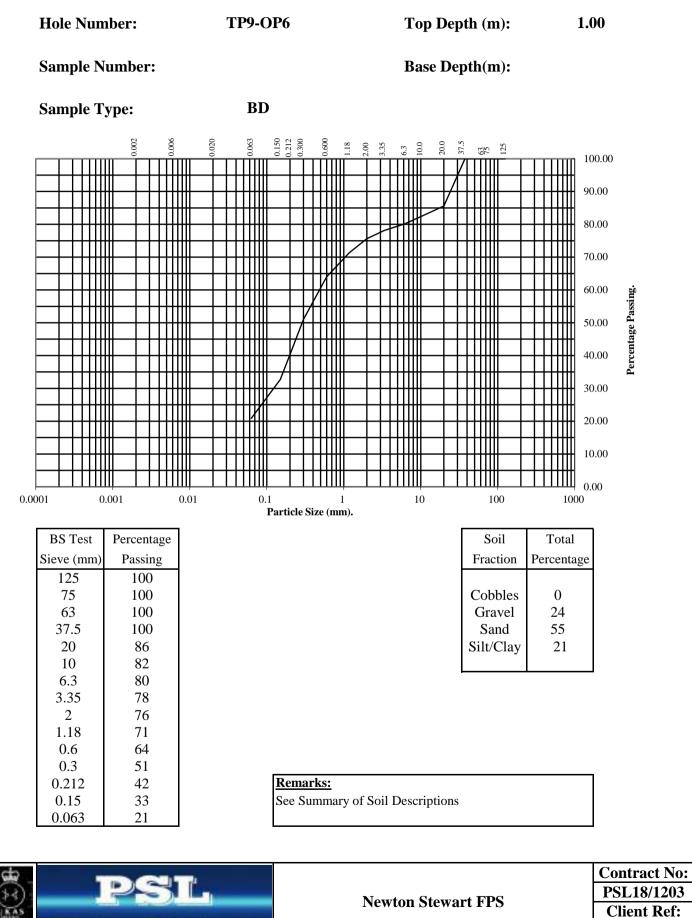
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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



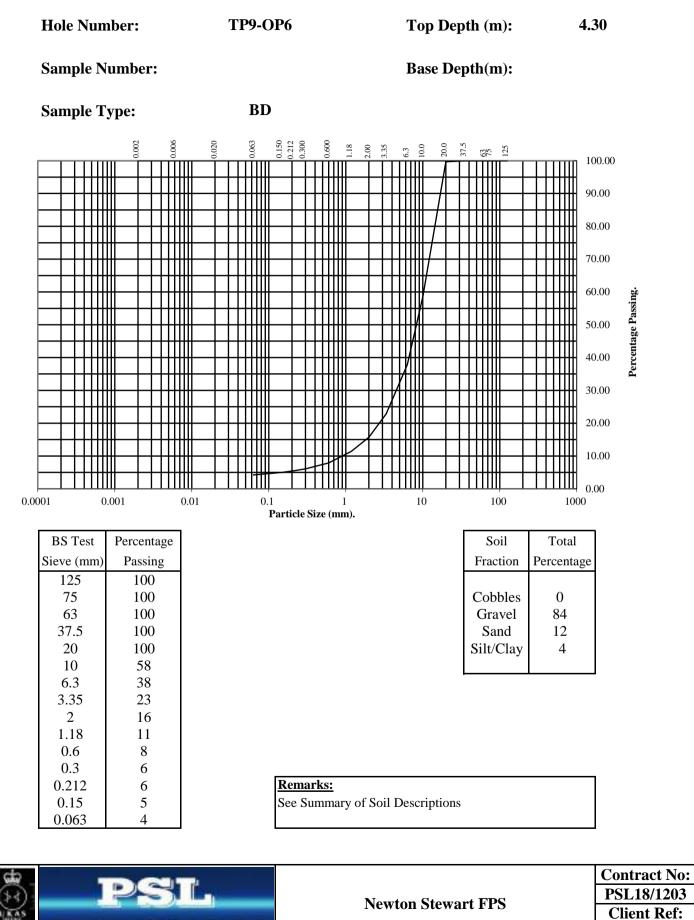
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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

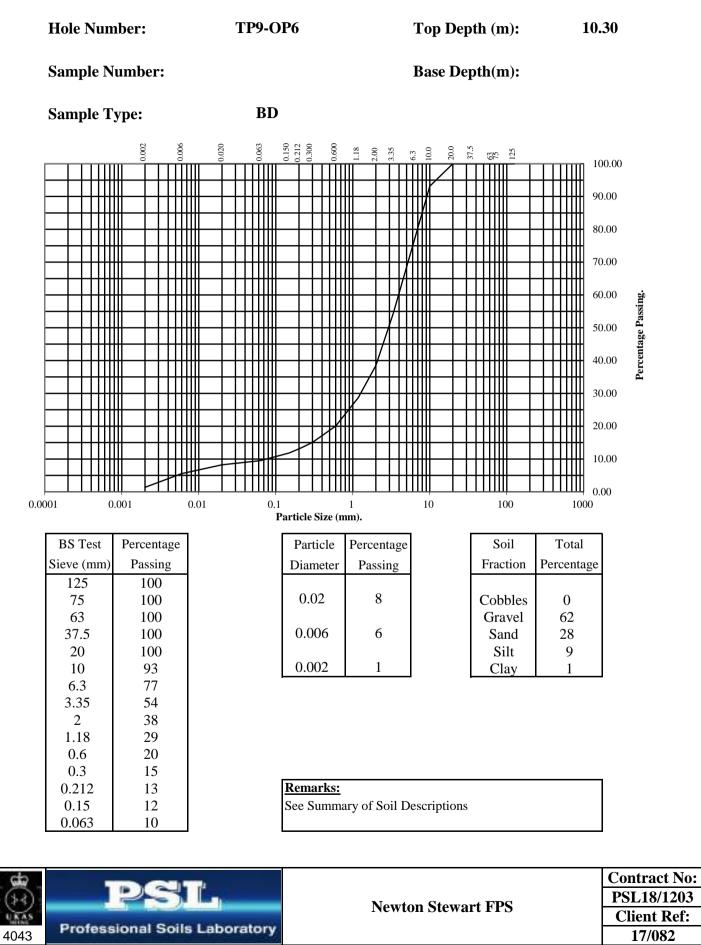


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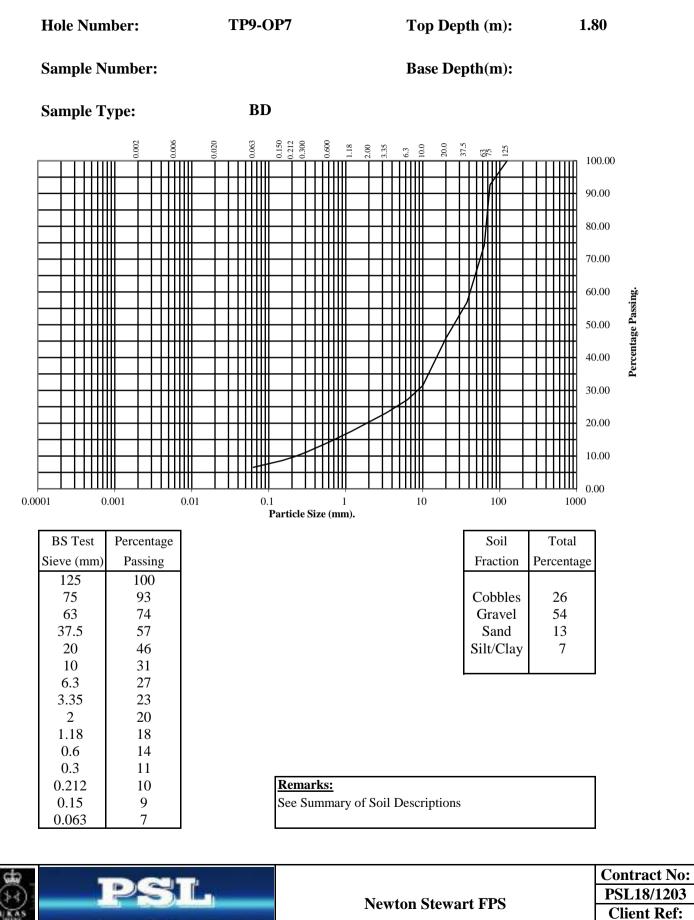
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Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4



BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



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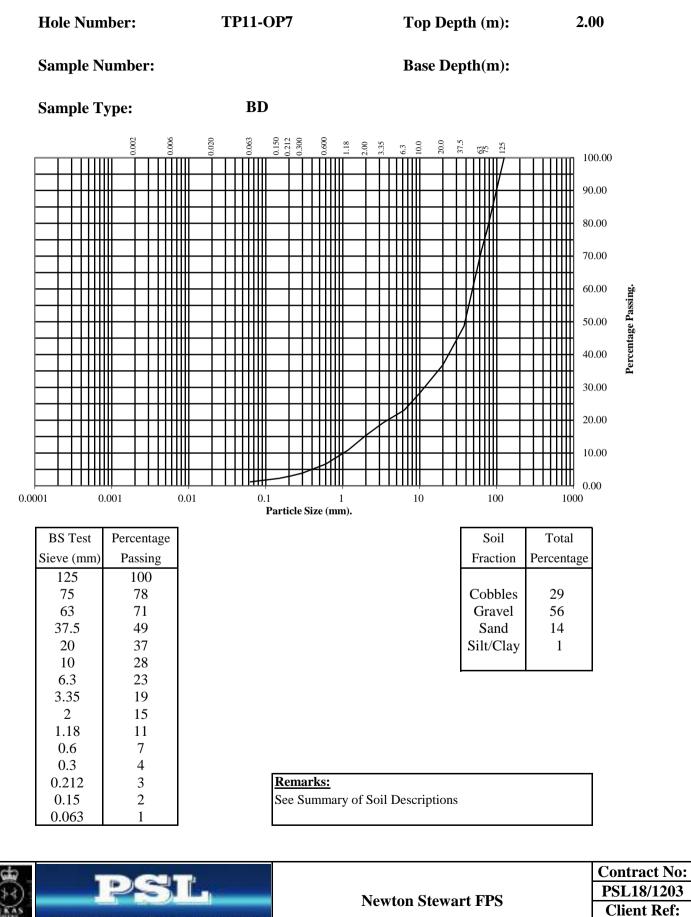
Nov 15

17/082

4043

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2



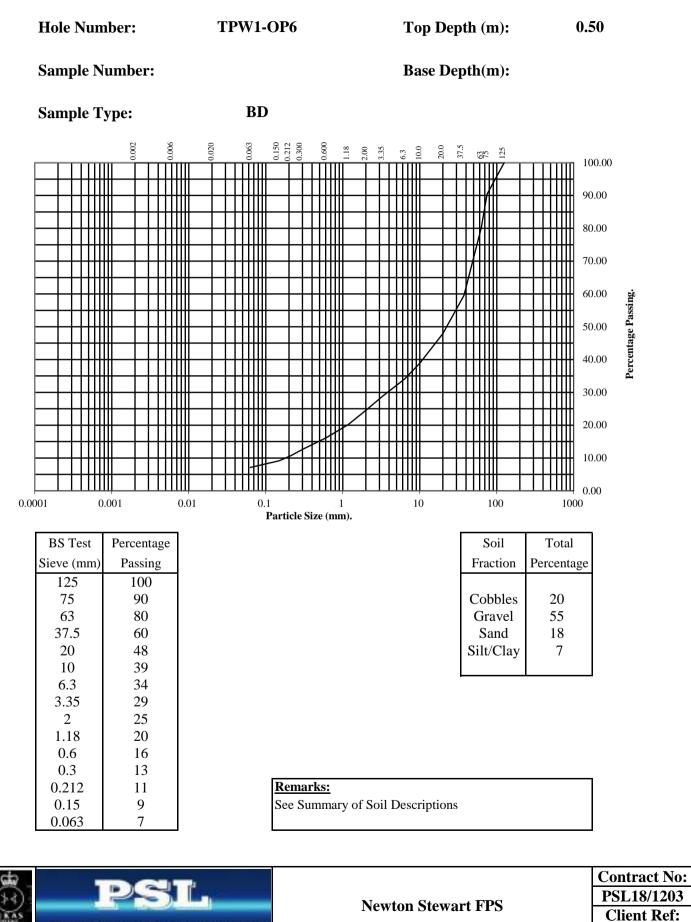
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of

BS1377 : Part 2 : 1990

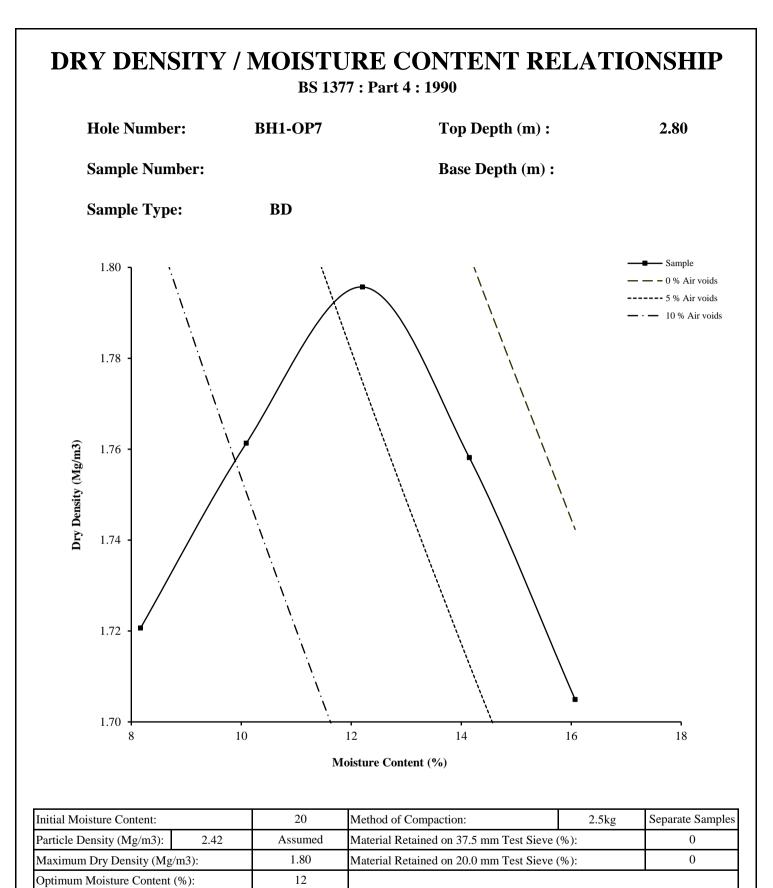
Wet Sieve, Clause 9.2



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of



Remark	s

See summary of soil descriptions.

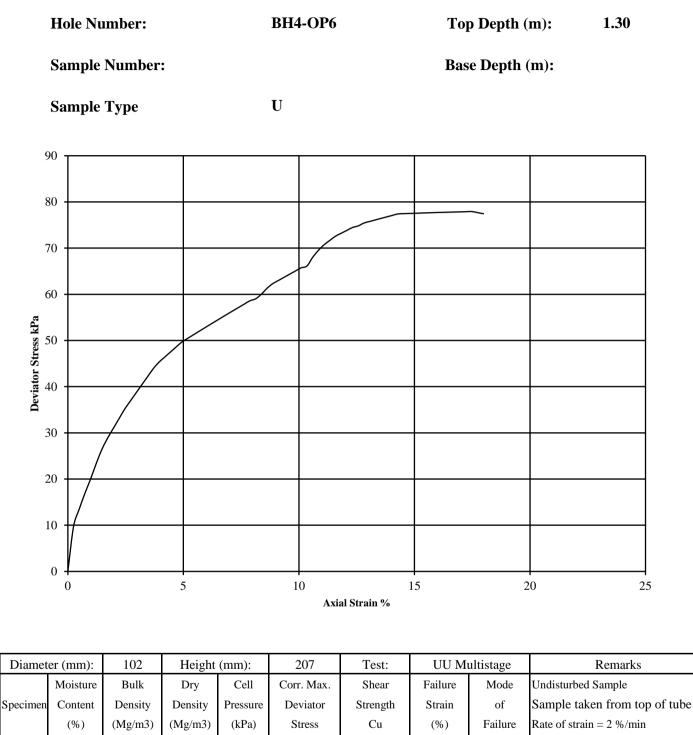


Newton Stewart FPS

Contract
PSL18/1203
Client Ref
17/082

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9



	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain	Rate of strain = 2% /min	
					(kPa)	(kPa)			Latex Membr	ane used 0.2	mm thick
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Co	orrection app	lied (kPa)
1	33	1.89	1.42	15	59	30	8.1		0.36	0.35	0.34
				30	66	33	10.3		See summary	of soil descr	iptions
				60	78	39	17.5	Plastic			

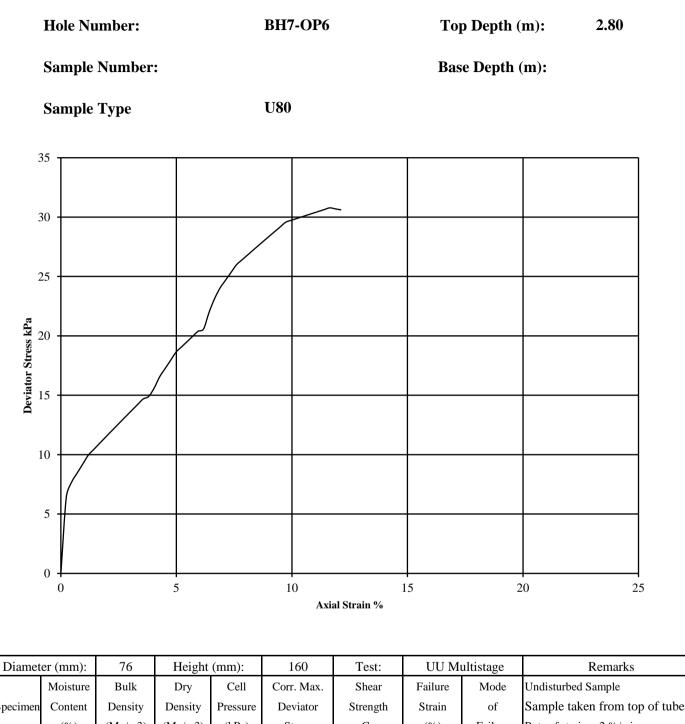


Newton Stewart FPS

Contract No: PSL18/1203 Client Ref: 17/082

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9



Specimen	Content	Density	Density	Pressure	Deviator	Strength	Strain	OI	Sample taken from top of tube	
	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2% /min	
					(kPa)	(kPa)			Latex Membrane used 0.2 mm thic	
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Correction applied (kPa	
1	32	1.88	1.43	30	15	7	3.8		0.49 0.48 0.47	
				60	21	10	6.2		See summary of soil descriptions	
				120	31	15	11.6	Plastic		

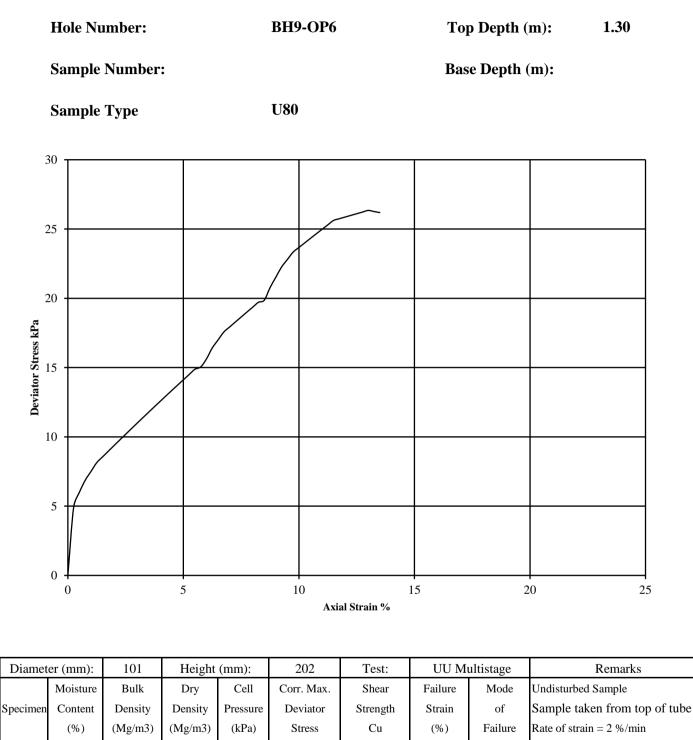


Newton Stewart FPS

Contract No: PSL18/123 Client Ref: 17/082

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9



	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2% /min		
					(kPa)	(kPa)			Latex Membr	ane used 0.2	mm thick
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Co	prrection app	lied (kPa)
1	44	1.76	1.23	15	15	8	5.8		0.37	0.36	0.35
				30	20	10	8.5		See summary	of soil descri	iptions
				60	26	13	13.0	Plastic			

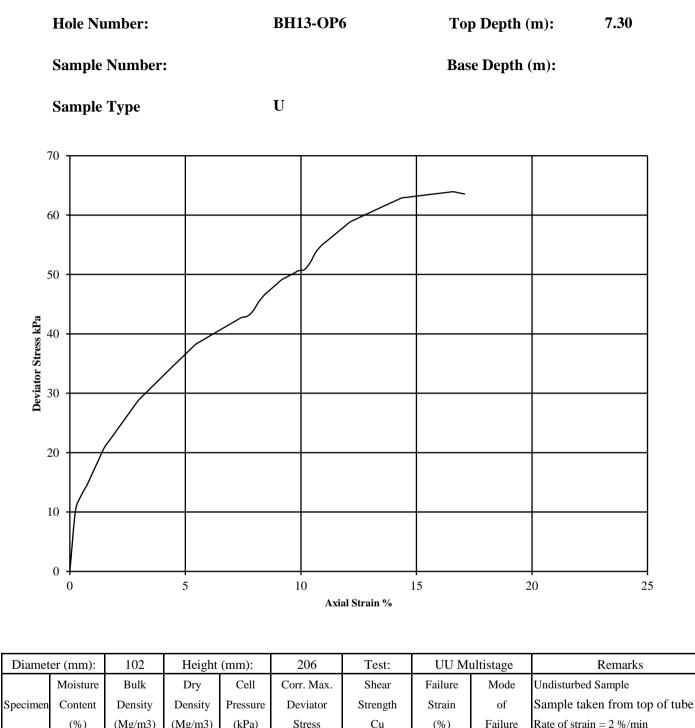


Newton Stewart FPS

Contract No: PSL18/123 Client Ref: 17/082

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9



				150	64	32	16.6	Plastic	
				75	51	25	10.2		See summary of soil descriptions
1	35	1.97	1.46	35	43	21	7.7		0.36 0.35 0.34
				θ_3	$(\theta_1 - \theta_3)_f$	$^{1}/_{2}(\theta_{1}-\theta_{3})_{f}$			Membrane Correction applied (kPa)
					(kPa)	(kPa)			Latex Membrane used 0.2 mm thick
	(%)	(Mg/m3)	(Mg/m3)	(kPa)	Stress	Cu	(%)	Failure	Rate of strain = 2 %/min
-		-	-			0			1 1



Newton Stewart FPS

Contract No:
PSL18/1203
Client Ref:
17/082

BS 1377: Part 5: 1990: Clause 3



BH4-OP6

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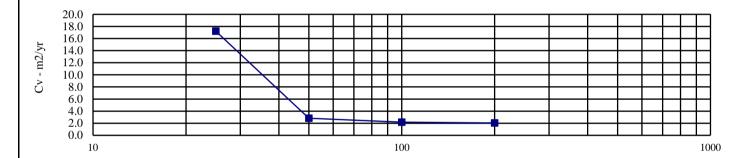
Top Depth (m): 1.30

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Sample Number:
```

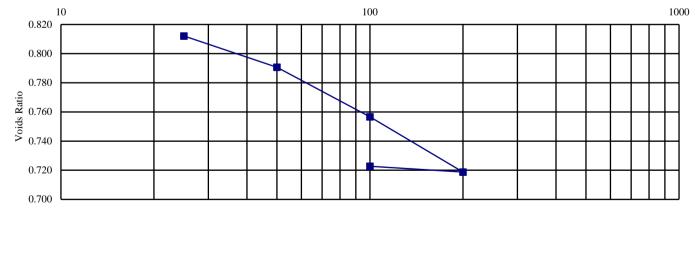
Base Depth (m) :

Sample Type:

Initial Conditions	Pressure Range		Mv	Cv	Specimen location		
Moisture Content (%):	33	kPa		m2/MN	m2/yr	within tube: To	
Bulk Density (Mg/m3):	1.91	0	25	0.776	17.209	Method used to	
Dry Density (Mg/m3):	1.43	25	50	0.474	2.818	determine CV:	T90
Voids Ratio:	0.848	50	100	0.380	2.174	Nominal temperature	
Degree of saturation:	104.0	100	200	0.216	2.039	during test 'C:	20
Height (mm):	19.896	200	100	0.023	-	Remarks:	
Diameter (mm)	75.058					See summary of soil descrip	otions
Particle Density (Mg/m3):	2.65						
Assumed	2.03						







4043 Professional Soils Laboratory	Newton Stewart FPS	Contract No: PSL18/1203 Client Ref: 17/082
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BS 1377: Part 5: 1990: Clause 3



BH7-OP6

Top Depth (m): 2

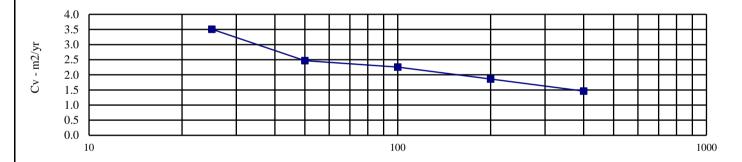
2.80

Sample Number:

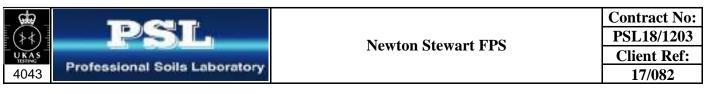
Base Depth (m) :

Sample Type: U80

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	32	kPa		m2/MN	m2/yr	within tube: Top	
Bulk Density (Mg/m3):	1.90	0	25	1.917	3.508	Method used to	
Dry Density (Mg/m3):	1.44	25	50	0.647	2.468	determine CV:	T90
Voids Ratio:	0.837	50	100	0.431	2.258	Nominal temperature	
Degree of saturation:	100.8	100	200	0.281	1.860	during test ' C:	20
Height (mm):	19.884	200	400	0.194	1.463	Remarks:	
Diameter (mm)	75.22					See summary of soil descr	iptions
Particle Density (Mg/m3):	2.65						
Assumed	2.03						







BS 1377: Part 5: 1990: Clause 3



BH9-OP6

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Top Depth (m):

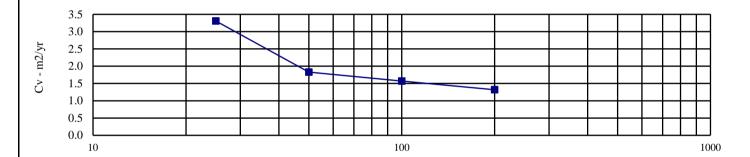
1.30

Sample Number:

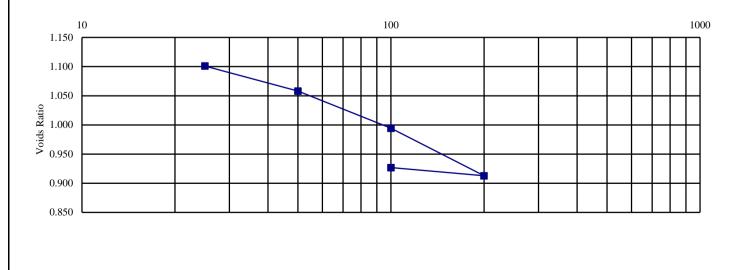
Base Depth (m) :

Sample Type:

Initial Conditions	Pressure Range		Mv	Cv	Specimen location		
Moisture Content (%):	44	kPa		m2/MN	m2/yr	within tube: Top	
Bulk Density (Mg/m3):	1.77	0	25	1.014	3.306	Method used to	
Dry Density (Mg/m3):	1.23	25	50	0.817	1.828	determine CV:	T90
Voids Ratio:	1.156	50	100	0.619	1.569	Nominal temperature	
Degree of saturation:	100.5	100	200	0.409	1.318	during test 'C:	20
Height (mm):	19.836	200	100	0.073	-	Remarks:	
Diameter (mm)	75.06					See summary of soil descri	iptions
Particle Density (Mg/m3):	2.65						
Assumed	2.03						







BS 1377: Part 5: 1990: Clause 3



BH13-OP6

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Top Depth (m):

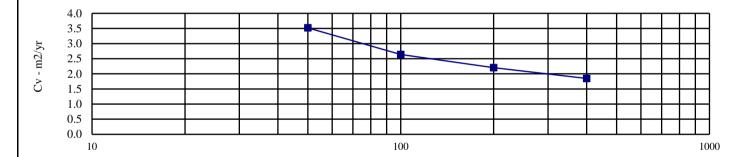
7.30

Sample Number:

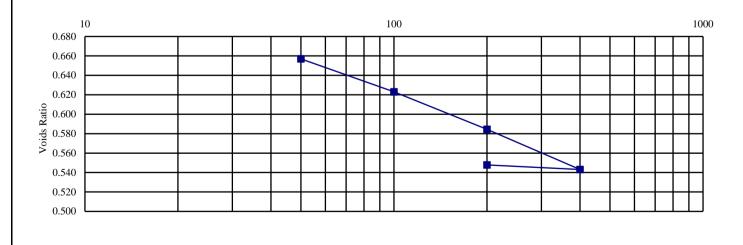
Base Depth (m) :

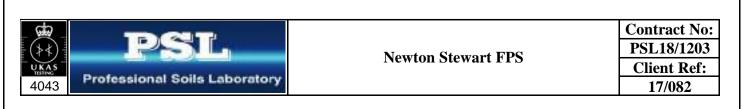
Sample Type:

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	35	kPa		m2/MN	m2/yr	within tube: To	
Bulk Density (Mg/m3):	1.96	0	50	1.747	3.519	Method used to	
Dry Density (Mg/m3):	1.46	50	100	0.409	2.638	determine CV:	T90
Voids Ratio:	0.815	100	200	0.238	2.205	Nominal temperature	
Degree of saturation:	112.5	200	400	0.130	1.848	during test 'C:	20
Height (mm):	19.876	400	200	0.015	-	Remarks:	
Diameter (mm)	75.02					See summary of soil descr	iptions
Particle Density (Mg/m3):	2.65						
Assumed	2.03						





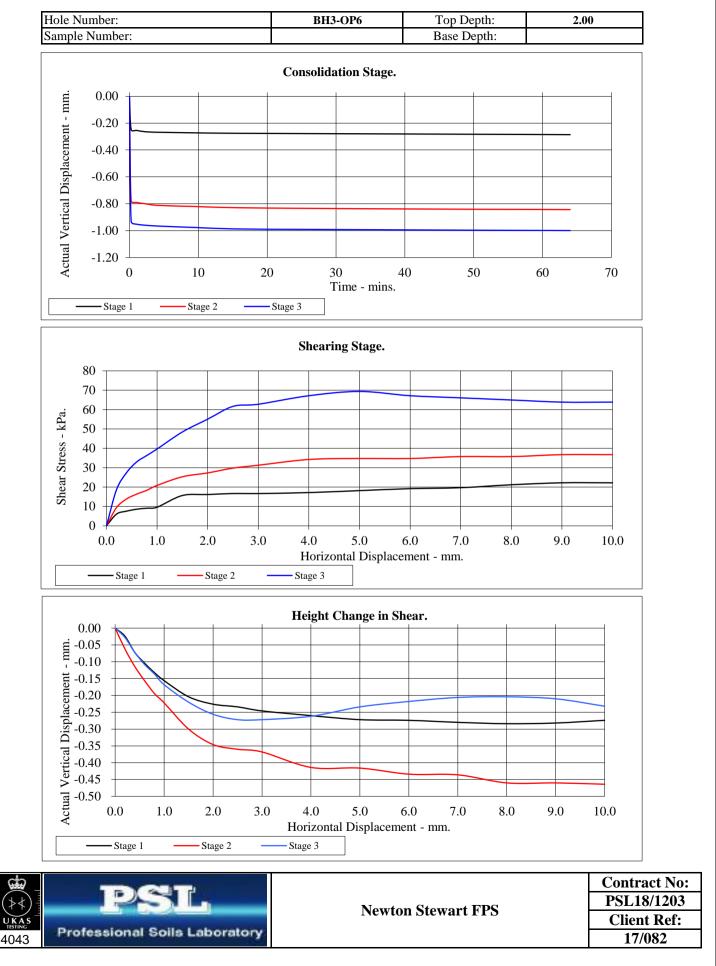




BS1377:Part 7:1990 Clause 4 5 4

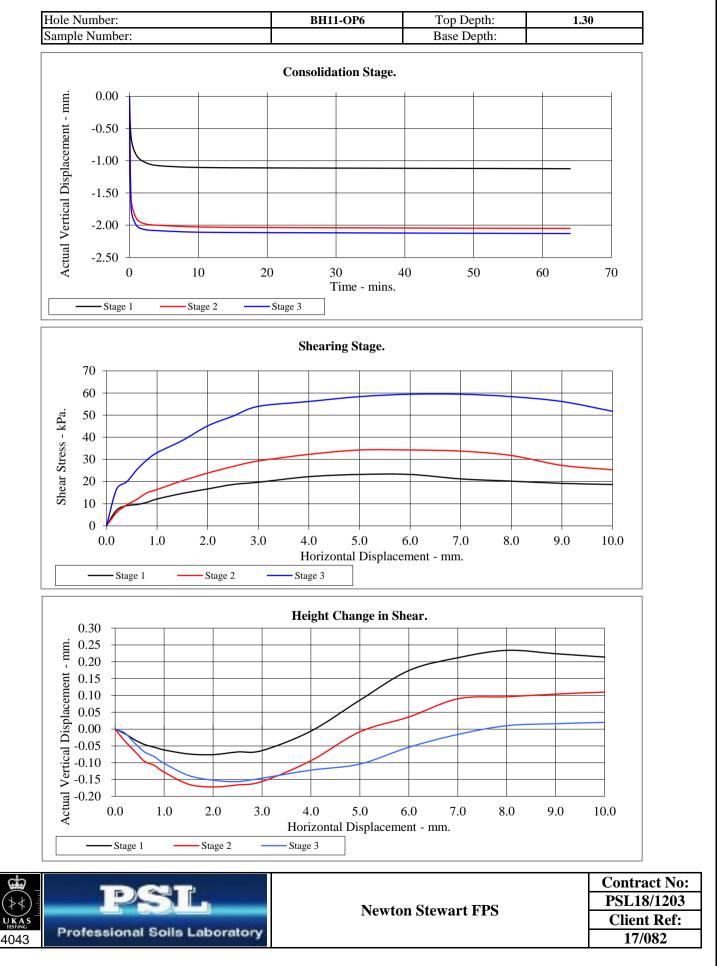
		BS13	877:Part 7:1990 (Clause 4.5.4			
Hole Number:			BH3-OP6	Top Depth:		2.0	0
Sample Numbe				Base Depth			
Sample Condit			Submerged	Sample Ty	pe	B	D
Particle Densit	y - Mg/m3:	2.65	Assumed	Remarks:			
Sample Prepara	ation:		using 2.5kg effort. ed passing 2mm sieve	e			
Sample Descrij	ption:		ry of soil description				
STAGE					1	2	3
			Initial Condition	ns			·
Height - mm:					19.54	19.54	19.54
Length - mm:					60.03	60.03	60.03
Moisture Conte	ent - %:				14	14	14
Bulk Density -					1.75	1.75	1.76
Dry Density - N	/m3:				1.53	1.53	1.54
Voids Ratio:					0.728	0.731	0.719
Normal Pressu	re- kPa				25	45	90
			Consolidation Sta	age			
Consolidated H	leight - mm:				19.25	18.70	18.54
			Shearing Stage	e			
Rate of Strain	(mm/min)				0.600	0.600	0.600
	at peak shear st	tress (mm)			9.00	9.00	5.00
eak shear Stre					22	37	69
		Fi	nal Consolidated Co	onditions			
Aoisture Conte	ent - %:				21	22	20
Bulk Density -					1.77	1.82	1.85
Dry Density - N					1.46	1.50	1.54
· · · · ·	-		Peak				·
Angle of Shear	ing Resistance	::(0)				36	
Effective Cohe						4	
80 Shear Stress - (kPa). 40 20							
0		20 • Peak shea	Normal Stress -(k ar Stress - kPa:	Be	80 st Fit Line	100	Contract N PSL18/120
			Ne	wton Stewar	t FPS		Client Ref
Professio	nal Soils L	aboratory					17/082
			1				1//002

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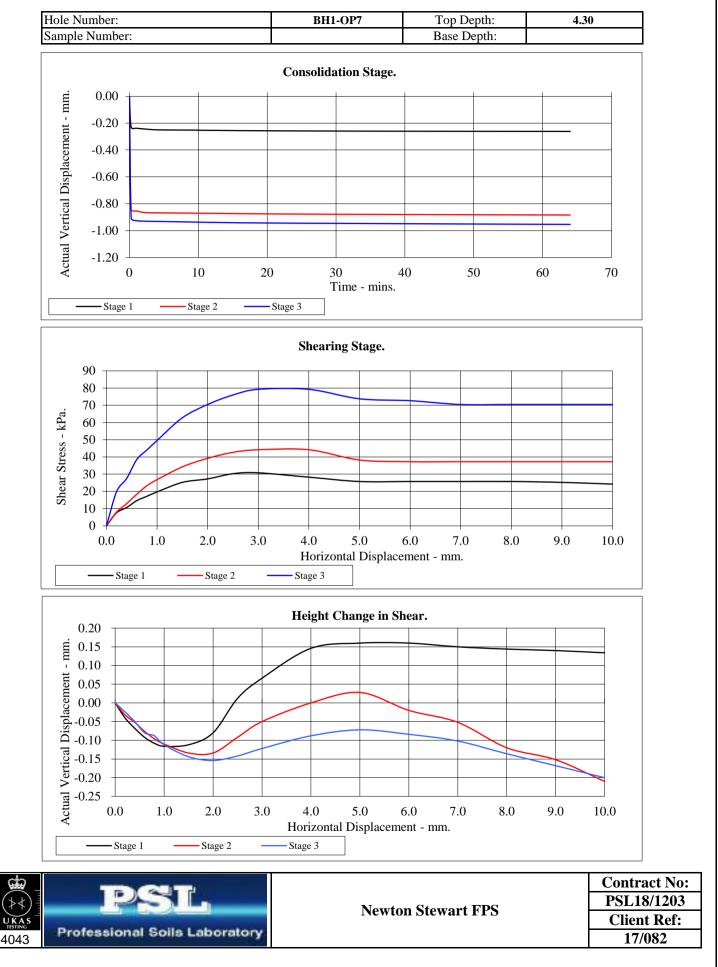
		BS1	377:Pa	art 7:1990 C	Clau	ıse 4.5.4			
Hole Number:			BH11	-OP6		Top Depth:		1.3	30
Sample Number:						Base Depth			
Sample Condition	ns:		Subm	erged		Sample Typ		В	D
Particle Density -		2.65		Assumed		Remarks:			
		Remoulded	l using 2						
Sample Preparati	on:			sing 2mm sieve	è				
Sample Descripti	on:			oil description					
STAGE							1	2	3
			In	itial Condition	ns		-	_	U
Height - mm:							19.54	19.54	19.54
Length - mm:							60.03	60.03	60.03
Moisture Content	- %.						22	22	22
Bulk Density - M							2.03	2.04	2.04
Dry Density - Mg							1.66	1.67	1.67
Voids Ratio:	/111.J.						0.598	0.590	0.583
Normal Pressure-	kDa						15	30	60
Normal Fiessufe-	кі а		Co	nsolidation Sta	000		13	30	00
Consolidated Hei	aht mm.			isonuation Sta	age		10 40	17.49	17.41
Consolitated Hel	giit - 111111;			Shearing Stage	2		18.42	17.49	17.41
Rate of Strain (n	m/min)		ĸ	incaring brage	~		0.600	0.600	0.600
Displacement at j		ress (mm)					5.00	5.00	6.00
Peak shear Stress		()					23	34	59
		F	Final Co	nsolidated Co	ndi	tions	23	51	57
Moisture Conten	- %:	-					22	21	20
Bulk Density - M							2.15	2.27	2.29
Dry Density - Mg							1.77	1.87	1.91
219 2 010109 1018	, 11101			Peak			1., ,	1.07	1.91
Angle of Shearin	2 Resistance	:(0)						38	
Effective Cohesio		~ /						11	
100 -									
100									
80 -									
80									
- 06 (ba						/			
- 06 (KI					X				
- 09 (kPa). - 07 - 09 - 09									
res									
r St									
- 04 Jean									
St			/						
20 -									
0 -					-		-		

Normal Stress -(kPa). • Peak shear Stress - kPa: Best Fit Line **Contract No:** PSL18/1203 **Newton Stewart FPS Client Ref: Professional Soils Laboratory** 17/082 4043



	<u>BS13</u>	377:Part 7:1990 (<u>lause 4.5.4</u>			
Hole Number:		BH1-OP7	Top Depth		4.3	30
Sample Number:			Base Dept	h:		
Sample Conditions:		Submerged	Sample Ty	vpe	B	D
Particle Density - Mg/m3:	2.65	Assumed	Remarks:			
Sample Preparation:	Remoulded	using 2.5kg effort.				
		ed passing 2mm siev				
Sample Description:	See summar	ry of soil description	s.			
STAGE				1	2	3
		Initial Conditio	ns			
Height - mm:				19.54	19.54	19.54
Length - mm:				60.03	60.03	60.03
Moisture Content - %:				20	20	20
Bulk Density - Mg/m3:				2.07	2.04	2.04
Dry Density - Mg/m3:				1.72	1.70	1.70
Voids Ratio:				0.539	0.562	0.555
Normal Pressure- kPa				25	45	90
		Consolidation St	age			
Consolidated Height - mm:				19.28	18.66	18.59
		Shearing Stag	e			
Rate of Strain (mm/min)				0.600	0.600	0.600
Displacement at peak shear	stress (mm)			3.00	3.00	3.00
Peak shear Stress - kPa:				31	44	79
	Fi	nal Consolidated Co	onditions			
Moisture Content - %:				19	18	18
Bulk Density - Mg/m3:				2.09	2.13	2.15
Dry Density - Mg/m3:				1.76	1.80	1.82
		Peak				
Angle of Shearing Resistance	xe:(0)				36	
Effective Cohesion - kPa:					13	
100 -						
100						
22						
80				×		
(a)						
Stress - (kPa)						
- s			1			
Ies						
St		/				





LABORATORY TEST CERTIFICATE

Certificate No :

To : Client : 18/309 - 01 Craig Rodger

Holequest Limited Winston Road Galashiels TD1 2DA



10 Queenslie Point Queenslie Industrial Estate 120 Stepps Road Glasgow G33 3NQ

Tel: 0141 774 4032 Fax: 0141 774 3552

email: info@mattest.org Website: www.mattest.org

Dear Sirs,

LABORATORY TESTING OF ROCK

Introduction

We refer to samples taken from Newton Stewart FPS and delivered to our laboratory on 16th March 2018.

Material & Source

Sample Reference	:	See Report Plates
Sampled By	:	Client
Sampling Certificate	:	Not Supplied
Location	:	See Report Plates
Description	:	Rock
Date Sampled	:	Not Supplied
Date Tested	:	16th March 2018 Onwards
Source	:	17/082 - Newton Stewart FPS

Test Results;

As Detailed On Page 2 to Page 11 inclusive

Comments;

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory All remaining samples for this project will be disposed of 28 days after issue of this test certificate

Remarks;

Approved for Issue

T McLelland (Director)

Date

26/03/2018



HOLEQUEST LIMITED NEWTON STEWART FPS



BOREHOLE		BH1-OP7	1
SAMPLE		С	
DEPTH	m	16.90	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	79.08	
SAMPLE HEIGHT	mm	184.35	
TEST CONDITION		As Received	
RATE OF LOADING	kN/s	0.5	
TEST DURATION	min.sec	8.05	
DATE OF TESTING		22/03/2018	
LOAD FRAME USED		2000kN	
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown	
FAILURE LOAD	kN	231.2	
UNCONFINED COMPRESSIVE STRENGTH	MPa	47.1	
WATER CONTENT (ISRM Suggested Methods)	%	0.3	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.69	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.68	
			-

BOREHOLE			
SAMPLE			
DEPTH	m	SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm		
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		

BOREHOLE		
SAMPLE		
DEPTH	m	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	
SAMPLE HEIGHT	mm	
TEST CONDITION		
RATE OF LOADING	kN/s	
TEST DURATION	min.sec	
DATE OF TESTING		
LOAD FRAME USED		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		
FAILURE LOAD	kN	
UNCONFINED COMPRESSIVE STRENGTH	MPa	
WATER CONTENT (ISRM Suggested Methods)	%	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	

Tested in accordance with ASTM D7012 - 14

SUMMARY OF UNCONFINED COMPRESSIVE STRENGTH

Page 2 of 11

HOLEQUEST LIMITED NEWTON STEWART FPS



BOREHOLE		BH8-OP6		
SAMPLE		С		
DEPTH	m	11.10	SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm	78.65		
SAMPLE HEIGHT	mm	179.83		
TEST CONDITION		As Received		
RATE OF LOADING	kN/s	0.5		
TEST DURATION	min.sec	5.55		
DATE OF TESTING		22/03/2018		
LOAD FRAME USED		2000kN		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown		
FAILURE LOAD	kN	163.4		
UNCONFINED COMPRESSIVE STRENGTH	MPa	33.6		
WATER CONTENT (ISRM Suggested Methods)	%	0.5	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.69		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.67		

BOREHOLE			
SAMPLE			
DEPTH	m	SAMPLE FAIL	URE SHAPES
SAMPLE DIAMETER	mm		
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		

BOREHOLE		
SAMPLE		
DEPTH	m	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	
SAMPLE HEIGHT	mm	
TEST CONDITION		
RATE OF LOADING	kN/s	
TEST DURATION	min.sec	
DATE OF TESTING		
LOAD FRAME USED		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		
FAILURE LOAD	kN	
UNCONFINED COMPRESSIVE STRENGTH	MPa	
WATER CONTENT (ISRM Suggested Methods)	%	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	

Tested in accordance with ASTM D7012 - 14

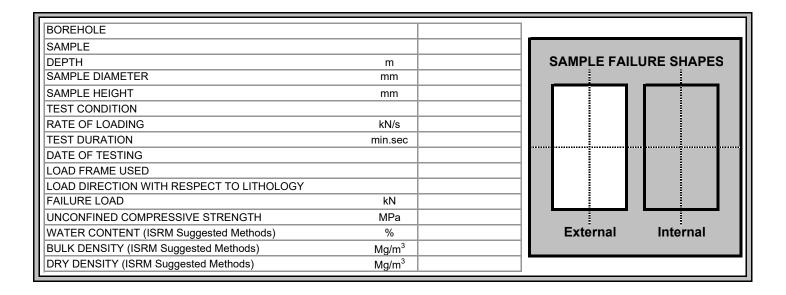
SUMMARY OF UNCONFINED COMPRESSIVE STRENGTH

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BOREHOLE		BH11-OP6		
SAMPLE		С		
DEPTH	m	15.10	SAMPLE FAILU	JRE SHAPES
SAMPLE DIAMETER	mm	79.80		
SAMPLE HEIGHT	mm	154.02		
TEST CONDITION		As Received		\setminus
RATE OF LOADING	kN/s	0.5		\setminus
TEST DURATION	min.sec	4.47		
DATE OF TESTING		22/03/2018	ΥN	
LOAD FRAME USED		2000kN		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown		
FAILURE LOAD	kN	122.5		
UNCONFINED COMPRESSIVE STRENGTH	MPa	24.5		
WATER CONTENT (ISRM Suggested Methods)	%	0.4	External	Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.64		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.63		

Test specimen does not meet specified length / diameter ratio requirements



BOREHOLE		
SAMPLE		
DEPTH	m	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	
SAMPLE HEIGHT	mm	
TEST CONDITION		
RATE OF LOADING	kN/s	
TEST DURATION	min.sec	
DATE OF TESTING		
LOAD FRAME USED		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		
FAILURE LOAD	kN	
UNCONFINED COMPRESSIVE STRENGTH	MPa	
WATER CONTENT (ISRM Suggested Methods)	%	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	

Tested in accordance with ASTM D7012 - 14

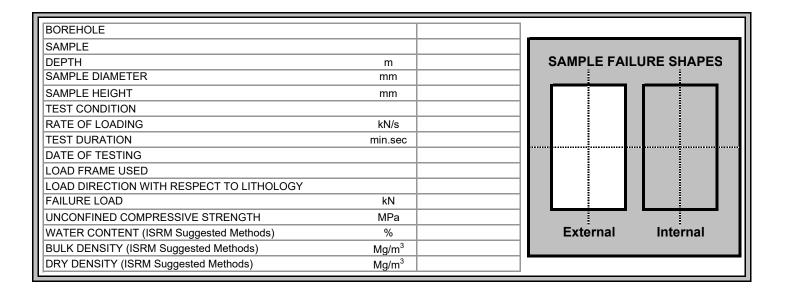
SUMMARY OF UNCONFINED COMPRESSIVE STRENGTH

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BOREHOLE		BH13-OP6	
SAMPLE		С	
DEPTH	m	16.10	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	79.53	
SAMPLE HEIGHT	mm	151.58	
TEST CONDITION		As Received	
RATE OF LOADING	kN/s	0.6	
TEST DURATION	min.sec	3.11	
DATE OF TESTING		22/03/2018	
LOAD FRAME USED		2000kN	
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown	
FAILURE LOAD	kN	110.2	
UNCONFINED COMPRESSIVE STRENGTH	MPa	22.2	
WATER CONTENT (ISRM Suggested Methods)	%	0.2	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.66	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.66	

Test specimen does not meet specified length / diameter ratio requirements



BOREHOLE		
SAMPLE		
DEPTH	m	SAMPLE FAILURE SHAPES
SAMPLE DIAMETER	mm	
SAMPLE HEIGHT	mm	
TEST CONDITION		
RATE OF LOADING	kN/s	
TEST DURATION	min.sec	
DATE OF TESTING		
LOAD FRAME USED		
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		
FAILURE LOAD	kN	
UNCONFINED COMPRESSIVE STRENGTH	MPa	
WATER CONTENT (ISRM Suggested Methods)	%	External Internal
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	

Tested in accordance with ASTM D7012 - 14

SUMMARY OF UNCONFINED COMPRESSIVE STRENGTH

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BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	ls (MPa)	ls(50) (MPa)
BH1-OP6	С	6.00	As Received	D A	79.46 79.46	79.46 71.07	79.46 49.93	3.24 3.66	0.51 0.72	0.63 0.85
	С	6.25	As Received	A D A	79.46 79.60 79.60	73.97 79.60 64.06	54.08 79.60 40.49	7.08 8.27 4.87	1.29 1.31 1.19	1.54 1.61 1.33
	С	6.50	As Received	A D A	79.60 79.90 79.90	67.54 79.90 63.88	45.01 79.90 40.11	7.98 9.56 10.08	1.75 1.50 2.47	2.00 1.85 2.76
	С	7.50	As Received	A D A	79.90 79.97 79.97	60.29 79.97 66.18	35.73 79.97 43.01	8.79 24.44 15.68	2.42 3.82 3.58	2.63 4.72 4.06
	С	8.20	As Received	A D A A	79.97 79.76 79.76 79.76	68.86 79.76 67.66 54.94	46.57 79.76 45.08 29.72	18.30 10.09 15.55 13.11	3.86 1.59 3.40 4.34	4.46 1.96 3.89 4.53

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale did not register a reading

Mean Is(50) - Axial tests2.81Mean Is(50) - Diametrical tests2.15Ia(50)1.30

* I = IRREGULAR TEST D = DIAMETRAL TEST

A = AXIAL TEST

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	ls (MPa)	ls(50) (MPa)
BH1-OP7	С	16.40	As Received	А	79.15 79.15	79.15 65.84	79.15 43.01	10.01 9.32	1.60 2.15	1.96 2.43
	С	16.65	As Received	А	79.15 78.71 78.71	62.33 78.71 53.92	38.55 78.71 29.01	13.09 19.43 8.67	3.37 3.14 2.98	3.72 3.85 3.08
	С	16.90	As Received	A D A	78.71 79.06 79.06	63.75 79.06 55.46	40.55 79.06 30.55	13.55 19.00 14.57	3.33 3.04 4.74	3.72 3.74 4.96
	С	17.20	As Received	А	79.06 79.65 79.65	61.10 79.65 60.47	37.08 79.65 36.05	18.09 1.46 2.62	4.85 0.23 0.72	5.30 0.28 0.78
	С	17.80	As Received	A D A A	79.65 79.48 79.48 79.48	60.54 79.48 57.05 59.58	36.14 79.48 32.16 35.08	2.80 7.33 11.22 12.01	0.76 1.16 3.45 3.38	0.83 1.43 3.66 3.66

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale did not register a reading

 Mean Is(50) - Axial tests
 3.22

 Mean Is(50) - Diametrical tests
 2.25

 Ia(50)
 1.43

* I = IRREGULAR TEST D = DIAMETRAL TEST

A = AXIAL TEST

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	ls (MPa)	ls(50) (MPa)
BH3-OP6	С	5.75	As Received	D A	79.65 79.65	79.65 65.19	79.65 41.90	5.72 4.37	0.90 1.03	1.11 1.16
	С	6.60	As Received	A D A	79.65 80.12 80.12	61.33 80.12 64.59	37.09 80.12 40.90	4.16 11.10 2.85	1.10 1.73 0.68	1.21 2.14 0.77
	С	6.75	As Received	A D A	80.12 79.71 79.71	65.04 79.71 62.95	41.47 79.71 39.05	7.56 2.78 5.10	1.79 0.44 1.29	2.01 0.54 1.43
	С	7.20	As Received	A D A	79.71 80.66 80.66	55.11 80.66 60.64	29.93 80.66 35.80	2.31 7.83 8.02	0.76 1.20 2.18	0.79 1.49 2.38
	С	7.40	As Received	A D A A	80.66 79.80 79.80 79.80	61.68 79.80 53.82 50.00	37.04 79.80 28.51 24.60	10.55 1.06 2.30 1.57	2.77 0.17 0.79 0.63	3.05 0.20 0.82 0.63

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale did not register a reading

 Mean Is(50) - Axial tests
 1.42

 Mean Is(50) - Diametrical tests
 1.10

 Ia(50)
 1.30

* I = IRREGULAR TEST D = DIAMETRAL TEST

A = AXIAL TEST

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	ls (MPa)	ls(50) (MPa)
BH8-OP6	С	10.60	As Received	D A	78.52 78.52	78.52 55.46	78.52 30.76	35.26 15.21	5.72 4.95	7.01 5.18
	С	10.70	As Received	A D A	78.52 78.76 78.76	72.19 78.76 54.44	52.12 78.76 29.55	29.09 >40 10.09	5.58 >6.45 3.40	3.54
	С	11.00	As Received	A D A	78.76 78.49 78.49	56.72 78.49 69.51	32.08 78.49 48.35	12.16 29.46 21.00	3.78 4.78 4.35	4.00 5.86 5.04
	С	11.30	As Received	A D A	78.49 79.20 79.20	64.07 79.20 52.62	41.08 79.20 27.46	19.91 11.76 17.67	4.85 1.87 6.38	5.42 2.31 6.53
	С	11.90	As Received	A D A A	79.20 80.26 80.26 80.26	63.41 80.26 63.53 66.35	39.87 80.26 39.50 43.08	20.85 17.24 12.09 15.80	5.19 2.68 2.99 3.59	5.77 3.31 3.34 4.08

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale did not register a reading

Mean Is(50) - Axial tests4.95Mean Is(50) - Diametrical tests3.70Ia(50)1.34

* I = IRREGULAR TEST D = DIAMETRAL TEST

A = AXIAL TEST

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	ls (MPa)	ls(50) (MPa)
BH11-OP6	С С С С С	(m) 13.80 14.00 14.20 14.30 14.90		(see below) D A A D A D A A D A D A D A D A A D A A D A D A A D A D A A D A D A A D A A D A A D A A D A A D A A A D A A A D A A A A D A	(mm) 79.10 79.10 78.97 78.97 78.97 79.18 79.18 79.18 79.18 78.65 78.65 78.65 78.65 78.65	(mm) 79.10 68.69 71.73 78.97 65.82 79.41 79.18 63.94 65.90 78.65 55.79 63.23 79.71	(mm) 79.10 46.85 51.09 78.97 43.08 62.72 79.18 40.55 43.08 78.65 31.08 39.92 79.71	(kN) 8.47 5.94 9.01 15.86 3.83 8.10 23.15 20.06 23.55 20.52 11.06 15.32 14.68	1.35 1.26 1.75 2.54 0.88 1.28 3.69 4.91 5.42 3.32 3.55 3.83 2.31	1.66 1.45 2.06 3.12 1.00 1.58 4.54 5.48 6.14 4.07 3.73 4.26 2.85
				A	79.71 79.71	61.73 63.74	37.55 40.03	10.52 12.39	2.76 3.05	3.04 3.40

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale did not register a reading

Mean Is(50) - Axial tests3.21Mean Is(50) - Diametrical tests3.25Ia(50)0.99

* I = IRREGULAR TEST D = DIAMETRAL TEST

A = AXIAL TEST

Tested in accordance with ISRM (2007)



BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	ls (MPa)	ls(50) (MPa)
BH13-OP6	С	14.00	As Received	А	77.76 77.76	77.76 66.55	77.76 44.73	2.80 16.41	0.46 3.71	0.57 4.22
	С	14.30	As Received	A D A	77.76 79.38 79.38	70.01 79.38 64.79	49.51 79.38 41.53	18.00 13.28 11.69	3.67 2.11 2.78	4.27 2.60 3.13
	С	15.20	As Received	A D A	79.38 79.63 79.63	73.82 79.63 71.17	53.92 79.63 49.96	15.91 3.42 7.51	2.92 0.54 1.48	3.48 0.66 1.74
	С	15.70	As Received	A D A	79.63 79.50 79.50	63.72 79.50 59.60	40.05 79.50 35.09	4.66 35.29 21.03	1.15 5.58 5.92	1.28 6.88 6.41
	С	16.00	As Received	A D A A	79.50 79.86 79.86 79.86	64.66 79.86 55.35 57.93	41.31 79.86 30.13 33.00	23.11 25.50 19.10 19.55	5.53 4.00 6.23 5.83	6.21 4.94 6.53 6.23

NOTE: N/M - Not measured NOTE: A dash (-) signifies that scale did not register a reading

 Mean Is(50) - Axial tests
 4.35

 Mean Is(50) - Diametrical tests
 3.13

 Ia(50)
 1.39

* I = IRREGULAR TEST D = DIAMETRAL TEST

A = AXIAL TEST

Tested in accordance with ISRM (2007)



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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 704816-1

Date of Report: 08-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 14-Dec-2017 Date Analysis Started: 20-Dec-2017 Date Analysis Completed: 08-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Concept Reference: 704816 Project Site: Newton Stewart FPS **Customer Reference:** Soil Analysed as Soil Miscellaneous **Concept Reference** 704816 002 704816 004 704816 011 704816 016 TP4-OP24 0.2m SP-TP4 0.2m Customer Sample Reference TP3-OP24 0.5m TP6-OP24 0.5m Date Sampled 13-DEC-2017 13-DEC-2017 13-DEC-2017 13-DEC-2017 Test Sample Determinand Method LOD Units Τ4 Cyanide(free) 1 <1 <1 AR mg/kg <1 <1 Cyanide(Total) Т4 AR 1 <1 <1 <1 <1 mg/kg Thiocyanate Т4 A40 10 mg/kg <10 <10 <10 <10 Chromium VI T82 A40 1 <1 <1 <1 mg/kg <1 pН Τ7 A40 6.0 6.2 5.7 6.1 Sulphide Τ4 AR 10 <10 <10 mg/kg <10 <10 T4 Phenols(Mono) AR 1 mg/kg <1 <1 <1 <1 SO4(Total) T82 0.01 0.07 0.10 A40 % 0.15 0.15 Organic Matter T2 A40 0.1 % 1.2 8.6 3.1 5.3 Chloride (2:1) T686 AR 0.5 mg/l 1.5 3.2 2.1 4.1 Asbestos ID T27 AR N.D. N.D. N.D. N.D. Chromium (trivalent) T85 AR 2 56 61 59 61 mg/kg Vanadium T82 A40 1 33 45 40 44 mg/kg

Nitrate (2:1)

T686

AR

1.0

mg/l

<1.0



2.5

1.1

<1.0

Concept Reference: 704816 Project Site: Newton St

Pro Customer R	•	Newton Ste	ewart FPS					
Soil TPH (CWG)		Analysed a	is Soil					
			Conce	ot Reference	704816 002	704816 004	704816 011	704816 016
		Custon	ner Sampl	e Reference	TP3-OP24 0.5m	TP4-OP24 0.2m	TP6-OP24 0.5m	SP-TP4 0.2m
			Da	ate Sampled	13-DEC-2017	13-DEC-2017	13-DEC-2017	13-DEC-2017
Determinand	Method	Test Sample	LOD	Units				
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	<10	<10	<10	<10
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	<10	<10	<10	<10
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	<10	<10	<10	<10
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	<10	<10	<10	<10
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	<10	<10	<10	<10
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	<10	<10	<10	<10
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	<1	<1	<1	<1



Concept Reference: 704816 Project Site: Newton Stewart FPS

Soil

Customer Reference: Analysed as Soil PAH (USEPA 16) **Concept Reference** 704816 002 704816 004 704816 011 704816 016 TP4-OP24 0.2m **Customer Sample Reference** TP6-OP24 0.5m TP3-OP24 0.5m SP-TP4 0.2m Date Sampled 13-DEC-2017 13-DEC-2017 13-DEC-2017 13-DEC-2017 Test Sample Method LOD Determinand Units T149 0.01 < 0.01 Naphthalene AR mg/kg < 0.01 < 0.01 < 0.01 T149 Acenaphthylene AR 0.01 <0.01 <0.01 <0.01 <0.01 mg/kg Acenaphthene T149 AR 0.01 <0.01 <0.01 <0.01 <0.01 mg/kg T149 Fluorene AR 0.01 <0.01 <0.01 <0.01 <0.01 mg/kg Phenanthrene T149 AR 0.01 mg/kg 0.02 0.02 <0.01 0.01 T149 AR 0.01 <0.01 <0.01 Anthracene mg/kg 0.01 < 0.01 Fluoranthene T149 AR 0.01 0.03 0.04 0.01 0.03 mg/kg Pyrene T149 AR 0.01 mg/kg 0.03 0.03 <0.01 0.03 ⁽¹³⁾ 0.01 (13) 0.01 (13) < 0.01 ⁽¹³⁾ 0.01 T149 AR Benzo(a)Anthracene 0.01 mg/kg Chrysene T149 AR 0.01 mg/kg 0.02 0.02 <0.01 0.02 T149 0.01 0.04 Benzo(b/k)Fluoranthene AR 0.02 < 0.01 0.03 mg/kg Benzo(a)Pyrene T149 AR 0.01 0.01 0.02 <0.01 0.02 mg/kg Indeno(123-cd)Pyrene T149 AR 0.01 0.01 0.01 < 0.01 0.01 mg/kg Dibenzo(ah)Anthracene T149 AR 0.01 mg/kg <0.01 <0.01 <0.01 <0.01 T149 AR 0.01 < 0.01 Benzo(ghi)Perylene mg/kg 0.01 0.02 0.02



Concept Reference: 704816 Project Site: Newton Stewart FPS Customer Reference: Analysed as Soil ICRCL (Table 3:metals) Concept Reference 704816 002 704816 004 Customer Sample Reference TP3-OP24 0.5m TP4-OP24 0.2m TP6-OP24 0.5m

Soil

			Da	ate Sampled	13-DEC-2017	13-DEC-2017	13-DEC-2017	13-DEC-2017
Determinand	Method	Test Sample	LOD	Units				
Arsenic	T82	A40	2	mg/kg	14	22	20	21
Boron (water-soluble)	T82	A40	1	mg/kg	<1	<1	<1	<1
Cadmium	T82	A40	1	mg/kg	<1	<1	<1	<1
Chromium	T82	A40	1	mg/kg	56	61	59	61
Copper	T82	A40	1	mg/kg	17	33	22	23
Lead	T82	A40	3	mg/kg	27	76	29	82
Mercury	T82	A40	1	mg/kg	<1	<1	<1	<1
Nickel	T82	A40	1	mg/kg	45	42	45	42
Selenium	T82	A40	3	mg/kg	<3	<3	<3	<3
Zinc	T82	A40	1	mg/kg	87	120	110	120



704816 011

704816 016

SP-TP4 0.2m

Index to symbols used in 704816-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

GC/MS Headspace - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T8	GC/FID
T85	Calc
T4	Colorimetry
T149	GC/MS (SIR)
T54	GC/MS (Headspace)
T82	ICP/OES (Sim)
T686	Discrete Analyser
T2	Grav
T27	PLM
T7	Probe

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Arsenic	T82	A40	2	mg/kg	U	002,004,011,016
Boron (water-soluble)	T82	A40	1	mg/kg	U	002,004,011,016
Cadmium	T82	A40	1	mg/kg	U	002,004,011,016
Chromium	T82	A40	1	mg/kg	U	002,004,011,016
Copper	T82	A40	1	mg/kg	U	002,004,011,016
Lead	T82	A40	3	mg/kg	U	002,004,011,016
Mercury	T82	A40	1	mg/kg	U	002,004,011,016
Nickel	T82	A40	1	mg/kg	U	002,004,011,016
Selenium	T82	A40	3	mg/kg	U	002,004,011,016
Zinc	T82	A40	1	mg/kg	U	002,004,011,016
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	N	002,004,011,016
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	N	002,004,011,016
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	N	002,004,011,016
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	N	002,004,011,016
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	N	002,004,011,016
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	N	002,004,011,016
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	N	002,004,011,016
TPH (C21-C35 aromatic)	Т8	AR	1	mg/kg	N	002,004,011,016
Cyanide(free)	T4	AR	1	mg/kg	U	002,004,011,016
Cyanide(Total)	T4	AR	1	mg/kg	U	002,004,011,016
Thiocyanate	T4	A40	10	mg/kg	N	002,004,011,016
Chromium VI	T82	A40	1	mg/kg	N	002,004,011,016
рН	T7	A40			U	002,004,011,016
Sulphide	T4	AR	10	mg/kg	N	002,004,011,016
Phenols(Mono)	T4	AR	1	mg/kg	U	002,004,011,016
SO4(Total)	T82	A40	0.01	%	N	002,004,011,016
Organic Matter	T2	A40	0.1	%	N	002,004,011,016
Chloride (2:1)	T686	AR	0.5	mg/l	N	002,004,011,016
Asbestos ID	T27	AR			SU	002,004,011,016

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Chromium (trivalent)	T85	AR	2	mg/kg	N	002,004,011,016
Vanadium	T82	A40	1	mg/kg	U	002,004,011,016
Nitrate (2:1)	T686	AR	1.0	mg/l	N	002,004,011,016
Naphthalene	T149	AR	0.01	mg/kg	U	002,004,011,016
Acenaphthylene	T149	AR	0.01	mg/kg	U	002,004,011,016
Acenaphthene	T149	AR	0.01	mg/kg	U	002,004,011,016
Fluorene	T149	AR	0.01	mg/kg	U	002,004,011,016
Phenanthrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Anthracene	T149	AR	0.01	mg/kg	U	002,004,011,016
Fluoranthene	T149	AR	0.01	mg/kg	U	002,004,011,016
Pyrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002,004,011,016
Chrysene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002,004,011,016
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002,004,011,016
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002,004,011,016





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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 705022-1

Date of Report: 08-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 19-Dec-2017 Date Analysis Started: 20-Dec-2017 Date Analysis Completed: 08-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Concept Reference: 705022 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Miscellaneous **Concept Reference** 705022 020 Customer Sample Reference TP2-OP24 0.50M Date Sampled 14-DEC-2017 Test Sample Determinand Method LOD Units Τ4 Cyanide(free) AR 1 <1 mg/kg Т4 Cyanide(Total) AR 1 <1 mg/kg Thiocyanate Т4 A40 10 mg/kg <10 Chromium VI T82 A40 1 <1 mg/kg pН Τ7 A40 5.4 Sulphide Τ4 AR 10 <10 mg/kg T4 Phenols(Mono) AR 1 mg/kg <1 SO4(Total) T82 0.01 A40 % 0.12 Т2 Organic Matter A40 0.1 % 7.1 Chloride (2:1) T686 AR 0.5 mg/l 1.8 Asbestos ID T27 AR N.D. Chromium (trivalent) T85 AR 2 mg/kg 54 Vanadium T82 A40 1 38 mg/kg Nitrate (2:1) T686 AR 1.0 mg/l 9.1

> Concept Reference: 705022 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil TPH (CWG) Analysed as Soil

	705022 020				
	TP2-OP24 0.50M 14-DEC-2017				
Determinand	Method	Test Sample	LOD	Units	
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	<10
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	<10
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	<10
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	<10
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	<10
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	<10
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	<1

Concept Reference: 705022 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil PAH (USEPA 16) **Concept Reference** 705022 020 Customer Sample Reference TP2-OP24 0.50M Date Sampled 14-DEC-2017 Test Sample Determinand Method LOD Units T149 Naphthalene 0.01 < 0.01 AR mg/kg T149 Acenaphthylene AR 0.01 <0.01 mg/kg Acenaphthene T149 AR 0.01 mg/kg <0.01 T149 Fluorene AR 0.01 <0.01 mg/kg Phenanthrene T149 AR 0.01 mg/kg 0.01 T149 AR 0.01 <0.01 Anthracene mg/kg T149 Fluoranthene AR 0.01 0.02 mg/kg Pyrene T149 AR 0.01 mg/kg 0.02 (13) < 0.01 T149 AR 0.01 Benzo(a)Anthracene mg/kg Chrysene T149 AR 0.01 mg/kg 0.01 Benzo(b/k)Fluoranthene T149 AR 0.01 0.02 mg/kg Benzo(a)Pyrene T149 AR 0.01 mg/kg 0.01 Indeno(123-cd)Pyrene T149 AR 0.01 0.01 mg/kg Dibenzo(ah)Anthracene T149 AR 0.01 mg/kg <0.01 T149 Benzo(ghi)Perylene AR 0.01 0.01 mg/kg

Concep	t Reference:	705022	705022 Newton Stewart FPS						
	Project Site:	Newton S							
Custome	r Reference:	17/082							
Soil		Analysed	as Soil						
PCB EC7 Suite (EK)									
			Conce	ot Reference	705022 020				
		Custor	ner Sampl	le Reference	TP2-OP24 0.50M				
			D	ate Sampled	14-DEC-2017				
Determinand	Method	Test Sample	LOD	Units					
PCB BZ#101	T149	AR	1	µg/kg	<1				
PCB BZ#118	T149	AR	1	µg/kg	<1				
PCB BZ#138	T149	AR	1	µg/kg	<1				
PCB BZ#153	T149	AR	1	µg/kg	<1				
PCB BZ#180	T149	AR	1	µg/kg	<1				
PCB BZ#28	T149	AR	1	µg/kg	<1				
PCB BZ#52	T149	AR	1	µg/kg	<1				

Concept	Reference:	705022						
Р	roject Site:	Newton S	Newton Stewart FPS					
Customer	Reference:	17/082						
Soil ICRCL (Table 3:metals))	Analysed	as Soil					
			Concep	ot Reference	705022 020			
		Custor	ner Sampl	e Reference	TP2-OP24 0.50M			
			Da	ate Sampled	14-DEC-2017			
Determinand	Method	Test Sample	LOD	Units				
Arsenic	T82	A40	2	mg/kg	17			
Boron (water-soluble)	T82	A40	1	mg/kg	<1			
Cadmium	T82	A40	1	mg/kg	<1			
Chromium	T82	A40	1	mg/kg	54			
Copper	T82	A40	1	mg/kg	22			
Lead	T82	A40	3	mg/kg	54			
Mercury	T82	A40	1	mg/kg	<1			
Nickel	T82	A40	1	mg/kg	38			
Selenium	T82	A40	3	mg/kg	<3			
Zinc	T82	A40	1	mg/kg	100			

Index to symbols used in 705022-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
s	Analysis was subcontracted
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Method Index

Value	Description
T8	GC/FID
T85	Calc
T149	GC/MS (SIR)
T27	PLM
T82	ICP/OES (Sim)
T4	Colorimetry
T54	GC/MS (Headspace)
T2	Grav
T7	Probe
T686	Discrete Analyser

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	N	020
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	N	020
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	N	020
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	N	020
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	N	020
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	N	020
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	N	020
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	N	020
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	N	020
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	N	020
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	N	020
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	N	020
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	N	020
TPH (C21-C35 aromatic)	Т8	AR	1	mg/kg	N	020
Naphthalene	T149	AR	0.01	mg/kg	U	020
Acenaphthylene	T149	AR	0.01	mg/kg	U	020
Acenaphthene	T149	AR	0.01	mg/kg	U	020
Fluorene	T149	AR	0.01	mg/kg	U	020
Phenanthrene	T149	AR	0.01	mg/kg	U	020
Anthracene	T149	AR	0.01	mg/kg	U	020
Fluoranthene	T149	AR	0.01	mg/kg	U	020
Pyrene	T149	AR	0.01	mg/kg	U	020
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	020
Chrysene	T149	AR	0.01	mg/kg	U	020
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	020
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	020
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	020
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	020
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	020
Arsenic	T82	A40	2	mg/kg	U	020
Boron (water-soluble)	T82	A40	1	mg/kg	U	020
Cadmium	T82	A40	1	mg/kg	U	020
Chromium	T82	A40	1	mg/kg	U	020
Copper	T82	A40	1	mg/kg	U	020
Lead	T82	A40	3	mg/kg	U	020
Mercury	T82	A40	1	mg/kg	U	020
Nickel	T82	A40	1	mg/kg	U	020
Selenium	T82	A40	3	mg/kg	U	020
Zinc	T82	A40	1	mg/kg	U	020
Cyanide(free)	T4	AR	1	mg/kg	U	020

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	020
Thiocyanate	T4	A40	10	mg/kg	N	020
Chromium VI	T82	A40	1	mg/kg	N	020
pН	T7	A40			U	020
Sulphide	T4	AR	10	mg/kg	N	020
Phenols(Mono)	T4	AR	1	mg/kg	U	020
SO4(Total)	T82	A40	0.01	%	N	020
Organic Matter	T2	A40	0.1	%	N	020
Chloride (2:1)	T686	AR	0.5	mg/l	N	020
Asbestos ID	T27	AR			SU	020
Chromium (trivalent)	T85	AR	2	mg/kg	N	020
Vanadium	T82	A40	1	mg/kg	U	020
Nitrate (2:1)	T686	AR	1.0	mg/l	N	020
PCB BZ#101	T149	AR	1	µg/kg	U	020
PCB BZ#118	T149	AR	1	µg/kg	U	020
PCB BZ#138	T149	AR	1	µg/kg	U	020
PCB BZ#153	T149	AR	1	µg/kg	U	020
PCB BZ#180	T149	AR	1	µg/kg	U	020
PCB BZ#28	T149	AR	1	µg/kg	U	020
PCB BZ#52	T149	AR	1	µg/kg	U	020





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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 706864-1

Date of Report: 08-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Fraser Murray

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 21-Dec-2017 Date Analysis Started: 04-Jan-2018 Date Analysis Completed: 08-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Concept Reference: 706864 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil

Soil SWECO Soil Suite 1

			Conce	ot Reference	706864 015			
		Custon	ner Sampl	e Reference	TP6-OP7 0.5m			
		Date Sampled						
Determinand	Method	Test Sample	LOD	Units				
Cyanide(Total)	T4	AR	1	mg/kg	<1			
Cyanide(free)	T4	AR	1	mg/kg	<1			
Thiocyanate	T4	A40	10	mg/kg	<10			
Organic Matter	T2	A40	0.1	%	5.8			
Arsenic	T82	A40	2	mg/kg	13			
Mercury	T82	A40	1	mg/kg	<1			
Selenium	T82	A40	3	mg/kg	<3			
Boron (water-soluble)	T112	A40	1	mg/kg	<1			
Cadmium	T82	A40	1	mg/kg	<1			
Chromium (trivalent)	T85	AR	2	mg/kg	49			
Chromium (hexavalent)	T82	A40	1	mg/kg	<1			
Copper	T82	A40	1	mg/kg	16			
Lead	T82	A40	3	mg/kg	31			
Nickel	T82	A40	1	mg/kg	37			
Zinc	T82	A40	1	mg/kg	90			
Vanadium	T82	A40	1	mg/kg	29			
Asbestos ID	T27	AR			N.D.			
pН	T7	A40	-		4.8			
SO4(Total)	T82	A40	0.01	%	0.06			
Sulphide	T4	AR	10	mg/kg	<10			
Chloride	T686	AR	1	mg/kg	4			
Nitrate	T686	AR	1	mg/kg	15			
Phenols(Mono)	T4	AR	1	mg/kg	<1			

Concept Reference: 706864 Project Site: Newton Stewart FPS Customer Reference: 17/082 Soil Analysed as Soil SWECO Soil Suite 2 **Concept Reference** 706864 002 706864 007 Customer Sample Reference SP-TP1 0.5m SP-TP2 0.5m Date Sampled 19-DEC-2017 19-DEC-2017 Test Sample Determinand Method LOD Units T4 Cyanide(Total) AR 1 mg/kg <1 <1 Τ4 Cyanide(free) AR 1 <1 <1 mg/kg Thiocyanate Τ4 A40 10 <10 <10 mg/kg Organic Matter T2 <u>A4</u>0 0.1 5.9 11.4 % Arsenic T82 A40 2 mg/kg 30 18 Mercury T82 A40 1 mg/kg <1 1 Selenium T82 A40 3 <3 <3 mg/kg Boron (water-soluble) T112 A40 1 mg/kg <1 1 T82 A40 Cadmium 1 mg/kg 3 1 Chromium (trivalent) T85 AR 2 36 30 mg/kg Chromium (hexavalent) T82 A40 1 <1 mg/kg <1 Copper T82 A40 1 100 81 mg/kg 1100 Lead T82 3 450 A40 mg/kg Nickel T82 A40 1 mg/kg 49 43 Zinc T82 A40 1 mg/kg 630 380 Vanadium T82 A40 40 37 1 mg/kg Asbestos ID T27 AR N.D. Amosite Detected Τ7 7.5 pН A40 8.1 T82 0.01 % SO4(Total) A40 0.14 0.15

Sulphide

Chloride

Phenols(Mono)

Nitrate

Τ4

T686

T686

Τ4

AR

AR

AR

AR

10

1

1

1

mg/kg

mg/kg

mg/kg

mg/kg

<10

13

1

<1

<10

12

12

<1

Concept Reference: 706864 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil
Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

	706864 015					
	TP6-OP7 0.5m					
	19-DEC-2017					
Determinand	Determinand Method Test Sample LOD Units					
TPH (C8-C10)	Т8	AR	1	mg/kg	<1	
TPH (C10-C12)	Т8	AR	1	mg/kg	<1	
TPH (C12-C16)	Т8	AR	1	mg/kg	<1	
TPH (C16-C21)	Т8	AR	1	mg/kg	<1	
TPH (C21-C35)	T8	AR	1	mg/kg	8	



Concept R	eference:	706864									
Pro	ject Site:	Newton Stewart FPS									
Customer R	eference:	17/082									
Soil		Analysed a	as Soil								
Total and Speciated USE	EPA16 PAH	I (EK)									
			Concer	ot Reference	706864 002	706864 007	706864 015				
		Custon		e Reference	SP-TP1 0.5m	SP-TP2 0.5m	TP6-OP7 0.5m				
		ouston		ate Sampled	19-DEC-2017	19-DEC-2017	19-DEC-2017				
				ate campica							
Determinand	Method	Test Sample	LOD	Units							
Naphthalene	T149	AR	0.01	mg/kg	0.30	0.37	<0.01				
Acenaphthylene	T149	AR	0.01	mg/kg	1.6	0.66	<0.01				
Acenaphthene	T149	AR	0.01	mg/kg	0.56	0.17	<0.01				
Fluorene	T149	AR	0.01	mg/kg	1.4	0.33	<0.01				
Phenanthrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 18	⁽¹³⁾ 3.5	⁽¹³⁾ <0.01				
Anthracene	T149	AR	0.01	mg/kg	5.3	1.3	<0.01				
Fluoranthene	T149	AR	0.01	mg/kg	38	11	<0.01				
Pyrene	T149	AR	0.01	mg/kg	30	9.5	<0.01				
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 17	⁽¹³⁾ 5.5	⁽¹³⁾ <0.01				
Chrysene	T149	AR	0.01	mg/kg	13	4.4	<0.01				
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	17	7.4	<0.01				
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	6.1	2.8	<0.01				
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	14	6.4	<0.01				
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	7.2	3.1	<0.01				
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	1.9	0.77	<0.01				
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	9.0	4.0	<0.01				
PAH(total)	T149	AR	0.01	mg/kg	180	61	<0.01				

Concept Reference: 706864 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil

CWG with BTEX and MTBE (EK)

Soil

				pt Reference le Reference	706864 002	706864 007
	SP-TP1 0.5m	SP-TP2 0.5m				
	19-DEC-2017	19-DEC-2017				
Determinand	Method	Test Sample	LOD	Units		
Benzene	T54	AR	1	µg/kg	⁽¹³⁾ <1	^(9,13) <2
Toluene	T54	AR	1	µg/kg	<1	⁽⁹⁾ <2
EthylBenzene	T54	AR	1	µg/kg	<1	⁽⁹⁾ <2
M/P Xylene	T54	AR	1	µg/kg	<1	⁽⁹⁾ <2
O Xylene	T54	AR	1	µg/kg	<1	⁽⁹⁾ <2
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	⁽¹³⁾ <1	⁽⁹⁾ <2
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	<10	⁽⁹⁾ <20
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	<10	⁽⁹⁾ <20
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	<10	⁽⁹⁾ <20
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	<1	<1
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	2	2
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	4	3
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	9	8
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	<10	⁽⁹⁾ <20
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	<10	⁽⁹⁾ <20
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	<10	20
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	14	5
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	130	49
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	210	130

Index to symbols used in 706864-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
s	Analysis was subcontracted
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Notes

TPH, PAH and Phenols - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.
GC/MS Headspace - sample 007 diluted due to poor internal standard recovery.
GC/MS Headshace (sample 007) - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised

Method Index

Value	Description
T149	GC/MS (SIR)
T7	Probe
T112	ICP/OES (SIM)(Water Extract)
T27	PLM
T85	Calc
T4	Colorimetry
Т8	GC/FID
T2	Grav
T54	GC/MS (Headspace)
T82	ICP/OES (Sim)
T686	Discrete Analyser

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
TPH (C8-C10)	Т8	AR	1	mg/kg	N	015
TPH (C10-C12)	Т8	AR	1	mg/kg	U	015
TPH (C12-C16)	Т8	AR	1	mg/kg	U	015
TPH (C16-C21)	Т8	AR	1	mg/kg	U	015
TPH (C21-C35)	Т8	AR	1	mg/kg	U	015
Naphthalene	T149	AR	0.01	mg/kg	U	002,007,015
Acenaphthylene	T149	AR	0.01	mg/kg	U	002,007,015
Acenaphthene	T149	AR	0.01	mg/kg	U	002,007,015
Fluorene	T149	AR	0.01	mg/kg	U	002,007,015
Phenanthrene	T149	AR	0.01	mg/kg	U	002,007,015
Anthracene	T149	AR	0.01	mg/kg	U	002,007,015
Fluoranthene	T149	AR	0.01	mg/kg	U	002,007,015
Pyrene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002,007,015
Chrysene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	002,007,015
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002,007,015
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002,007,015
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002,007,015
PAH(total)	T149	AR	0.01	mg/kg	U	002,007,015
Cyanide(Total)	T4	AR	1	mg/kg	U	002,007,015
Cyanide(free)	T4	AR	1	mg/kg	U	002,007,015
Thiocyanate	T4	A40	10	mg/kg	N	002,007,015
Organic Matter	T2	A40	0.1	%	N	002,007,015
Arsenic	T82	A40	2	mg/kg	U	002,007,015
Mercury	T82	A40	1	mg/kg	U	002,007,015
Selenium	T82	A40	3	mg/kg	U	002,007,015
Boron (water-soluble)	T112	A40	1	mg/kg	U	002,007,015
Cadmium	T82	A40	1	mg/kg	U	002,007,015

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Chromium (trivalent)	T85	AR	2	mg/kg	N	002,007,015
Chromium (hexavalent)	T82	A40	1	mg/kg	N	002,007,015
Copper	T82	A40	1	mg/kg	U	002,007,015
Lead	T82	A40	3	mg/kg	U	002,007,015
Nickel	T82	A40	1	mg/kg	U	002,007,015
Vanadium	T82	A40	1	mg/kg	U	002,007,015
Zinc	T82	A40	1	mg/kg	U	002,007,015
Asbestos ID	T27	AR			SU	002,007,015
pН	T7	A40			U	002,007,015
SO4(Total)	T82	A40	0.01	%	N	002,007,015
Chloride	T686	AR	1	mg/kg	N	002,007,015
Sulphide	T4	AR	10	mg/kg	N	002,007,015
Nitrate	T686	AR	1	mg/kg	N	002,007,015
Phenols(Mono)	T4	AR	1	mg/kg	U	002,007,015
Benzene	T54	AR	1	µg/kg	U	002,007
Toluene	T54	AR	1	µg/kg	U	002,007
EthylBenzene	T54	AR	1	µg/kg	U	002,007
M/P Xylene	T54	AR	1	µg/kg	U	002,007
O Xylene	T54	AR	1	µg/kg	U	002,007
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	U	002,007
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	N	002,007
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	N	002,007
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	N	002,007
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	Ν	002,007
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	002,007
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	N	002,007
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	N	002,007
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	N	002,007
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	N	002,007
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	N	002,007
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	N	002,007
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	N	002,007
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	002,007
TPH (C21-C35 aromatic)	Т8	AR	1	mg/kg	N	002,007



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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 707520-1

Date of Report: 12-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 21-Dec-2017 Date Analysis Started: 09-Jan-2018 Date Analysis Completed: 12-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual



Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

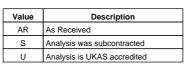
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Page 1 of 3 707520-1

Concept Re		707520 Newton Stewart FPS								
Customer Re			swall FF3							
Soil		Analysed a	is Soil							
Miscellaneous										
	Concept Reference 707520 001									
		Custon	ner Sampl	e Reference	SP-TP2 0.5m					
			Da	19-DEC-2017						
Determinand	Method	Test Sample	LOD	Units						
Asbestos Quantification	T27	AR	0.001	%	Amosite Detected					
					<0.001					



Index to symbols used in 707520-1



Notes

This report should be read in conjunction with previous report number 706864.

Method Index



Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Asbestos Quantification	T27	AR	0.001	%	SU	001





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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 709955-1

Date of Report: 29-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 18-Jan-2018 Date Analysis Started: 22-Jan-2018 Date Analysis Completed: 29-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Page 1 of 6 709955-1

Concept Reference: 709955 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil

Soil SWECO Soil Suite 2

SWECO Soil Suite 2					
			Conce	ot Reference	709955 002
		Custor	ner Samp	le Reference	BH8-OP6 0.5m
	16-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Organic Matter	T2	A40	0.1	%	7.9
Arsenic	T82	A40	2	mg/kg	47
Mercury	T82	A40	1	mg/kg	<1
Selenium	T82	A40	3	mg/kg	<3
Boron (water-soluble)	T112	A40	1	mg/kg	⁽⁶⁸⁾ 1
Cadmium	T82	A40	1	mg/kg	2
Chromium (trivalent)	T85	AR	2	mg/kg	44
Chromium (hexavalent)	T82	A40	1	mg/kg	⁽⁶⁴⁾ <1
Copper	T82	A40	1	mg/kg	200
Lead	T82	A40	3	mg/kg	540
Nickel	T82	A40	1	mg/kg	110
Zinc	T82	A40	1	mg/kg	810
Vanadium	T82	A40	1	mg/kg	68
Asbestos ID	T27	AR			N.D.
pН	T7	A40			6.8
SO4(Total)	T82	A40	0.01	%	0.13
Chloride	T686	AR	1	mg/kg	7
Sulphide	T4	AR	10	mg/kg	<10
Nitrate	T686	AR	1	mg/kg	2
Phenols(Mono)	T4	AR	1	mg/kg	<1

Concept Reference: 709955 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total and Speciated USEPA16 PAH (EK)

			Concep	ot Reference	709955 002
		Custor	ner Sampl	e Reference	BH8-OP6 0.5m
	16-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	mg/kg	0.03
Acenaphthylene	T149	AR	0.01	mg/kg	0.04
Acenaphthene	T149	AR	0.01	mg/kg	0.01
Fluorene	T149	AR	0.01	mg/kg	0.02
Phenanthrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.19
Anthracene	T149	AR	0.01	mg/kg	0.06
Fluoranthene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.31
Pyrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.37
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.21
Chrysene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.22
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.29
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.09
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.26
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.13
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.04
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.17
PAH(total)	T149	AR	0.01	mg/kg	2.4

Concept Reference: 709955 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil CWG with BTEX and MTBE (EK)

Soil

			Concep	ot Reference	709955 002
	BH8-OP6 0.5n				
	16-JAN-2018				
Determinand	Method	Test Sample	LOD	Units	
Benzene	T54	AR	1	µg/kg	^(9,13) <2
Toluene	T54	AR	1	µg/kg	⁽⁹⁾ <2
EthylBenzene	T54	AR	1	µg/kg	⁽⁹⁾ <2
M/P Xylene	T54	AR	1	µg/kg	⁽⁹⁾ <2
O Xylene	T54	AR	1	µg/kg	⁽⁹⁾ <2
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	^(13,9) <2
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	⁽⁹⁾ <20
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	⁽⁹⁾ <20
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	⁽⁹⁾ <20
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	2
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	1
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	1
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	⁽⁹⁾ <20
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	⁽⁹⁾ <20
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	⁽⁹⁾ <20
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	3
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	8
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	25

Index to symbols used in 709955-1

Value	Description				
AR	As Received				
A40	Assisted dried < 40C				
N.D.	Not Detected				
13	8 Results have been blank corrected.				
64	Analysis was performed by an alternative technique				
9	LOD raised due to dilution of sample				
68	3 Outside scope of UKAS accreditation				
S	Analysis was subcontracted				
U	Analysis is UKAS accredited				
N	Analysis is not UKAS accredited				

Notes

GC/MS Headspace - sample 002 diluted due to poor internal standard recovery.
Due to our recent instrument failure, water soluble boron results have been reported as unaccredited.
These instrument delays are expected for a minimum of another week.
The analytical method used here is identical to our accredited instrument, the only difference being that we have not issued analytical data to UKAS.

All calibrations and QC samples have been analysed and are acceptable in accordance with our accredited method.

Value	Description
T112	ICP/OES (SIM)(Water Extract)
T27	PLM
T54	GC/MS (Headspace)
T2	Grav
T4	Colorimetry
T82	ICP/OES (Sim)
T85	Calc
T149	GC/MS (SIR)
T7	Probe
T686	Discrete Analyser
T8	GC/FID

Method Index

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	002
Cyanide(free)	T4	AR	1	mg/kg	U	002
Thiocyanate	T4	A40	10	mg/kg	N	002
Organic Matter	T2	A40	0.1	%	N	002
Arsenic	T82	A40	2	mg/kg	U	002
Mercury	T82	A40	1	mg/kg	U	002
Selenium	T82	A40	3	mg/kg	U	002
Boron (water-soluble)	T112	A40	1	mg/kg	U	002
Cadmium	T82	A40	1	mg/kg	U	002
Chromium (trivalent)	T85	AR	2	mg/kg	N	002
Chromium (hexavalent)	T82	A40	1	mg/kg	N	002
Copper	T82	A40	1	mg/kg	U	002
Lead	T82	A40	3	mg/kg	U	002
Nickel	T82	A40	1	mg/kg	U	002
Vanadium	T82	A40	1	mg/kg	U	002
Zinc	T82	A40	1	mg/kg	U	002
Asbestos ID	T27	AR			SU	002
pН	T7	A40			U	002
SO4(Total)	T82	A40	0.01	%	N	002
Chloride	T686	AR	1	mg/kg	N	002
Sulphide	T4	AR	10	mg/kg	N	002
Nitrate	T686	AR	1	mg/kg	N	002
Phenols(Mono)	T4	AR	1	mg/kg	U	002
Naphthalene	T149	AR	0.01	mg/kg	U	002
Acenaphthylene	T149	AR	0.01	mg/kg	U	002
Acenaphthene	T149	AR	0.01	mg/kg	U	002
Fluorene	T149	AR	0.01	mg/kg	U	002

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenanthrene	T149	AR	0.01	mg/kg	U	002
Anthracene	T149	AR	0.01	mg/kg	U	002
Fluoranthene	T149	AR	0.01	mg/kg	U	002
Pyrene	T149	AR	0.01	mg/kg	U	002
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002
Chrysene	T149	AR	0.01	mg/kg	U	002
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	002
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	002
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	002
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002
PAH(total)	T149	AR	0.01	mg/kg	U	002
Benzene	T54	AR	1	µg/kg	U	002
Toluene	T54	AR	1	µg/kg	U	002
EthylBenzene	T54	AR	1	µg/kg	U	002
M/P Xylene	T54	AR	1	µg/kg	U	002
O Xylene	T54	AR	1	µg/kg	U	002
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	U	002
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	N	002
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	N	002
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	N	002
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	N	002
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	002
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	002
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	N	002
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	N	002
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	N	002
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	N	002
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	N	002
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	N	002
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	N	002
TPH (C21-C35 aromatic)	Т8	AR	1	mg/kg	N	002





Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 710547-1

Date of Report: 29-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 20-Jan-2018 Date Analysis Started: 23-Jan-2018 Date Analysis Completed: 29-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Kimberley Macmaster Customer Relations Manager Issued by : Kimberley Macmaster Customer Relations Manager

> Page 1 of 6 710547-1

Concept Reference: 710547 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil

Soil

			Conce	ot Reference	710547 004									
		Custon	ner Sampl	le Reference	BH4-OP6 0.2m									
	Date Sampled 17-JA													
Determinand	Method	Test Sample	LOD	Units										
Cyanide(Total)	T4	AR	1	mg/kg	<1									
Cyanide(free)	T4	AR	1	mg/kg	<1									
Thiocyanate	T4	A40	10	mg/kg	<10									
Organic Matter	T2	A40	0.1	%	24.6									
Arsenic	T82	A40	2	mg/kg	65									
Mercury	T82	A40	1	mg/kg	1									
Selenium	T82	A40	3	mg/kg	<3									
Boron (water-soluble)	T112	A40	1	mg/kg	1									
Cadmium	T82	A40	1	mg/kg	2									
Chromium (trivalent)	T85	AR	2	mg/kg	47									
Chromium (hexavalent)	T82	A40	1	mg/kg	⁽⁶⁴⁾ <1									
Copper	T82	A40	1	mg/kg	270									
Lead	T82	A40	3	mg/kg	780									
Nickel	T82	A40	1	mg/kg	180									
Vanadium	T82	A40	1	mg/kg	150									
Zinc	T82	A40	1	mg/kg	1200									
Asbestos ID	T27	AR			N.D.									
pН	T7	A40			7.1									
SO4(Total)	T82	A40	0.01	%	0.19									
Chloride	T686	AR	1	mg/kg	4									
Sulphide	T4	AR	10	mg/kg	<10									
Nitrate	T686	AR	1	mg/kg	6									
Phenols(Mono)	T4	AR	1	mg/kg	<1									

Concept Reference: 710547 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

	710547 004				
	BH4-OP6 0.2m				
	17-JAN-2018				
Determinand	ninand Method Test LOD Units				
TPH (C8-C10)	Т8	AR	1	mg/kg	<1
TPH (C10-C12)	Т8	AR	1	mg/kg	<1
TPH (C12-C16)	Т8	AR	1	mg/kg	5
TPH (C16-C21)	Т8	AR	1	mg/kg	20
TPH (C21-C35)	Т8	AR	1	mg/kg	120



Concept Reference: 710547 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total and Speciated USEPA16 PAH (EK)

			Concep	ot Reference	710547 004								
	Customer Sample Reference												
	17-JAN-2018												
Determinand	Method	Test Sample	LOD	Units									
Naphthalene	T149	AR	0.01	mg/kg	0.11								
Acenaphthylene	T149	AR	0.01	mg/kg	0.13								
Acenaphthene	T149	AR	0.01	mg/kg	0.02								
Fluorene	T149	AR	0.01	mg/kg	0.04								
Phenanthrene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.58								
Anthracene	T149	AR	0.01	mg/kg	0.25								
Fluoranthene	T149	AR	0.01	mg/kg	1.8								
Pyrene	T149	AR	0.01	mg/kg	1.7								
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 1.3								
Chrysene	T149	AR	0.01	mg/kg	1.1								
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	1.8								
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.59								
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	1.4								
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.65								
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.20								
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.71								
PAH(total)	T149	AR	0.01	mg/kg	12								

Index to symbols used in 710547-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
64	Analysis was performed by an alternative technique
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Thiocyanate analysis was carried out by Concept Life Sciences Braintree.
Due to our recent instrument failure, water soluble boron results have been reported as unaccredited.
These instrument delays are expected for a minimum of another week.
The analytical method used here is identical to our accredited instrument, the only difference being that we have not issued analytical data to UKAS.

Allytical method used here is identical to our accredited instrument, the only difference being that we have not issued analytical data to UK All calibrations and QC samples have been analysed and are acceptable in accordance with our accredited method.

Method Index

Value	Description
T7	Probe
T149	GC/MS (SIR)
Т8	GC/FID
T2	Grav
T4	Colorimetry
T82	ICP/OES (Sim)
T112	ICP/OES (SIM)(Water Extract)
T686	Discrete Analyser
T27	PLM
T85	Calc

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	004
Cyanide(free)	T4	AR	1	mg/kg	U	004
Thiocyanate	T4	A40	10	mg/kg	Ν	004
Organic Matter	T2	A40	0.1	%	N	004
Arsenic	T82	A40	2	mg/kg	U	004
Mercury	T82	A40	1	mg/kg	U	004
Selenium	T82	A40	3	mg/kg	U	004
Boron (water-soluble)	T112	A40	1	mg/kg	U	004
Cadmium	T82	A40	1	mg/kg	U	004
Chromium (trivalent)	T85	AR	2	mg/kg	N	004
Chromium (hexavalent)	T82	A40	1	mg/kg	N	004
Copper	T82	A40	1	mg/kg	U	004
Lead	T82	A40	3	mg/kg	U	004
Nickel	T82	A40	1	mg/kg	U	004
Vanadium	T82	A40	1	mg/kg	U	004
Zinc	T82	A40	1	mg/kg	U	004
Asbestos ID	T27	AR			SU	004
рН	T7	A40			U	004
SO4(Total)	T82	A40	0.01	%	Ν	004
Chloride	T686	AR	1	mg/kg	N	004
Sulphide	T4	AR	10	mg/kg	Ν	004
Nitrate	T686	AR	1	mg/kg	N	004
Phenols(Mono)	T4	AR	1	mg/kg	U	004
TPH (C8-C10)	Т8	AR	1	mg/kg	N	004
TPH (C10-C12)	Т8	AR	1	mg/kg	U	004
TPH (C12-C16)	Т8	AR	1	mg/kg	U	004
TPH (C16-C21)	Т8	AR	1	mg/kg	U	004
TPH (C21-C35)	Т8	AR	1	mg/kg	U	004
Naphthalene	T149	AR	0.01	mg/kg	U	004
Acenaphthylene	T149	AR	0.01	mg/kg	U	004
Acenaphthene	T149	AR	0.01	mg/kg	U	004
Fluorene	T149	AR	0.01	mg/kg	U	004

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenanthrene	T149	AR	0.01	mg/kg	U	004
Anthracene	T149	AR	0.01	mg/kg	U	004
Fluoranthene	T149	AR	0.01	mg/kg	U	004
Pyrene	T149	AR	0.01	mg/kg	U	004
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	004
Chrysene	T149	AR	0.01	mg/kg	U	004
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	004
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	004
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	004
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	004
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	004
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	004
PAH(total)	T149	AR	0.01	mg/kg	U	004





Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel: 01355 573340 Fax: 01355 573341

Report Number: 712221-1

Date of Report: 07-Feb-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 24-Jan-2018 Date Analysis Started: 30-Jan-2018 Date Analysis Completed: 07-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Emma Hilton **Customer Service Advisor**

Issued by : Emma Hilton

Customer Service Advisor F Utt

Page 1 of 6 712221-1

Concept Reference: 712221 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil		Analysed	as Soil					
SWECO Soil Suite 1								
			Conce	ot Reference	712221 001	712221 003	712221 006	712221 014
		Custon	ner Samp	le Reference	BH14-OP6 0.5m	HP1-OP6 0.5m	HP2-OP6 1.0m	TP10-OP7 0.5m
			D	ate Sampled	18-JAN-2018	19-JAN-2018	19-JAN-2018	22-JAN-2018
Determinand	Method	Test Sample	LOD	Units				
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10	<10	<10
Organic Matter	T2	A40	0.1	%	3.6	2.2	5.5	3.0
Arsenic	T82	A40	2	mg/kg	16	25	23	23
Mercury	T82	A40	1	mg/kg	<1	<1	<1	<1
Selenium	T82	A40	3	mg/kg	<3	<3	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1
Cadmium	T82	A40	1	mg/kg	<1	3	3	<1
Chromium (trivalent)	T85	AR	2	mg/kg	56	40	53	55
Chromium (hexavalent)	T82	A40	1	mg/kg	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1	⁽⁶⁴⁾ <1
Copper	T82	A40	1	mg/kg	19	140	71	37
Lead	T82	A40	3	mg/kg	28	1000	590	76
Nickel	T82	A40	1	mg/kg	44	46	56	55
Vanadium	T82	A40	1	mg/kg	36	42	51	51
Zinc	T82	A40	1	mg/kg	100	670	540	130
Asbestos ID	T27	AR			N.D.	N.D.	N.D.	N.D.
pН	T7	A40			5.9	8.1	7.8	6.4
SO4(Total)	T82	A40	0.01	%	0.07	0.25	0.10	0.07
Chloride	T686	AR	1	mg/kg	2	3	4	3
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10
Nitrate	T686	AR	1	mg/kg	2	2	2	2
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1	<1	<1

Concept Reference: 712221 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

							-	-
			Concep	ot Reference	712221 001	712221 003	712221 006	712221 014
		Custon	ner Sampl	e Reference	BH14-OP6 0.5m	HP1-OP6 0.5m	HP2-OP6 1.0m	TP10-OP7 0.5m
			Da	ate Sampled	18-JAN-2018	19-JAN-2018	19-JAN-2018	22-JAN-2018
Determinand	Method	Test Sample	LOD	Units				
TPH (C8-C10)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C10-C12)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C12-C16)	Т8	AR	1	mg/kg	<1	<1	<1	<1
TPH (C16-C21)	Т8	AR	1	mg/kg	<1	3	<1	<1
TPH (C21-C35)	Т8	AR	1	mg/kg	<1	28	9	6



Concept Reference: 712221 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil

Analysed as Soil Total and Speciated USEPA16 PAH (EK)

			Concer	ot Reference	712221 001	712221 003	712221 006	712221 014
		Custon	ner Sampl	e Reference	BH14-OP6 0.5m	HP1-OP6 0.5m	HP2-OP6 1.0m	TP10-OP7 0.5m
			D	ate Sampled	18-JAN-2018	19-JAN-2018	19-JAN-2018	22-JAN-2018
Determinand	Method	Test Sample	LOD	Units				
Naphthalene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	0.01	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	0.01	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	<0.01	<0.01
Fluorene	T149	AR	0.01	mg/kg	<0.01	⁽⁹⁾ <0.05	<0.01	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	<0.01	0.18	0.08	0.01
Anthracene	T149	AR	0.01	mg/kg	<0.01	0.07	0.02	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	<0.01	0.53	0.23	0.01
Pyrene	T149	AR	0.01	mg/kg	<0.01	0.48	0.23	0.01
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ <0.01	⁽¹³⁾ 0.31	⁽¹³⁾ 0.12	⁽¹³⁾ <0.01
Chrysene	T149	AR	0.01	mg/kg	<0.01	0.28	0.12	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	<0.01	0.48	0.19	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	<0.01	0.18	0.07	<0.01
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	<0.01	0.37	0.15	<0.01
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	<0.01	0.22	0.09	<0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	<0.01	0.06	0.02	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	<0.01	0.28	0.10	<0.01
PAH(total)	T149	AR	0.01	mg/kg	<0.01	3.4	1.4	0.03

Produced by Concept Life Sciences, 16 Langlands Place, Kelvin South Business Park, East Kilbride, G75 0YF

Index to symbols used in 712221-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
N.D.	Not Detected
64	Analysis was performed by an alternative technique
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Pah soil- LOD has been raised for sample 003 due to sample consistency. ICPOES analysis carried out at Concept Life Sciences Braintree.

Method Index

Value	Description
T4	Colorimetry
T82	ICP/OES (Sim)
T8	GC/FID
T27	PLM
T112	ICP/OES (SIM)(Water Extract)
T2	Grav
T7	Probe
T85	Calc
T149	GC/MS (SIR)
T686	Discrete Analyser

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	001,003,006,014
Cyanide(free)	T4	AR	1	mg/kg	U	001,003,006,014
Thiocyanate	T4	A40	10	mg/kg	Ν	001,003,006,014
Organic Matter	T2	A40	0.1	%	Ν	001,003,006,014
Arsenic	T82	A40	2	mg/kg	U	001,003,006,014
Mercury	T82	A40	1	mg/kg	U	001,003,006,014
Selenium	T82	A40	3	mg/kg	U	001,003,006,014
Boron (water-soluble)	T112	A40	1	mg/kg	U	001,003,006,014
Cadmium	T82	A40	1	mg/kg	U	001,003,006,014
Chromium (trivalent)	T85	AR	2	mg/kg	Ν	001,003,006,014
Chromium (hexavalent)	T82	A40	1	mg/kg	Ν	001,003,006,014
Copper	T82	A40	1	mg/kg	U	001,003,006,014
Lead	T82	A40	3	mg/kg	U	001,003,006,014
Nickel	T82	A40	1	mg/kg	U	001,003,006,014
Vanadium	T82	A40	1	mg/kg	U	001,003,006,014
Zinc	T82	A40	1	mg/kg	U	001,003,006,014
Asbestos ID	T27	AR			SU	001,003,006,014
pН	T7	A40			U	001,003,006,014
SO4(Total)	T82	A40	0.01	%	Ν	001,003,006,014
Chloride	T686	AR	1	mg/kg	N	001,003,006,014
Sulphide	T4	AR	10	mg/kg	Ν	001,003,006,014
Nitrate	T686	AR	1	mg/kg	Ν	001,003,006,014
Phenols(Mono)	T4	AR	1	mg/kg	U	001,003,006,014
TPH (C8-C10)	Т8	AR	1	mg/kg	Ν	001,003,006,014
TPH (C10-C12)	T8	AR	1	mg/kg	U	001,003,006,014
TPH (C12-C16)	T8	AR	1	mg/kg	U	001,003,006,014
TPH (C16-C21)	Т8	AR	1	mg/kg	U	001,003,006,014
TPH (C21-C35)	T8	AR	1	mg/kg	U	001,003,006,014
Naphthalene	T149	AR	0.01	mg/kg	U	001,003,006,014
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,003,006,014
Acenaphthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Fluorene	T149	AR	0.01	mg/kg	U	001,003,006,014

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenanthrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Anthracene	T149	AR	0.01	mg/kg	U	001,003,006,014
Fluoranthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Pyrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,003,006,014
Chrysene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,003,006,014
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,003,006,014
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,003,006,014
PAH(total)	T149	AR	0.01	mg/kg	U	001,003,006,014





Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 712932-1

Date of Report: 13-Feb-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 26-Jan-2018 Date Analysis Started: 02-Feb-2018 Date Analysis Completed: 12-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Concept Reference: 712932 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil SWECO Soil Suite 1		Analysed	as Soil			
			Concep	ot Reference	712932 002	712932 020
		Custor	ner Sampl	e Reference	HP8-OP6 @ 0.5m	TP2-OP6 @ 1.0m
			Da	ate Sampled	24-JAN-2018	25-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10
Organic Matter	T2	A40	0.1	%	3.8	3.6
Arsenic	T82	A40	2	mg/kg	22	24
Mercury	T82	A40	1	mg/kg	<1	<1
Selenium	T82	A40	3	mg/kg	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	^(309,64) <1	^(64,309) <1
Cadmium	T82	A40	1	mg/kg	<1	1
Chromium (trivalent)	T85	AR	2	mg/kg	33	46
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1
Copper	T82	A40	1	mg/kg	43	130
Lead	T82	A40	3	mg/kg	210	740
Nickel	T82	A40	1	mg/kg	35	51
Vanadium	T82	A40	1	mg/kg	30	44
Zinc	T82	A40	1	mg/kg	190	520
Asbestos ID	T27	AR			N.D.	N.D.
pН	T7	A40			7.4	8.0
SO4(Total)	T82	A40	0.01	%	0.15	0.26
Chloride	T686	AR	1	mg/kg	9	5
Sulphide	T4	A40	10	mg/kg	<10	<10
Nitrate	T686	AR	1	mg/kg	29	1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1

Concept Reference: 712932 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil

SWECO Soil Suite 2

			Conce	ot Reference	712932 009	
		Custor	ner Samp	e Reference	e HP4-OP6 @ 0.5m	
			D	ate Sampled	25-JAN-2018	
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	
Cyanide(free)	T4	AR	1	mg/kg	<1	
Thiocyanate	T4	A40	10	mg/kg	<10	
Organic Matter	T2	A40	0.1	%	11.8	
Arsenic	T82	A40	2	mg/kg	57	
Mercury	T82	A40	1	mg/kg	2	
Selenium	T82	A40	3	mg/kg	<3	
Boron (water-soluble)	T112	A40	1	mg/kg	^(309,64) <1	
Cadmium	T82	A40	1	mg/kg	9	
Chromium (trivalent)	T85	AR	2	mg/kg	45	
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	
Copper	T82	A40	1	mg/kg	200	
Lead	T82	A40	3	mg/kg	1400	
Nickel	T82	A40	1	mg/kg	95	
Vanadium	T82	A40	1	mg/kg	68	
Zinc	T82	A40	1	mg/kg	1700	
Asbestos ID	T27	AR			N.D.	
pН	T7	A40			7.3	
SO4(Total)	T82	A40	0.01	%	0.42	
Chloride	T686	AR	1	mg/kg	5	
Sulphide	T4	A40	10	mg/kg	<10	
Nitrate	T686	AR	1	mg/kg	4	
Phenols(Mono)	T4	AR	1	mg/kg	<1	

Analysed as Soil

Concept Reference: 712932 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

Concept Reference 712932 002 712932 020							
Customer Sample Reference HP8-OP6 @ 0.5m TP2-OP6 @ 1.0m							
Date Sampled 24-JAN-2018 25-JAN-2018							
Determinand	Method	Test Sample	LOD	Units			
TPH (C8-C10)	T8	AR	1	mg/kg	<1	<1	
TPH (C10-C12)	Т8	AR	1	mg/kg	<1	<1	
TPH (C12-C16)	Т8	AR	1	mg/kg	<1	<1	
TPH (C16-C21)	T8	AR	1	mg/kg	6	3	
TPH (C21-C35)	Т8	AR	1	mg/kg	78	36	

Concept Reference: Project Site:		712932								
		Newton Stewart FPS								
Customer R	leference:	17/082								
Soil		Analysed a	as Soil							
Total and Speciated USI	EPA16 PA	H (EK)								
			Concep	t Reference	712932 002	712932 009	712932 020			
		Custon	ner Sample	e Reference	HP8-OP6 @ 0.5m	HP4-OP6 @ 0.5m	TP2-OP6 @ 1.0m			
			Da	ate Sampled	24-JAN-2018	25-JAN-2018	25-JAN-2018			
Determinand	Method	Test Sample	LOD	Units						
Naphthalene	T149	AR	0.01	mg/kg	0.02	0.01	0.03			
Acenaphthylene	T149	AR	0.01	mg/kg	0.08	0.01	0.12			
Acenaphthene	T149	AR	0.01	mg/kg	0.01	0.01	0.02			
Fluorene	T149	AR	0.01	mg/kg	0.03	0.01	0.04			
Phenanthrene	T149	AR	0.01	mg/kg	0.18	0.20	0.51			
Anthracene	T149	AR	0.01	mg/kg	0.14	0.04	0.16			
Fluoranthene	T149	AR	0.01	mg/kg	1.1	0.28	1.0			
Pyrene	T149	AR	0.01	mg/kg	1.0	0.26	0.93			
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.59	⁽¹³⁾ 0.15	⁽¹³⁾ 0.55			
Chrysene	T149	AR	0.01	mg/kg	0.46	0.14	0.48			
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.74	0.24	0.94			
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.25	0.08	0.30			
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.54	0.15	0.68			
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.22	0.08	0.36			
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.07	0.03	0.10			
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.21	0.09	0.43			
PAH(total)	T149	AR	0.01	mg/kg	5.7	1.8	6.7			

Concept Reference:	712932
Project Site:	Newton Stewart FPS
Customer Reference:	17/082

Analysed as Soil CWG with BTEX and MTBE (EK)

Soil

			Canaa	ot Reference	712932 009
		•			
		Custor		e Reference	HP4-OP6 @ 0.5m
			Da	ate Sampled	25-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
Benzene	T54	AR	1	µg/kg	^(9,13) <2
Toluene	T54	AR	1	µg/kg	⁽⁹⁾ <2
EthylBenzene	T54	AR	1	µg/kg	⁽⁹⁾ <2
M/P Xylene	T54	AR	1	µg/kg	⁽⁹⁾ <2
O Xylene	T54	AR	1	µg/kg	⁽⁹⁾ <2
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	^(9,13) <2
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	<10
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	<10
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	<10
TPH (C10-C12 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C16-C21 aliphatic)	Т8	AR	1	mg/kg	<1
TPH (C21-C35 aliphatic)	Т8	AR	1	mg/kg	2
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	<10
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	<10
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	<10
TPH (C10-C12 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C12-C16 aromatic)	Т8	AR	1	mg/kg	<1
TPH (C16-C21 aromatic)	Т8	AR	1	mg/kg	2
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	4

Index to symbols used in 712932-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
64	Analysis was performed by an alternative technique
309	The sample extraction is outside the scope of UKAS accreditation
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Notes

ICP/OES analysis was carried out by Concept Life Sciences Braintree.

Method Index

Value	Description
T4	Colorimetry
Т8	GC/FID
T85	Calc
T686	Discrete Analyser
T82	ICP/OES (Sim)
T2	Grav
T149	GC/MS (SIR)
T27	PLM
T112	ICP/OES (SIM)(Water Extract)
T7	Probe
T54	GC/MS (Headspace)

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	002,009,020
Cyanide(free)	T4	AR	1	mg/kg	U	002,009,020
Thiocyanate	T4	A40	10	mg/kg	N	002,009,020
Organic Matter	T2	A40	0.1	%	N	002,009,020
Arsenic	T82	A40	2	mg/kg	U	002,009,020
Mercury	T82	A40	1	mg/kg	U	002,009,020
Selenium	T82	A40	3	mg/kg	U	002,009,020
Boron (water-soluble)	T112	A40	1	mg/kg	U	002,009,020
Cadmium	T82	A40	1	mg/kg	U	002,009,020
Chromium (trivalent)	T85	AR	2	mg/kg	N	002,009,020
Chromium (hexavalent)	T82	A40	1	mg/kg	N	002,009,020
Copper	T82	A40	1	mg/kg	U	002,009,020
Lead	T82	A40	3	mg/kg	U	002,009,020
Nickel	T82	A40	1	mg/kg	U	002,009,020
Vanadium	T82	A40	1	mg/kg	U	002,009,020
Zinc	T82	A40	1	mg/kg	U	002,009,020
Asbestos ID	T27	AR			SU U	002,009,020
pH SO4(Total)	T7 T82	A40 A40	0.01	%	N	002,009,020 002,009,020
Chloride	T686	A40 AR	1	mg/kg	N	002,009,020
Sulphide	T4	AK A40	10	mg/kg	N	002,009,020
Nitrate	T686	AR	1	mg/kg	N	002,009,020
Phenols(Mono)	T4	AR	1	mg/kg	U	002,009,020
TPH (C8-C10)	T8	AR	1	mg/kg	N	002,020
TPH (C10-C12)	T8	AR	1	mg/kg	U	002,020
TPH (C12-C16)	T8	AR	1	mg/kg	U	002,020
TPH (C16-C21)	T8	AR	1	mg/kg	U	002,020
TPH (C21-C35)	Т8	AR	1	mg/kg	U	002,020
Naphthalene	T149	AR	0.01	mg/kg	U	002,009,020
Acenaphthylene	T149	AR	0.01	mg/kg	U	002,009,020
Acenaphthene	T149	AR	0.01	mg/kg	U	002,009,020
Fluorene	T149	AR	0.01	mg/kg	U	002,009,020
Phenanthrene	T149	AR	0.01	mg/kg	U	002,009,020
Anthracene	T149	AR	0.01	mg/kg	U	002,009,020
Fluoranthene	T149	AR	0.01	mg/kg	U	002,009,020
Pyrene	T149	AR	0.01	mg/kg	U	002,009,020
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	002,009,020
Chrysene	T149	AR	0.01	mg/kg	U	002,009,020
Benzo(b)fluoranthene Benzo(k)fluoranthene	T149 T149	AR AR	0.01	mg/kg	U	002,009,020 002,009,020
Benzo(a)Pyrene	T149	AR	0.01	mg/kg mg/kg	U	002,009,020
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	002,009,020
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	002,009,020
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	002,009,020
PAH(total)	T149	AR	0.01	mg/kg	U	002,009,020
Benzene	T54	AR	1	µg/kg	U	009
Toluene	T54	AR	1	µg/kg	U	009
EthylBenzene	T54	AR	1	µg/kg	U	009
M/P Xylene	T54	AR	1	µg/kg	U	009
O Xylene	T54	AR	1	µg/kg	U	009
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	U	009
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	N	009
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	N	009
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	N	009
TPH (C10-C12 aliphatic)	T8 T0	AR	1	mg/kg	N	009
TPH (C12-C16 aliphatic)	T8 T9	AR	1	mg/kg	N	009 009
TPH (C16-C21 aliphatic)	Т8 Т8	AR AR	1	mg/kg	N N	009
TPH (C21-C35 aliphatic) TPH (C6-C7 aromatic)	18 T54	AR	10	mg/kg µg/kg	N	009
TPH (C6-C7 aromatic) TPH (C7-C8 aromatic)	T54	AR	10	µg/kg µg/kg	N	009
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg µg/kg	N	009
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	N	009
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	009
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	009
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	009
					•	



Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 714275-1

Date of Report: 19-Feb-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 30-Jan-2018 Date Analysis Started: 08-Feb-2018 Date Analysis Completed: 16-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Concept Reference: 714275 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil

Soil

SWECO Soil Suite 1

Concept Reference 714275 005 Customer Sample Reference TP3-OP6 0.5m Date Sampled 26-JAN-2018

		26-JAN-2018			
Determinand	Method	Test Sample	LOD	Units	
Cyanide(Total)	T4	AR	1	mg/kg	<1
Cyanide(free)	T4	AR	1	mg/kg	<1
Thiocyanate	T4	A40	10	mg/kg	<10
Organic Matter	T2	A40	0.1	%	4.0
Arsenic	T82	A40	2	mg/kg	22
Mercury	T82	A40	1	mg/kg	<1
Selenium	T82	A40	3	mg/kg	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1
Cadmium	T82	A40	1	mg/kg	<1
Chromium (trivalent)	T85	AR	2	mg/kg	35
Chromium (hexavalent)	T82	A40	1	mg/kg	<1
Copper	T82	A40	1	mg/kg	99
Lead	T82	A40	3	mg/kg	680
Nickel	T82	A40	1	mg/kg	76
Vanadium	T82	A40	1	mg/kg	69
Zinc	T82	A40	1	mg/kg	240
Asbestos ID	T27	AR			N.D.
рН	T7	A40			8.2
SO4(Total)	T82	A40	0.01	%	0.19
Sulphide	T4	A40	10	mg/kg	<10
Chloride	T686	AR	1	mg/kg	5
Nitrate	T686	AR	1	mg/kg	3
Phenols(Mono)	T4	AR	1	mg/kg	<1

Concept Reference: 714275 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil

Analysed as Soil

Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

			Conce	ot Reference	714275 005
		Custor	ner Samp	le Reference	TP3-OP6 0.5m
			D	ate Sampled	26-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
TPH (C8-C10)	Т8	AR	1	mg/kg	<1
TPH (C10-C12)	Т8	AR	1	mg/kg	<1
TPH (C12-C16)	Т8	AR	1	mg/kg	1
TPH (C16-C21)	Т8	AR	1	mg/kg	14
TPH (C21-C35)	Т8	AR	1	mg/kg	130

Concept Reference: 714275 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total and Speciated USEPA16 PAH (EK)

			Concep	ot Reference	714275 005
		Custor	ner Sampl	e Reference	TP3-OP6 0.5m
			D	ate Sampled	26-JAN-2018
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T149	AR	0.01	mg/kg	0.06
Acenaphthylene	T149	AR	0.01	mg/kg	0.47
Acenaphthene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.05
Fluorene	T149	AR	0.01	mg/kg	0.08
Phenanthrene	T149	AR	0.01	mg/kg	1.0
Anthracene	T149	AR	0.01	mg/kg	0.52
Fluoranthene	T149	AR	0.01	mg/kg	3.5
Pyrene	T149	AR	0.01	mg/kg	3.2
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	2.3
Chrysene	T149	AR	0.01	mg/kg	2.2
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	3.7
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	1.3
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	2.6
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	1.3
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.29
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	1.6
PAH(total)	T149	AR	0.01	mg/kg	24

Index to symbols used in 714275-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
N.D.	Not Detected
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Notes

PAH soil - sample diluted to bring within calibration range.

Method Index

Value	Description						
T27	PLM						
T7	Probe						
T82	ICP/OES (Sim)						
T686	Discrete Analyser						
T112	ICP/OES (SIM)(Water Extract)						
T149	GC/MS (SIR)						
T2	Grav						
Т8	GC/FID						
T4	Colorimetry						
T85	Calc						

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	005
Cyanide(free)	T4	AR	1	mg/kg	U	005
Thiocyanate	T4	A40	10	mg/kg	N	005
Organic Matter	T2	A40	0.1	%	N	005
Arsenic	T82	A40	2	mg/kg	U	005

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Mercury	T82	A40	1	mg/kg	U	005
Selenium	T82	A40	3	mg/kg	U	005
Boron (water-soluble)	T112	A40	1	mg/kg	U	005
Cadmium	T82	A40	1	mg/kg	U	005
Chromium (trivalent)	T85	AR	2	mg/kg	N	005
Chromium (hexavalent)	T82	A40	1	mg/kg	N	005
Copper	T82	A40	1	mg/kg	U	005
Lead	T82	A40	3	mg/kg	U	005
Nickel	T82	A40	1	mg/kg	U	005
Vanadium	T82	A40	1	mg/kg	U	005
Zinc	T82	A40	1	mg/kg	U	005
Asbestos ID	T27	AR			SU	005
рН	T7	A40			U	005
SO4(Total)	T82	A40	0.01	%	N	005
Chloride	T686	AR	1	mg/kg	N	005
Sulphide	T4	A40	10	mg/kg	N	005
Nitrate	T686	AR	1	mg/kg	N	005
Phenols(Mono)	T4	AR	1	mg/kg	U	005
TPH (C8-C10)	Т8	AR	1	mg/kg	N	005
TPH (C10-C12)	Т8	AR	1	mg/kg	U	005
TPH (C12-C16)	Т8	AR	1	mg/kg	U	005
TPH (C16-C21)	Т8	AR	1	mg/kg	U	005
TPH (C21-C35)	Т8	AR	1	mg/kg	U	005
Naphthalene	T149	AR	0.01	mg/kg	U	005
Acenaphthylene	T149	AR	0.01	mg/kg	U	005
Acenaphthene	T149	AR	0.01	mg/kg	U	005
Fluorene	T149	AR	0.01	mg/kg	U	005
Phenanthrene	T149	AR	0.01	mg/kg	U	005
Anthracene	T149	AR	0.01	mg/kg	U	005
Fluoranthene	T149	AR	0.01	mg/kg	U	005
Pyrene	T149	AR	0.01	mg/kg	U	005
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	005
Chrysene	T149	AR	0.01	mg/kg	U	005
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	005
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	005
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	005
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	005
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	005
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	005
PAH(total)	T149	AR	0.01	mg/kg	U	005





Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 714291-1

Date of Report: 19-Feb-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 30-Jan-2018 Date Analysis Started: 08-Feb-2018 Date Analysis Completed: 19-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Page 1 of 4 714291-1

Concept Reference: 714291 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil		Analysed	as Soil			
SWECO Soil Suite 1						
			Conce	ot Reference	714291 001	714291 013
		Custor	ner Samp	e Reference	TP11-OP6 0.2m	HP10-OP6 0.2m
			D	ate Sampled	31-JAN-2018	31-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10
Organic Matter	T2	A40	0.1	%	4.0	3.5
Arsenic	T82	A40	2	mg/kg	9	29
Mercury	T82	A40	1	mg/kg	<1	<1
Selenium	T82	A40	3	mg/kg	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1	⁽⁹⁾ <2
Cadmium	T82	A40	1	mg/kg	<1	3
Chromium (trivalent)	T85	AR	2	mg/kg	35	50
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1
Copper	T82	A40	1	mg/kg	28	110
Lead	T82	A40	3	mg/kg	46	1900
Nickel	T82	A40	1	mg/kg	37	57
Zinc	T82	A40	1	mg/kg	100	760
Vanadium	T82	A40	1	mg/kg	37	46
Asbestos ID	T27	AR			N.D.	N.D.
pН	T7	A40			8.1	6.3
SO4(Total)	T82	A40	0.01	%	0.10	0.19
Sulphide	T4	A40	10	mg/kg	<10	<10
Chloride	T686	AR	1	mg/kg	8	11
Nitrate	T686	AR	1	mg/kg	<1	<1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1

Concept Reference: 714291 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil

Analysed as Soil

Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

			Concep	ot Reference	714291 001	714291 013
		Custor	ner Sampl	e Reference	TP11-OP6 0.2m	HP10-OP6 0.2m
			Da	ate Sampled	31-JAN-2018	31-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
TPH (C8-C10)	Т8	AR	1	mg/kg	<1	<1
TPH (C10-C12)	Т8	AR	1	mg/kg	<1	<1
TPH (C12-C16)	Т8	AR	1	mg/kg	<1	<1
TPH (C16-C21)	Т8	AR	1	mg/kg	2	3
TPH (C21-C35)	Т8	AR	1	mg/kg	44	58

Concept R	eference:	714291				
Pro	oject Site:	Newton St	ewart FPS			
Customer R	eference:	17/082				
Soil		Analysed a	as Soil			
Total and Speciated USI	EPA16 PAI	I (EK)				
			Concep	ot Reference	714291 001	714291 013
		Custor	ner Sampl	e Reference	TP11-OP6 0.2m	HP10-OP6 0.2m
			Da	ate Sampled	31-JAN-2018	31-JAN-2018
Determinand	Method	Test Sample	LOD	Units		
Naphthalene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.02	⁽⁹⁾ <0.05
Acenaphthylene	T149	AR	0.01	mg/kg	0.02	0.28
Acenaphthene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.02	0.05
Fluorene	T149	AR	0.01	mg/kg	⁽⁹⁾ <0.02	0.20
Phenanthrene	T149	AR	0.01	mg/kg	0.09	1.3
Anthracene	T149	AR	0.01	mg/kg	0.06	0.41
Fluoranthene	T149	AR	0.01	mg/kg	0.46	2.2
Pyrene	T149	AR	0.01	mg/kg	0.42	1.9
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	0.27	1.0
Chrysene	T149	AR	0.01	mg/kg	0.26	0.99
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.43	1.4
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.15	0.47
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.31	0.96
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.16	0.50
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.03	0.11
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.19	0.57
PAH(total)	T149	AR	0.01	mg/kg	2.9	12

Index to symbols used in 714291-1

Value	Description						
AR	As Received						
A40	Assisted dried < 40C						
N.D.	Not Detected						
9	LOD raised due to dilution of sample						
S	Analysis was subcontracted						
U	Analysis is UKAS accredited						
Ν	Analysis is not UKAS accredited						

Notes

PAH soil - sample 001 diluted due to sample consistency, sample 002 diluted to bring within calibration range. ICP/OES Sample 013 water soluble Boron ran at dilution due to sample matrix.

Method Index

Value	Description						
Т8	GC/FID						
T85	Calc						
T149	GC/MS (SIR)						
T82	ICP/OES (Sim)						
T112	ICP/OES (SIM)(Water Extract)						
T2	Grav						
T27	PLM						
T686	Discrete Analyser						
T4	Colorimetry						
T7	Probe						

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	001,013
Cyanide(free)	T4	AR	1	mg/kg	U	001,013
Thiocyanate	T4	A40	10	mg/kg	N	001,013
Organic Matter	T2	A40	0.1	%	N	001,013

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Arsenic	T82	A40	2	mg/kg	U	001,013
Mercury	T82	A40	1	mg/kg	U	001,013
Selenium	T82	A40	3	mg/kg	U	001,013
Boron (water-soluble)	T112	A40	1	mg/kg	U	001,013
Cadmium	T82	A40	1	mg/kg	U	001,013
Chromium (trivalent)	T85	AR	2	mg/kg	Ν	001,013
Chromium (hexavalent)	T82	A40	1	mg/kg	N	001,013
Copper	T82	A40	1	mg/kg	U	001,013
Lead	T82	A40	3	mg/kg	U	001,013
Nickel	T82	A40	1	mg/kg	U	001,013
Vanadium	T82	A40	1	mg/kg	U	001,013
Zinc	T82	A40	1	mg/kg	U	001,013
Asbestos ID	T27	AR			SU	001,013
рН	T7	A40			U	001,013
SO4(Total)	T82	A40	0.01	%	N	001,013
Chloride	T686	AR	1	mg/kg	N	001,013
Sulphide	T4	A40	10	mg/kg	N	001,013
Nitrate	T686	AR	1	mg/kg	N	001,013
Phenols(Mono)	T4	AR	1	mg/kg	U	001,013
TPH (C8-C10)	T8	AR	1	mg/kg	N	001,013
TPH (C10-C12)	Т8	AR	1	mg/kg	U	001,013
TPH (C12-C16)	Т8	AR	1	mg/kg	U	001,013
TPH (C16-C21)	Т8	AR	1	mg/kg	U	001,013
TPH (C21-C35)	T8	AR	1	mg/kg	U	001,013
Naphthalene	T149	AR	0.01	mg/kg	U	001,013
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,013
Acenaphthene	T149	AR	0.01	mg/kg	U	001,013
Fluorene	T149	AR	0.01	mg/kg	U	001,013
Phenanthrene	T149	AR	0.01	mg/kg	U	001,013
Anthracene	T149	AR	0.01	mg/kg	U	001,013
Fluoranthene	T149	AR	0.01	mg/kg	U	001,013
Pyrene	T149	AR	0.01	mg/kg	U	001,013
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,013
Chrysene	T149	AR	0.01	mg/kg	U	001,013
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001,013
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001,013
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,013
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,013
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,013
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,013
PAH(total)	T149	AR	0.01	mg/kg	U	001,013





Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel: 01355 573340 Fax: 01355 573341

Report Number: 715241-1

Date of Report: 21-Feb-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Fraser Murray

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 08-Feb-2018 Date Analysis Started: 13-Feb-2018 Date Analysis Completed: 21-Feb-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Emma Hilton **Customer Service Advisor**

Issued by : Emma Hilton

Customer Service Advisor F Utt

Page 1 of 6 715241-1

Concept Reference: 715241 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil SWECO Soil Suite 1										
			Conce	ot Reference	715241 020	715241 030				
		Custor	ner Sampl	e Reference	TP9-OP7 1.00M	HP6-OP6 1.00M				
			D	ate Sampled	05-FEB-2018	06-FEB-2018				
Determinand	Method	Test Sample	LOD	Units						
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1				
Cyanide(free)	T4	AR	1	mg/kg	<1	<1				
Thiocyanate	T4	A40	10	mg/kg	<10	<10				
Organic Matter	T2	A40	0.1	%	3.9	3.6				
Arsenic	T82	A40	2	mg/kg	20	26				
Mercury	T82	A40	1	mg/kg	<1	6				
Selenium	T82	A40	3	mg/kg	<3	<3				
Boron (water-soluble)	T112	A40	1	mg/kg	<1	1				
Cadmium	T82	A40	1	mg/kg	<1	2				
Chromium (trivalent)	T85	AR	2	mg/kg	46	51				
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1				
Copper	T82	A40	1	mg/kg	50	220				
Lead	T82	A40	3	mg/kg	170	1400				
Nickel	T82	A40	1	mg/kg	55	73				
Zinc	T82	A40	1	mg/kg	190	680				
Vanadium	T82	A40	1	mg/kg	38	50				
Asbestos ID	T27	AR			N.D.	N.D.				
pН	T7	A40			6.8	7.4				
SO4(Total)	T82	A40	0.01	%	0.06	0.18				
Chloride	T686	AR	1	mg/kg	3	140				
Sulphide	T4	A40	10	mg/kg	<10	<10				
Nitrate	T686	AR	1	mg/kg	7	<1				
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1				

Concept Reference: 715241 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

Concept Reference 715241 020 715241 030												
	HP6-OP6 1.00M											
	05-FEB-2018	06-FEB-2018										
Determinand	Method	Test Sample	LOD									
TPH (C8-C10)	Т8	AR	1	mg/kg	<1	<1						
TPH (C10-C12)	Т8	AR	1	mg/kg	<1	<1						
TPH (C12-C16)	Т8	AR	1	mg/kg	<1	<1						
TPH (C16-C21)	Т8	AR	1	<1	19							
TPH (C21-C35)	Т8	AR	1	mg/kg	22	140						



Concept Reference: 715241 Project Site: Newton Stewart FPS Customer Reference: 17/082

Analysed as Soil Total and Speciated USEPA16 PAH (EK)

Soil

			Concep	ot Reference	715241 020	715241 030
	TP9-OP7 1.00M	HP6-OP6 1.00M				
			Da	05-FEB-2018	06-FEB-2018	
Determinand	Method	Test Sample	LOD	Units		
Naphthalene	T149	AR	0.01	mg/kg	0.01	0.18
Acenaphthylene	T149	AR	0.01	mg/kg	0.01	0.42
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	0.06
Fluorene	T149	AR	0.01	mg/kg	0.01	0.25
Phenanthrene	T149	AR	0.01	mg/kg	0.08	3.5
Anthracene	T149	AR	0.01	mg/kg	0.02	0.97
Fluoranthene	T149	AR	0.01	mg/kg	0.21	6.3
Pyrene	T149	AR	0.01	mg/kg	0.21	6.5
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	0.14	3.2
Chrysene	T149	AR	0.01	mg/kg	0.11	2.6
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.17	3.7
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.06	1.3
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.15	3.5
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.08	1.6
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.02	0.44
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.10	2.0
PAH(total)	T149	AR	0.01	mg/kg	1.4	37

Index to symbols used in 715241-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
N.D.	Not Detected
S	Analysis was subcontracted
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Notes

Sulphide, cyanide and phenols analysis carried out at Concept Life Sciences Braintree.

Method Index

Value	Description
T4	Colorimetry
T112	ICP/OES (SIM)(Water Extract)
T82	ICP/OES (Sim)
T85	Calc
T149	GC/MS (SIR)
T686	Discrete Analyser
T2	Grav
Т8	GC/FID
T27	PLM
T7	Probe

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	020,030
Cyanide(free)	T4	AR	1	mg/kg	U	020,030
Thiocyanate	T4	A40	10	mg/kg	N	020,030
Organic Matter	T2	A40	0.1	%	Ν	020,030
Arsenic	T82	A40	2	mg/kg	U	020,030
Mercury	T82	A40	1	mg/kg	U	020,030
Selenium	T82	A40	3	mg/kg	U	020,030
Boron (water-soluble)	T112	A40	1	mg/kg	U	020,030
Cadmium	T82	A40	1	mg/kg	U	020,030
Chromium (trivalent)	T85	AR	2	mg/kg	Ν	020,030
Chromium (hexavalent)	T82	A40	1	mg/kg	Ν	020,030
Copper	T82	A40	1	mg/kg	U	020,030
Lead	T82	A40	3	mg/kg	U	020,030
Nickel	T82	A40	1	mg/kg	U	020,030
Vanadium	T82	A40	1	mg/kg	U	020,030
Zinc	T82	A40	1	mg/kg	U	020,030
Asbestos ID	T27	AR			SU	020,030
pН	T7	A40			U	020,030
SO4(Total)	T82	A40	0.01	%	N	020,030
Chloride	T686	AR	1	mg/kg	Ν	020,030
Sulphide	T4	A40	10	mg/kg	N	020,030
Nitrate	T686	AR	1	mg/kg	N	020,030
Phenols(Mono)	T4	AR	1	mg/kg	U	020,030
TPH (C8-C10)	T8	AR	1	mg/kg	N	020,030
TPH (C10-C12)	Т8	AR	1	mg/kg	U	020,030
TPH (C12-C16)	Т8	AR	1	mg/kg	U	020,030
TPH (C16-C21)	T8	AR	1	mg/kg	U	020,030
TPH (C21-C35)	Т8	AR	1	mg/kg	U	020,030
Naphthalene	T149	AR	0.01	mg/kg	U	020,030
Acenaphthylene	T149	AR	0.01	mg/kg	U	020,030
Acenaphthene	T149	AR	0.01	mg/kg	U	020,030
Fluorene	T149	AR	0.01	mg/kg	U	020,030
Phenanthrene	T149	AR	0.01	mg/kg	U	020,030
Anthracene	T149	AR	0.01	mg/kg	U	020,030
Fluoranthene	T149	AR	0.01	mg/kg	U	020,030
Pyrene	T149	AR	0.01	mg/kg	U	020,030

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	020,030
Chrysene	T149	AR	0.01	mg/kg	U	020,030
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	020,030
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	020,030
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	020,030
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	020,030
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	020,030
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	020,030
PAH(total)	T149	AR	0.01	mg/kg	U	020,030





Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 716422-1

Date of Report: 05-Mar-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Fraser Murray

Customer Job Reference: 17/082 Customer Purchase Order: 17552 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 14-Feb-2018 Date Analysis Started: 19-Feb-2018 Date Analysis Completed: 05-Mar-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Kimberley Macmaster Customer Relations Manager Issued by : Kimberley Macmaster Customer Relations Manager Abomatter

> Page 1 of 6 716422-1

Concept Reference: 716422 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil SWECO Soil Suite 1		Analysed	as Soil					
			Conce	pt Reference	716422 001	716422 002	716422 003	716422 006
		Custon		le Reference	HP11-OP6 0.5m	HP12-OP6 1.0m	TP4-OP6 0.2m	HP2-OP7 0.4m
				ate Sampled	12-FEB-2018	12-FEB-2018	29-JAN-2018	05-FEB-2018
Determinand	Method	Test Sample	LOD	Units				
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1
Cyanide(free)	T4	AR	1	mg/kg	<1	<1	<1	<1
Thiocyanate	T4	A40	10	mg/kg	<10	<10	<10	<10
Organic Matter	T2	A40	0.1	%	4.5	1.8	8.0	2.8
Arsenic	T82	A40	2	mg/kg	23	13	37	13
Mercury	T82	A40	1	mg/kg	2	<1	10	<1
Selenium	T82	A40	3	mg/kg	<3	<3	<3	<3
Boron (water-soluble)	T112	A40	1	mg/kg	<1	<1	<1	<1
Cadmium	T82	A40	1	mg/kg	2	<1	<1	<1
Chromium (trivalent)	T85	AR	2	mg/kg	48	43	52	33
Chromium (hexavalent)	T82	A40	1	mg/kg	<1	<1	<1	<1
Copper	T82	A40	1	mg/kg	140	38	140	23
Lead	T82	A40	3	mg/kg	2300	29	1600	100
Nickel	T82	A40	1	mg/kg	45	53	69	60
Vanadium	T82	A40	1	mg/kg	47	33	71	26
Zinc	T82	A40	1	mg/kg	670	64	410	120
Asbestos ID	T27	AR			N.D.	N.D.	N.D.	N.D.
pН	T7	A40			8.0	7.7	7.7	6.1
SO4(Total)	T82	A40	0.01	%	0.23	0.04	0.19	0.08
Chloride	T686	AR	1	mg/kg	12	4	1	13
Sulphide	T4	A40	10	mg/kg	<10	<10	<10	<10
Nitrate	T686	AR	1	mg/kg	5	6	19	27
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1	<1	<1

Concept Reference: 716422 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Analysed as Soil
Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

			Concep	ot Reference	716422 001	716422 002	716422 003	716422 006					
		Custon	ner Sampl	e Reference	HP11-OP6 0.5m	HP12-OP6 1.0m	TP4-OP6 0.2m	HP2-OP7 0.4m					
			Da	12-FEB-2018	12-FEB-2018	29-JAN-2018	05-FEB-2018						
Determinand	Method	Test Sample	LOD	Units									
TPH (C8-C10)	Т8	AR	1	mg/kg	<1	<1	<1	<1					
TPH (C10-C12)	Т8	AR	1	mg/kg	<1	<1	<1	<1					
TPH (C12-C16)	Т8	AR	1	mg/kg	1	<1	<1	<1					
TPH (C16-C21)	Т8	AR	1	mg/kg	1	<1	18	1					
TPH (C21-C35)	Т8	AR	1	mg/kg	36	11	76	27					



Concept Reference: 716422 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil

Analysed as Soil Total and Speciated USEPA16 PAH (EK)

Concept Reference					716422 001	716422 002	716422 003	716422 006
Customer Sample Reference					HP11-OP6 0.5m	HP12-OP6 1.0m	TP4-OP6 0.2m	HP2-OP7 0.4m
Date Sampled					12-FEB-2018	12-FEB-2018	29-JAN-2018	05-FEB-2018
Determinand	Method	Test Sample	LOD	Units				
Naphthalene	T149	AR	0.01	mg/kg	0.03	⁽⁹⁾ <0.50	0.04	⁽⁹⁾ <0.02
Acenaphthylene	T149	AR	0.01	mg/kg	0.05	⁽⁹⁾ <0.50	0.06	⁽⁹⁾ <0.02
Acenaphthene	T149	AR	0.01	mg/kg	0.02	⁽⁹⁾ <0.50	0.05	⁽⁹⁾ <0.02
Fluorene	T149	AR	0.01	mg/kg	0.03	⁽⁹⁾ <0.50	0.12	⁽⁹⁾ <0.02
Phenanthrene	T149	AR	0.01	mg/kg	0.44	⁽⁹⁾ <0.50	1.9	0.05
Anthracene	T149	AR	0.01	mg/kg	0.16	⁽⁹⁾ <0.50	<0.01	⁽⁹⁾ <0.02
Fluoranthene	T149	AR	0.01	mg/kg	0.82	⁽⁹⁾ <0.50	3.6	0.16
Pyrene	T149	AR	0.01	mg/kg	0.76	⁽⁹⁾ <0.50	3.2	0.15
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	⁽¹³⁾ 0.46	^(13,9) <0.50	1.6	⁽¹³⁾ 0.09
Chrysene	T149	AR	0.01	mg/kg	0.49	⁽⁹⁾ <0.50	1.3	0.08
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	0.54	⁽⁹⁾ <0.50	1.6	0.14
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	0.18	⁽⁹⁾ <0.50	0.61	0.05
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	0.40	⁽⁹⁾ <0.50	1.3	0.10
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	0.18	⁽⁹⁾ <0.50	0.51	0.05
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	0.06	⁽⁹⁾ <0.50	0.17	0.02
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	0.22	⁽⁹⁾ <0.50	0.51	0.06
PAH(total)	T149	AR	0.01	mg/kg	4.8	<0.50	17	0.95

Produced by Concept Life Sciences, 16 Langlands Place, Kelvin South Business Park, East Kilbride, G75 0YF

Index to symbols used in 716422-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
s	Analysis was subcontracted
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Notes

Cyanide and Phenols analysis was performed at Concept Life Sciences Manchester.
PAH soils - samples diluted due to sample consistency.

Method Index

Value	Description						
T27	PLM						
T85	Calc						
T149	GC/MS (SIR)						
T686	Discrete Analyser						
T4	Colorimetry						
T2	Grav						
T112	ICP/OES (SIM)(Water Extract)						
T7	Probe						
T8	GC/FID						
T82	ICP/OES (Sim)						

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Cyanide(Total)	T4	AR	1	mg/kg	U	001-003,006
Cyanide(free)	T4	AR	1	mg/kg	U	001-003,006
Thiocyanate	T4	A40	10	mg/kg	Ν	001-003,006
Organic Matter	T2	A40	0.1	%	Ν	001-003,006
Arsenic	T82	A40	2	mg/kg	U	001-003,006
Mercury	T82	A40	1	mg/kg	U	001-003,006
Selenium	T82	A40	3	mg/kg	U	001-003,006
Boron (water-soluble)	T112	A40	1	mg/kg	U	001-003,006
Cadmium	T82	A40	1	mg/kg	U	001-003,006
Chromium (trivalent)	T85	AR	2	mg/kg	N	001-003,006
Chromium (hexavalent)	T82	A40	1	mg/kg	N	001-003,006
Copper	T82	A40	1	mg/kg	U	001-003,006
Lead	T82	A40	3	mg/kg	U	001-003,006
Nickel	T82	A40	1	mg/kg	U	001-003,006
Vanadium	T82	A40	1	mg/kg	U	001-003,006
Zinc	T82	A40	1	mg/kg	U	001-003,006
Asbestos ID	T27	AR			SU	001-003,006
рН	T7	A40			U	001-003,006
SO4(Total)	T82	A40	0.01	%	Ν	001-003,006
Chloride	T686	AR	1	mg/kg	Ν	001-003,006
Sulphide	T4	A40	10	mg/kg	N	001-003,006
Nitrate	T686	AR	1	mg/kg	N	001-003,006
Phenols(Mono)	T4	AR	1	mg/kg	U	001-003,006
TPH (C8-C10)	Т8	AR	1	mg/kg	N	001-003,006
TPH (C10-C12)	Т8	AR	1	mg/kg	U	001-003,006
TPH (C12-C16)	Т8	AR	1	mg/kg	U	001-003,006
TPH (C16-C21)	T8	AR	1	mg/kg	U	001-003,006
TPH (C21-C35)	T8	AR	1	mg/kg	U	001-003,006
Naphthalene	T149	AR	0.01	mg/kg	U	001-003,006
Acenaphthylene	T149	AR	0.01	mg/kg	U	001-003,006
Acenaphthene	T149	AR	0.01	mg/kg	U	001-003,006
Fluorene	T149	AR	0.01	mg/kg	U	001-003,006
Phenanthrene	T149	AR	0.01	mg/kg	U	001-003,006

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Anthracene	T149	AR	0.01	mg/kg	U	001-003,006
Fluoranthene	T149	AR	0.01	mg/kg	U	001-003,006
Pyrene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001-003,006
Chrysene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001-003,006
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001-003,006
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001-003,006
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001-003,006
PAH(total)	T149	AR	0.01	mg/kg	U	001-003,006





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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel : 01355 573340 Fax : 01355 573341

Report Number: 707561-1

Date of Report: 16-Jan-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17570 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 09-Jan-2018 Date Analysis Started: 09-Jan-2018 Date Analysis Completed: 16-Jan-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual





Report checked and authorised by : Ashleigh Cunningham Customer Service Advisor Issued by : Ashleigh Cunningham Customer Service Advisor

Concep	t Reference:	707561									
	Project Site:	Newton S	tewart FPS	5							
Custome	r Reference:	17/082	17/082								
Soil Miscellaneous											
			Conce	ot Reference	707561 001	707561 002	707561 003	707561 005	707561 007		
		Custon	ner Samp	le Reference	OP24-TP2 0.8m	OP24-TP10 0.8m	OP24-TP11 1.0m	SP-TP1 0.8m	SP-TP3 0.7m		
			D	ate Sampled	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018		
Determinand	Determinand Method Test LOD Units										
Organic Matter	T2	A40	0.1	%	1.3	1.9	1.1	11.5	2.9		

Concept R	eference:	707561									
Pro	ject Site:	Newton St	tewart FPS								
Customer R	eference:	17/082	17/082								
Soil		Analysed	Analysed as Soil								
BRE SD1 Soil tests											
			Concep	t Reference	707561 004	707561 006	707561 008	707561 009			
		Custon	ner Sampl	e Reference	SP-TP1 0.5m	SP-TP2 0.5m	SP-TP3 0.7m	SP-TP4 0.5m			
			Da	ate Sampled	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018			
Determinand	Method	Test Sample	LOD	Units			1.33				
pН	T7	A40		1.000	8.0	8.3	6.2	5.9			
SO4(Total)	T102	AR	0.01	%	0.08	0.09	0.05	(NR)			
Sulphur (total)	T6	A40	0.01	%	0.36	0.52	0.19	(NR)			

Concept Refere	nce: 707	561								
Project	Site: New	Newton Stewart FPS								
Customer Refere	nce: 17/0	17/082								
Leachate 2:1	Anal	ysed as Wa	ater							
BRE SD1 2:1 Leachate tests										
			Concep	ot Reference	707561 004	707561 006	707561 008	707561 009		
		0		- Deference	SP-TP1 0.5m	SP-TP2 0.5m	SP-TP3 0.7m			
		Custon	ner Sampi	e Reference	SP-1P1 0.5m	SP-1P2 0.5m	SP-1P3 0.7m	SP-1P4 0.5m		
		Custon			08-JAN-2018	-				
Determinand	Method	Test Sample			-	-				
	Method T686	Test	Da	ate Sampled	-	-				
		Test Sample	LOD	ate Sampled Units	08-JAN-2018	08-JAN-2018	08-JAN-2018	08-JAN-2018		
Ammonia expressed as NH4	T686	Test Sample 2:1	0.05	units mg/l	08-JAN-2018	08-JAN-2018	08-JAN-2018	<0.05		

mg/l

T82

Sulphate

2:1

10

Index to symbols used in 707561-1

15

<10

<10

13

Value	Description				
A40	Assisted dried < 40C				
AR	As Received				
2:1	Leachate 2:1				
NR	No Result				
U	Analysis is UKAS accredited				
N	Analysis is not UKAS accredited				

Notes

Sample 009 for ICP OES Sulphur and HCL acid sulphate and Sulphide being reported as NR due to sample matrix affecting testing.

Method Index

Value	Description
T82	ICP/OES (Sim)
T686	Discrete Analyser
T6	ICP/OES
T7	Probe

T102	ICP/OES (HCI extract)
T2	Grav

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Organic Matter	T2	A40	0.1	%	N	001-003,005,007
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	004,006,008-009
Chloride	T686	2:1	1	mg/l	U	004,006,008-009
Magnesium	T82	2:1	1	mg/l	N	004,006,008-009
Nitrate	T686	2:1	0.5	mg/l	U	004,006,008-009
Sulphate	T82	2:1	10	mg/l	N	004,006,008-009
рН	T7	A40			U	004,006,008-009
SO4(Total)	T102	AR	0.01	%	N	004,006,008-009
Sulphur (total)	Т6	A40	0.01	%	N	004,006,008-009





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Concept Life Sciences

Certificate of Analysis

16 Langlands Place Kelvin South Business Park East Kilbride G75 0YF Tel: 01355 573340 Fax: 01355 573341

Report Number: 720972-1

Date of Report: 19-Mar-2018

Customer: Holequest Winston Road Galashiels TD1 2DA

Customer Contact: Mr Craig Rodger

Customer Job Reference: 17/082 Customer Purchase Order: 17738 Customer Site Reference: Newton Stewart FPS Date Job Received at Concept: 08-Mar-2018 Date Analysis Started: 11-Mar-2018 Date Analysis Completed: 19-Mar-2018

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical

Services Quality Manual





Report checked and authorised by : Emma Hilton **Customer Service Advisor**

Issued by : Emma Hilton

Customer Service Advisor F Utt

Page 1 of 5 720972-1

Concept Refere	ence: 720972											
Project	Site: Newtor	on Stewart FPS										
Customer Refere	ence: 17/082											
Soil	Analys	sed as Soil										
Miscellaneous												
		Conce	pt Reference	720972 005	720972 006	720972 010	720972 011	720972 012				
	Cust	omer Samp	le Reference	TP13-OP6 0.4m	TPW1-OP6 0.2m	TP2-OP6 0.4m	TP2-OP7 2.5m	TP4-OP7 0.8n				
		D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018				
Determinand Met	hod Test Sample	LOD	Units									
Organic Matter T	2 A40	0.1	%	2.1	13.0	2.7	4.6	1.4				

Concep	Reference:	720972							
I	Project Site:	Newton S	tewart FPS	6					
Custome	Reference:	17/082							
Soil Miscellaneous		Analysed	as Soil						
			Concer	ot Reference	720972 014	720972 015	720972 021	720972 022	720972 024
		Custon		e Reference	TP9-OP6 0.5m	TP9-OP6 1.0m	BH11-OP6 0.9m	BH11-OP6 1.3m	BH12-OP6 0.5m
			Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units		See. L.		1800	
Organic Matter	T2	A40	0.1	%	6.9	5.0	4.9	1.5	0.8

Concept Reference:	720972									
Project Site:	Newton S	Newton Stewart FPS								
Customer Reference:	17/082									
Soil	Analysed	as Soil								
Miscellaneous										
		Concep	t Reference	720972 025	720972 026					
	Custon		e Reference							
	Custon	ner Sampl		BH13-OP6 0.5m						
Determinand Method	Custon Test Sample	ner Sampl	e Reference	BH13-OP6 0.5m	BH14-OP6 2.8m					



Concept Reference: 720972 Project Site: Newton Stewart FPS Customer Reference: 17/082

Soil Soil Suite		Analysed	as Soil						
			Concep	ot Reference	720972 001	720972 002	720972 003	720972 004	720972 007
		Custor	ner Sampl	e Reference	HP10-OP6 0.2m	HP11-OP6 0.2m	HP12-OP6 0.2m	TP12-OP7 0.6m	HP1-OP6 0.2m
Date Sampled					06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units					
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted	Extracted
pН	T7	A40			5.9	7.4	6.4	6.6	8.4
(Acid Soluble) SO4	T192	A40	0.01	%	0.08	0.16	0.12	0.04	0.18
Sulphur (total)	Т6	A40	0.01	%	0.03	0.07	0.07	0.02	0.09

Concep	t Reference:	720972							
	Project Site:	Newton S	tewart FPS	6					
Custome	r Reference:	17/082							
Soil		Analysed	as Soil						
Soil Suite									
			Concep	t Reference	720972 008	720972 009	720972 010	720972 013	720972 014
		Custon	ner Sampl	e Reference	HP2-OP7 1.0m	HP8-OP6 0.2m	TP2-OP6 0.4m	TP7-OP6 0.7m	TP9-OP6 0.5m
			Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units					÷
Leach Prep (2:1)	T2	AR	1.00		Extracted	Extracted	Extracted	Extracted	Extracted
рН	T7	A40			7.8	7.7	7.9	6.9	6.3
(Acid Soluble) SO4	T192	A40	0.01	%	0.02	0.12	0.19	0.05	0.12
Sulphur (total)	T6	A40	0.01	%	<0.01	0.10	0.07	0.03	0.05

Concept Re	eference:	720972							
Pro	Newton St	tewart FPS	5						
Customer Reference: 17/082									
Soil		Analysed	as Soil						
Soil Suite									
			Concep	t Reference	720972 016	720972 017	720972 018	720972 019	720972 020
Customer Sample Reference					BH1-OP6 0.5m	BH4-OP6 0.5m	BH5-OP6 0.2m	BH7-OP6 1.0m	BH8-OP6 0.5m
			Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units					
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted	Extracted
рН	T7	A40			7.1	7.8	11.8	8.1	7.2
(Acid Soluble) SO4	T192	A40	0.01	%	0.09	0.18	0.28	0.12	0.07
Sulphur (total)	T6	A40	0.01	%	0.05	0.07	0.12	0.04	0.04

Concept	Reference:	720972				Course VI	/				
I	Project Site:	Newton S	Newton Stewart FPS								
Custome	r Reference:	17/082									
Soil		Analysed	as Soil								
Soil Suite											
			Conce	ot Reference	720972 021	720972 023	720972 027				
		Custor	ner Sampl	le Reference	BH11-OP6 0.9m	BH12-OP6 0.2m	BH1-OP7 1.3m				
			D	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018				
Determinand	Method	Test Sample	LOD	Units							
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted				
pН	T7	A40			6.0	6.8	7.0				
(Acid Soluble) SO4	T192	A40	0.01	%	0.08	0.07	0.03				
Sulphur (total)	Т6	A40	0.01	%	0.03	0.03	0.02				

Concept Reference: 720972 Project Site: Newton Stewart FPS Customer Reference: 17/082

Leachate 2:1

Nitrate

Dissolved SO4(Total)

Analysed as Water Suite A Concept Reference 720972 001 720972 002 720972 003 720972 004 720972 007 **Customer Sample Reference** HP10-OP6 0.2m HP11-OP6 0.2m TP12-OP7 0.6m HP12-OP6 0.2m HP1-OP6 0.2m Date Sampled 06-MAR-2018 06-MAR-2018 06-MAR-2018 06-MAR-2018 06-MAR-2018 Test Sample Determinand Method LOD Units Ammonia expressed as NH4 T686 0.05 2:1 mg/l <0.05 < 0.05 < 0.05 < 0.05 < 0.05 Chloride T686 2:1 1 9 2 1 <1 <1 mg/l Magnesium T82 2:1 1 2 4 3 1 1 mg/l Nitrate T686 2:1 0.5 11 3.5 2.3 2.0 10 mg/l Dissolved SO4(Total) T285 2:1 10 mg/l <10 30 11 <10 <10

Concept Reference: 720972 Project Site: Newton Stewart FPS Customer Reference: 17/082 Leachate 2:1 Analysed as Water Suite A 720972 014 **Concept Reference** 720972 008 720972 009 720972 010 720972 013 **Customer Sample Reference** HP2-OP7 1.0m HP8-OP6 0.2m TP2-OP6 0.4m TP7-OP6 0.7m TP9-OP6 0.5m Date Sampled 06-MAR-2018 06-MAR-2018 06-MAR-2018 06-MAR-2018 06-MAR-2018 Test Method Units LOD Determinand Sample Ammonia expressed as NH4 T686 0.05 <0.05 2:1 mg/l <0.05 <0.05 <0.05 <0.05 Chloride T686 2:1 1 mg/l 1 1 <1 2 2 Magnesium T82 1 2:1 5 3 2 <1 4 mg/l

Concept Reference: 720972 Project Site: Newton Stewart FPS

T686

T285

2:1

2:1

0.5

10

mg/l

mg/l

Customer Refere	ence: 17/0)82							
Leachate 2:1	Ana	lysed as W	ater						
Suite A									
			Concep	ot Reference	720972 016	720972 017	720972 018	720972 019	720972 020
		Custor	ner Sampl	le Reference	BH1-OP6 0.5m	BH4-OP6 0.5m	BH5-OP6 0.2m	BH7-OP6 1.0m	BH8-OP6 0.5m
			Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018	06-MAR-2018
Determinand	Method	Test Sample	LOD	Units					
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	0.11	<0.05	<0.05
Chloride	T686	2:1	1	mg/l	1	1	15	9	2
Magnesium	T82	2:1	1	mg/l	2	<1	<1	<1	2
Nitrate	T686	2:1	0.5	mg/l	5.9	3.0	0.6	4.2	2.4
Dissolved SO4(Total)	T285	2:1	10	mg/l	<10	11	100	17	<10

1.3

<10

19

38

1.9

<10

6.5

<10

13

21

Concept Refere	ence: 720	972											
Project	Project Site: Newton Stewart FPS												
Customer Refere	ence: 17/0	82											
Leachate 2:1 Suite A	Ana	lysed as Wa	ater										
Concept Reference 720972 021 720972 023 720972 027													
		Custon	ner Sampl	e Reference	BH11-OP6 0.9m	BH12-OP6 0.2m	BH1-OP7 1.3m						
			Da	ate Sampled	06-MAR-2018	06-MAR-2018	06-MAR-2018						
Determinand	Method	Test Sample	LOD	Units									
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	<0.05	<0.05						
Chloride	T686	2:1	1	mg/l	2	<1	<1						
Magnesium	T82	2:1	1	mg/l	<1	7	3						
Nitrate	T686	2:1	0.5	mg/l	6.5	8.4	<0.5						
Dissolved SO4(Total)	T285	2:1	10	mg/l	51	<10	<10						

Index to symbols used in 720972-1

Value	Description
2:1	Leachate 2:1
A40	Assisted dried < 40C
AR	As Received
U	Analysis is UKAS accredited
Ν	Analysis is not UKAS accredited

Method Index

Value	Description
T82	ICP/OES (Sim)
T686	Discrete Analyser
T2	Grav
T6	ICP/OES
T192	HCI Extraction/ICP/OES (TRL 447 T2)
T285	ICP/OES (SIM) (Filtered)
T7	Probe

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References	
Leach Prep (2:1)	T2	AR			N	001-004,007-010,013-014,016-021,023,027	
pН	T7	A40			U	001-004,007-010,013-014,016-021,023,027	
(Acid Soluble) SO4	T192	A40	0.01	%	Ν	001-004,007-010,013-014,016-021,023,027	
Sulphur (total)	T6	A40	0.01	%	N	001-004,007-010,013-014,016-021,023,027	
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	001-004,007-010,013-014,016-021,023,027	
Chloride	T686	2:1	1	mg/l	U	001-004,007-010,013-014,016-021,023,027	
Magnesium	T82	2:1	1	mg/l	N	001-004,007-010,013-014,016-021,023,027	
Nitrate	T686	2:1	0.5	mg/l	U	001-004,007-010,013-014,016-021,023,027	
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	001-004,007-010,013-014,016-021,023,027	
Organic Matter	T2	A40	0.1	%	N	005-006,010-012,014-015,021-022,024-026	

APPENDIX V

In-situ Testing





icate No. 007883









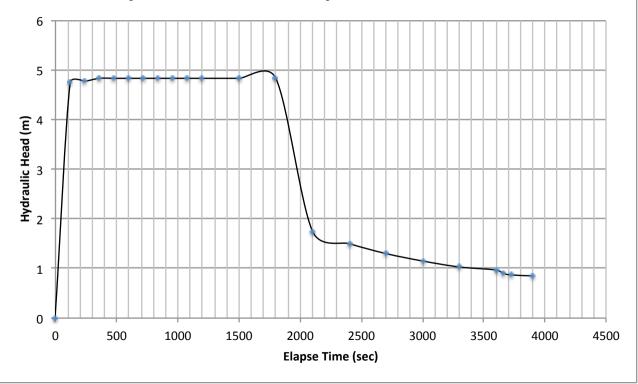
Type of Filter 10mm Single Size Gravel Isolation Device N/A Diameter of Filter Tube (m) 0.05 Test section Diameter (m) 0.17 Upper level (m) 1.00 Lower level (m) 6.00 Length (m) Time Flow Rate Hydraulic Head Time Flow Rate Hydraulic Head			Permeability	Test in a Boreh	ole using Open Sys	stems		
Project Newton Stewart FPS Client $ \ $			Γ	0 22282-2				
EngineerSWE/FigureSWE/FigureContract Number1 Date2.3.04.18Test MethodRotary OP-HoleStaticParticipant2.3.04.182.3.04.182.3.04.18Drilling MethodRotary OP-HoleStaticParticipant2.3.04.18Participant2.3.04.18Participant2.3.04.18ParticipantParticipant2.3.04.18Participant <th>Project</th> <th></th> <th>Newton Stev</th> <th>vart FPS</th> <th>Client</th> <th></th> <th colspan="2"></th>	Project		Newton Stev	vart FPS	Client			
Drilling Method Rotary Open Hole Static Hydraulic Hydraulic Head (m) 4.80 4.80 A.80 Head (m) Borehole No. BH1-OP6 Easting (m) 240948.715 Northing (m) 566124.095 Elevation 15.0 Type of Filter 10mm Single Size Gravel Isolation N/A Diameter of Filter Tube (m) 0.05 Elevation 15.0 Test section 0.17 Upper level (m) 1.00 Lower level (m) 6.00 Length (m) Head Time Flow Rate Hydraulic Head (sec) V (m3/hr) Head h (m) Changes Δh V (m3/hr) Head h (m) Changes Δh 0			SWEC	0	Contract Number		17.	/082
Hydraulic 4.80 $5.66124.095$ $Elevation$ 15.4 Type of Filter $10mm$ Single $Size Gravel$ $Dovice$ 100 $Chours level(m)$ 0.05 100 1000	Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Image: state s	Drilling Method		Rotary Ope	en Hole	Static			
Berehole No.BH1-OP6Easting (m)240948.71sNorthing (m)566124.09sElevation15.1Type of Filter10mm SingleIsolationN/ADiameter of Filter Tube (m)0.05111 <t< td=""><td></td><td></td><td></td><td></td><td>Hydraulic</td><td>4.80</td><td></td><td></td></t<>					Hydraulic	4.80		
Type of Filter 10mm Single Size Gravel Isolation Device N/A Diameter of Filter Tube (m) 0.05 Image (m)					Head (m)			
Size GravelDeviceFilter Tube (m) $($	Borehole No.	BH1-OP6	Easting (m)	240948.715	Northing (m)	566124.095	Elevation	15.004
Test section Diameter (m)Upper level (m)1.00Lower level (m)6.00Length (m)Head MTimeFlow RateHydraulicHeadTimeFlow RateHydraulicHead(scc)V (m3/m)Head h (m)Changes Δh(sec)V (m3/m)Head h (m)Changes Δh00000V (m3/m)Head h (m)Changes ΔhSec)V (m3/m)Head h (m)Changes Δh100000000010001000100011203.244.770.0300000020403.244.770.030000003603.244.830.0600000003603.244.830.06000000003603.244.830.0600	Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
Diameter (m) I I Head I <thi< th=""> I I</thi<>		Size Gravel	Device		Filter Tube (m)			
Time (sec) Flow Rate V (m3/hr) Hydraulic Head $h (m)$ Head Changes Δh Time (sec) Flow Rate V (m3/hr) Hydraulic Head $h (m)$ Head Changes Δh 0 0 0 0 V (m3/hr) Head $h (m)$ Changes Δh 120 3.24 4.74 4.74 Image: A fract frac	Test section	0.17	Upper level (m)	1.00	Lower level (m)	6.00	Length (m)	5.0
(sec) $V (m3/hr)$ Head $h(m)$ Changes Δh (sec) $V (m3/hr)$ Head $h(m)$ Changes00000000120 3.24 4.74 4.74 4.74 0.0300240 3.24 4.77 0.03 0000360 3.24 4.83 0.06 0000480 3.24 4.83 00000600 3.24 4.83 00000720 3.24 4.83 00000840 3.24 4.83 00000960 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 000001180 3.24 4.83 0.200001180 3.24 4.83	Diameter (m)							
0 0	Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
120 3.24 4.74 4.74	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
240 3.24 4.77 0.03	-							
360 3.24 4.83 0.06 480 3.24 4.83 0 600 3.24 4.83 0 </td <td>120</td> <td>3.24</td> <td>4.74</td> <td></td> <td></td> <td></td> <td></td> <td></td>	120	3.24	4.74					
480 3.24 4.83 0	240		4.77					
600 3.24 4.83 0				0.06				
720 3.24 4.83 0								
840 3.24 4.83 0								
960 3.24 4.83 0								
1080 3.24 4.83 0								
1200 3.24 4.83 0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
1500 3.24 4.83 0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
1800 3.24 4.83 0 2100 Hole Filled 1.75 -3.08 2400 1.5 -0.25 2700 1.3 -0.2				_				
2100 Hole Filled 1.75 -3.08 <								
2400 1.5 -0.25 2700 1.3 -0.2								
2700 1.3 -0.2								
3300 1.03 -0.12								

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3600	0.97	-0.06		
3660	0.9	-0.07		
3720	0.87	-0.03		
3900	0.85	-0.02		

Hydraulic Head vs Elapse Time - BH1-OP6





te No. 642



ıte No. 007883









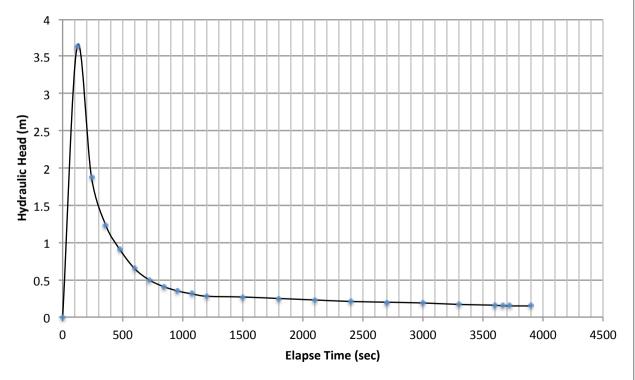
			according to IS	O 22282-2				
Project		Newton Stev	vart FPS	Client		Dumfries and Galloway Council		
Engineer		SWEC		Contract Number			/082	
Test Method		Constant		Test No.	1	Date	23.04.18	
Drilling Method		Rotary Ope	en Hole	Static				
				Hydraulic	3.80			
	1		1	Head (m)				
Borehole No.	BH2-OP6	Easting (m)	240979.611	Northing (m)	566048.039	Elevation	14.046	
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05			
	Size Gravel	Device		Filter Tube (m)				
Test section	0.17	Upper level (m)	1.00	Lower level (m)	5.00	Length (m)	4.0	
Diameter (m)								
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆/	
0	0	0	0					
120	1.5	3.63	3.63					
240	Hole Filled	1.88	-1.75					
360		1.23	-0.65					
480		0.9	-0.33					
600		0.65	-0.25					
720		0.5	-0.15					
840		0.41	-0.09					
960		0.35	-0.06					
1080		0.31	-0.04					
1200		0.28	-0.03					
1500		0.27	-0.01					
1800		0.25	-0.02					
2100 2400		0.23	-0.02					
2400		0.21	-0.02					
3000		0.2	-0.01					
3300		0.19	-0.01					

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3600	0.16	-0.01		
3660	0.15	-0.01		
3720	0.15	0		
3900	0.15	0		

Hydraulic Head vs Elapse Time - BH2-OP6







icate No. 007883









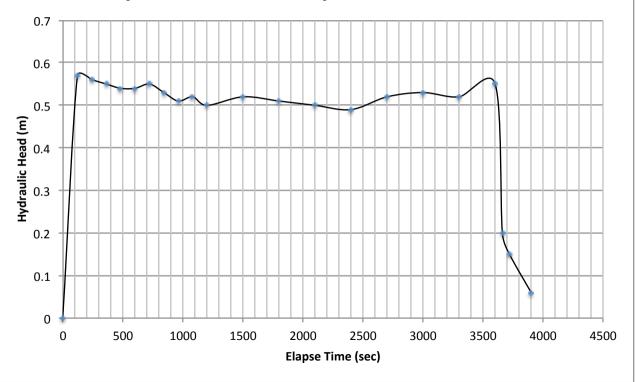
		Permeability	Test in a Boreh	ole using Open Sy	stems		
			O 22282-2				
Project		Newton Stev	vart FPS	Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	24.04.18
Drilling Method		Rotary Ope	en Hole	Static			
				Hydraulic	2.80		
	I		I	Head (m)			
Borehole No.	BH3-OP6	Easting (m)	241054.871	Northing (m)	565871.328	Elevation	10.943
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	5.00	Length (m)	4.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	2.8	0.57	0.57				
240	2.8	0.56	-0.01				
360	2.8	0.55	-0.01				
480	2.8	0.54	-0.01				
600	2.8	0.54	0				
720	2.8	0.55	0.01				
840	2.8	0.53	-0.02				
960	2.8	0.51	-0.02				
1080 1200	2.8	0.52	0.01				
1200	2.8	0.52	0.02				
1800	2.8	0.52	-0.02				
2100	2.8	0.5	-0.01				
2400	2.8	0.49	-0.01				
2700	2.8	0.52	0.03				
3000	2.8	0.53	0.01				
3300	2.8	0.52	-0.01				

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3600	2.8	0.55	0.03		
3660		0.2	-0.35		
3720		0.15	-0.05		
3900		0.06	-0.09		

Hydraulic Head vs Elapse Time - BH3-OP6







icate No. 007883









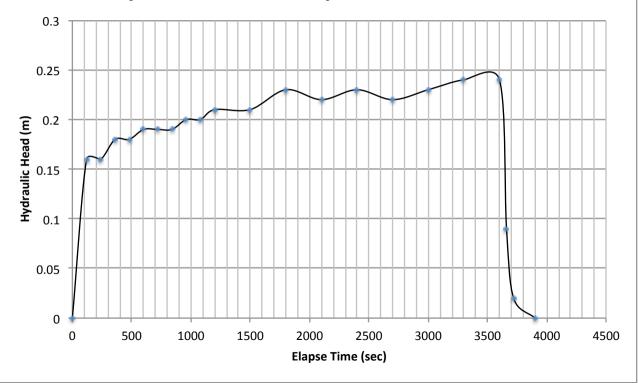
		Permeability	Test in a Boreh	ole using Open Sy	stems		
			O 22282-2		<u> </u>		
Project		Newton Stev	vart FPS	Client		Dumfries and Galloway Council	
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	24.04.18
Drilling Method		Rotary Ope	en Hole	Static			
				Hydraulic	2.10		
			ſ	Head (m)			
Borehole No.	BH5-OP6	Easting (m)	241139.807	Northing (m)	565580.638	Elevation	9.148
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	4.50	Lower level (m)	13.00	Length (m)	8.5
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.56	0.16	0.16				
240	3.56	0.16	0				
360	3.56	0.18	0.02				
480	3.56	0.18	0				
600 720	3.56 3.56	0.19	0.01				
840	3.56	0.19	0				
960	3.56	0.13	0.01				
1080	3.56	0.2	0.01				
1200	3.56	0.21	0.01				
1500	3.56	0.21	0				
1800	3.56	0.23	0.02				
2100	3.56	0.22	-0.01				
2400	3.56	0.23	0.01				
2700	3.56	0.22	-0.01				
3000	3.56	0.23	0.01				
3300	3.56	0.24	0.01				

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3600	3.56	0.24	0		
3660		0.09	-0.15		
3720		0.02	-0.07		
3900		0	-0.02		

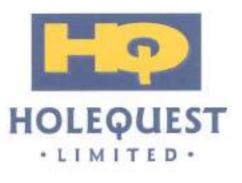
Hydraulic Head vs Elapse Time - BH5-OP6







icate No. 007883









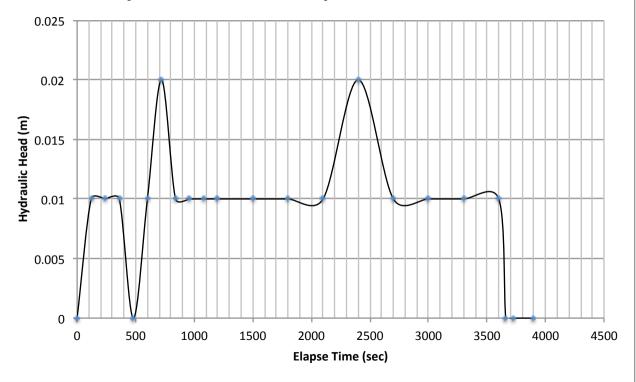
		Permeability	Test in a Boreh	ole using Open Sys	tems		
		Γ	O 22282-2				
Project		Newton Stewart FPS C		Client		Dumfries and Galloway Council	
Engineer		SWEC	0	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Drilling Method		Rotary Ope	en Hole	Static			
				Hydraulic	2.40		
	I			Head (m)			
Borehole No.	BH07-OP6	Easting (m)	241242.253	Northing (m)	565279.55	Elevation	7.992
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	1.00	Lower level (m)	12.00	Length (m)	11.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	2.88	0.01	0.01				
240	2.88	0.01	0				
360	2.88	0.01	0				
480	2.88	0	-0.01				
600 720	2.88	0.01	0.01				
840	2.88	0.02	0.01				
960	2.88	0.01	-0.01				
1080	2.88	0.01	0				
1200	2.88	0.01	0				
1500	2.88	0.01	0				
1800	2.88	0.01	0		1		
2100	2.88	0.01	0				
2400	2.88	0.02	0.01				
2700	2.88	0.01	-0.01				
3000	2.88	0.01	0				
3300	2.88	0.01	0				

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3600	2.88	0.01	0		
3660		0	-0.01		
3720		0	0		
3900		0	0		

Hydraulic Head vs Elapse Time - BH7-OP6







icate No. 007883









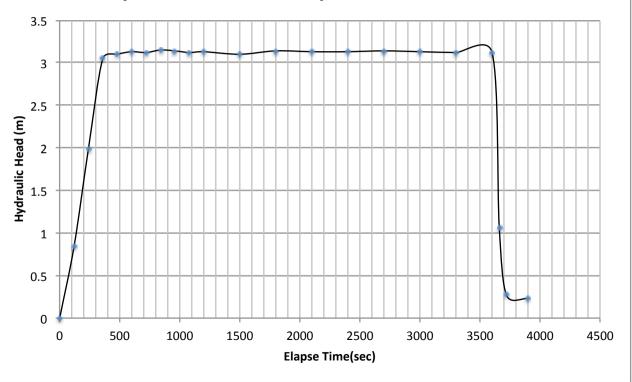
		Permeability	Test in a Boreh	ole using Open Sys	stems		
		I	according to IS	0 22282-2			
Project		Newton Stev	vart FPS	Client		Dumfries and Galloway Council	
Engineer		SWEC	0	Contract Number		17,	/082
Test Method		Constant Flow		Test No.	1	Date	23.04.18
Drilling Method		Rotary Ope	en Hole	Static			
				Hydraulic	3.90		
			Γ	Head (m)			
Borehole No.	BH8-OP6	Easting (m)	241250	Northing (m)	565099.302	Elevation	9.441
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	4.00	Lower level (m)	10.00	Length (m)	6.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	3.16	0.84	0.84				
240	3.16	1.99	1.15				
360	3.16	3.05	1.06				
480	3.16	3.1	0.05				
600	3.16	3.13	0.03				
720	3.16	3.12	-0.01				
840	3.16	3.15	0.03				
960	3.16	3.14	-0.01				
1080	3.16	3.12	-0.02				
1200	3.16	3.13	0.01				
1500 1800	3.16 3.16	<u>3.1</u> 3.14	-0.03				
2100	3.16	3.14	-0.01				
2400	3.16	3.13	0.01				
2700	3.16	3.14	0.01				
3000	3.16	3.13	-0.01				
3300	3.16	3.12	-0.01				<u> </u>

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3600	3.16	3.12	0		
3660		1.06	-2.06		
3720		0.27	-0.79		
3900		0.23	-0.04		

Hydraulic Head vs Elapse Time - BH8-OP6







icate No. 007883









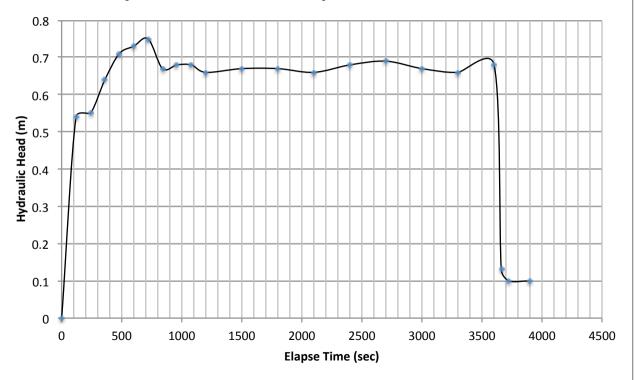
	Permeability	Test in a Boreh	ole using Open Sy	stems			
		according to IS	O 22282-2				
Project Engineer Test Method		Newton Stewart FPS SWECO Constant Flow			Dumfries and Galloway Council		
				Contract Number		17/082	
				1	Date	23.04.18	
Drilling Method							
				Hydraulic 3.90			
		1	Head (m)				
BH9-OP6	Easting (m)	241294.904	Northing (m)	564986.199	Elevation	8.464	
10mm Single	Isolation	N/A	Diameter of	0.05			
Size Gravel	Device		Filter Tube (m)				
0.17	Upper level (m)	1.00	Lower level (m)	10.00	Length (m)	9.0	
Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	
0	0	0					
	10mm Single Size Gravel 0.17 Flow Rate V (m3/hr)	Newton Stev SWEC SWEC Constant Rotary Ope BH9-OP6 Easting (m) 10mm Single Isolation Size Gravel Device 0.17 Upper level (m) Flow Rate Hydraulic V (m3/hr) Head h (m) 0 0 3.12 0.55 3.12 0.54 3.12 0.54 3.12 0.55 3.12 0.64 3.12 0.64 3.12 0.64 3.12 0.65 3.12 0.67 3.12 0.68 3.12 0.68 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66 3.12 0.66	according to IS Newton Stewart FPS SWEC Constart Flow Rotary Open Hole BH9-OP6 Easting (m) 241294.904 10mm Single Isolation N/A Size Gravel Device 0.17 Upper level (m) 1.00 Flow Rate Hydraulic Head V (m3/hr) Head h (m) Changes Δh 3.12 0.55 0.01 3.12 0.55 0.01 3.12 0.66 0.02 3.12 0.61 0.02 3.12 0.63 0.01 3.12 0.67 0.02 3.12 0.66 0.01 3.12 0.66 0.02 3.12 0.66 0.01 3.12 0.66 0.01 3.12 0.66 0.02 3.12 0.66 0.02 3.12 0.66 0	according to ISO 22282-2 Newton Stewart FPS Client SWECO Contract Number Constant Flow Test No. Rotary Oper Hole Static Hydraulic Head (m) BH9-OP6 Easting (m) 241294.904 Northing (m) 10mm Single Isolation N/A Diameter of Size Gravel Device Filter Tube (m) 1.00 0.17 Upper level (m) 1.00 Lower level (m) 0.17 Upper level (m) 1.00 Lower level (m) 0 0 0 0 1.00 Flow Rate Hydraulic Head Time V (m3/hr) Head h (m) Changes Δh (sec) 0 0 0 0 1.00 3.12 0.55 0.01 1.01 3.12 0.64 0.09 1.01 3.12 0.67 0.02 1.01 3.12 0.67 0.08 1.01 3.12	Newton Stewart FPS Client SWECO Contract Number Constant Flow Test No. 1 Rotary Open Hole Static Hydraulic 3.90 Head (m) Head (m) 564986.199 10mm Single Isolation N/A Diameter of 0.05 Size Gravel Device Filter Tube (m) 10.00 10.00 10.00 Flow Rate Hydraulic Head Time Flow Rate V (m3/hr) Head h (m) Changes Δh (sec) V (m3/hr) 0 0 0 0 10.01 10.01 3.12 0.54 0.54 10.01 10.00 3.12 0.55 0.01 10.01 10.00 3.12 0.54 0.54 10.01 10.00 3.12 0.55 0.01 10.00 10.01 10.00 3.12 0.64 0.09 10.01 10.01 10.01 10.01 10.01 10.01 10.01 10.01 10.01	according to ISO 22282-2 Dumfries a Cient Dumfries a Contract Number Data BH3-OP6 Easting (m) 241294.904 Northing (m) 564986.199 Elevation 10mm Single Isolation N/A Diameter of 0.05 Elevation 0.10 Upper level (m) 1.00 Lower level (m) 10.00 Length (m) flow Rate Hydraulic Head Time Flow Rate Hydraulic V (m3/hr) Head h (m) Changes Δh (sec) V (m3/hr) Head h (m) 3.12 0.55 0.01 Image: Dame Image: Da	

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3600	3.12	0.68	0.02		
3660		0.13	-0.55		
3720		0.1	-0.03		
3900		0.1	0		

Hydraulic Head vs Elapse Time - BH9-OP6







icate No. 007883









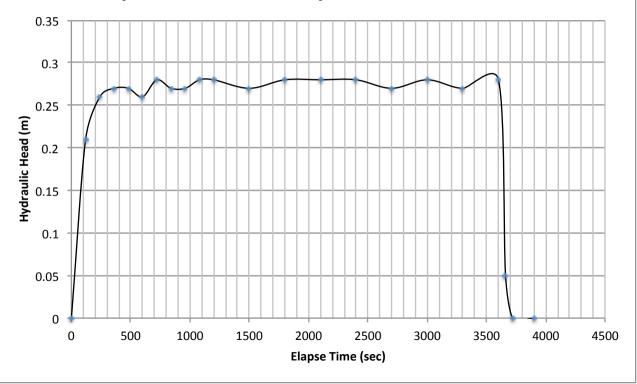
	Permeability	Test in a Boreh	ole using Open Sy	stems			
	Γ	according to IS	O 22282-2				
Project Engineer Test Method		Newton Stewart FPS SWECO Constant Flow			Dumfries and Galloway Council		
						17/082	
				1	Date	25.04.18	
Drilling Method							
				2.10			
		1	Head (m)				
BH11-OP6	Easting (m)	241240.514	Northing (m)	565493.291	Elevation	8.252	
10mm Single	Isolation	N/A	Diameter of	0.05			
Size Gravel	Device		Filter Tube (m)				
0.17	Upper level (m)	1.00	Lower level (m)	12.00	Length (m)	11.0	
Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	
0	0	0					
3.74	0.21	0.21					
3.74	0.26	0.05					
		0					
	10mm Single Size Gravel 0.17 Flow Rate <i>V (m3/hr)</i> 0 3.74	Newton Stev SWEC SWEC Constant Rotary Ope BH11-OP6 Easting (m) 10mm Single Size Gravel Ontro Device 0.17 Upper level (m) V (m3/hr) Head h (m) 0 3.74 0.27 3.74 0.26 3.74 0.27 3.74 0.27 3.74 0.27 3.74 0.27 3.74 0.27 3.74 0.27 3.74 0.27 3.74 0.28 3.74 0.28 3.74 0.28 3.74 0.28 3.74 0.28 3.74 0.28 3.74 0.28	according to IS Newton Stew FPS SWEC Constart FPS Rotary Oper Hole BH11-OP6 Easting (m) 241240.514 10mm Single Isolation N/A Size Gravel Device N/A 0.17 Upper level (m) 1.00 Flow Rate Hydraulic Head V (m3/hr) Head h (m) Changes Δh 3.74 0.21 0.01 3.74 0.26 0.00 3.74 0.27 0.01 3.74 0.28 0.01 3.74 0.27 0.01 3.74 0.27 0.01 3.74 0.28 0.01 3.74 0.27 0.01 3.74 0.28 0.01 3.74 0.28 0.01 3.74 0.28 0.01 3.74 0.28 0.01 3.74 0.28 0.01	according to ISO 22282-2 Newton Stewart FPS Client SWECO Contract Number Constant Flow Test No. Rotary Oper Hole Static Hydraulic Hydraulic Head (m) Static BH11-OP6 Easting (m) 241240.514 Northing (m) 10mm Single Isolation N/A Diameter of Size Gravel Device Filter Tube (m) Lower level (m) 0.17 Upper level (m) 1.00 Lower level (m) 0.17 Upper level (m) 1.00 Lower level (m) 0 0 0 0 0 3.74 0.21 0.21 . 3.74 0.26 0.05 . 3.74 0.27 0.01 . 3.74 0.27 0.01 . 3.74 0.27 0.01 . 3.74 0.28 0.01 . 3.74 0.28 0.01 . 3.74<	Newton Stewart FPS Client SWECO Contract Number Constant Flow Test No. 1 Rotary Open Hole Static Hydraulic 2.10 Hudrautic 241240.514 Northing (m) 565493.291 10mm Single Isolation N/A Diameter of 0.05 Size Gravel Device Filter Tube (m) 12.00 0.17 Upper level (m) 1.00 Lower level (m) 12.00 Flow Rate Hydraulic Head Time Flow Rate V (m3/hr) Head h (m) Changes Δh (sec) V (m3/hr) 0 0 0 0 1 1 3.74 0.21 0.21 1 1 3.74 0.27 0.01 1 1 3.74 0.27 0.01 1 1 3.74 0.28 0.02 1 1 3.74 0.28 0.01 1 1 3.74 0.28 <	according to ISO 22282-2 Dumfries a Contract Number Constant Flow Test No. 1 Date BH1-OP6 Easting (m) 241240.514 Northing (m) S65493.291 Elevation 10mm Single Isolation N/A Diameter of 0.05 Elevation 10mm Single Isolation N/A Diameter of 0.05 Elevation 10mm Single Isolation N/A Diameter of 0.05 Elevation 10mm Single Static Head (m) Leagt M Item Colspan=M Hydraulic 10mm Single Hydraulic Head Med Time Flow Rate Hydraulic 1010 O 0 0 0 0 0 12.00 Length (m) 1011 Head M(

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3600	3.74	0.28	0.01		
3660		0.05	-0.23		
3720		0	-0.05		
3900		0	0		

Hydraulic Head vs Elapse Time - BH11-OP6







icate No. 007883









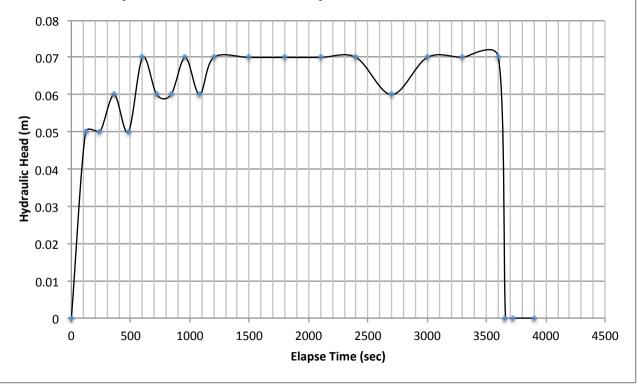
		Permeability	Test in a Boreh	ole using Open Sys	stems			
		Γ	according to IS	O 22282-2				
Project Engineer Test Method		Newton Stewart FPS SWECO Constant Flow		Client Contract Number		Dumfries and Galloway Council 17/082		
								Test No.
				Drilling Method		,		Static
Hydraulic 3.10								
				Head (m)				
Borehole No.	BH12-OP6	Easting (m)	241304.378	Northing (m)	565357.366	Elevation	8.308	
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05			
	Size Gravel	Device		Filter Tube (m)				
Test section	0.17	Upper level (m)	1.00	Lower level (m)	13.00	Length (m)	12.0	
Diameter (m)								
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
(sec)	V (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	
0	0	0	0					
120	4.32	0.05	0.05					
240	4.32	0.05	0					
360	4.32	0.06	0.01					
480	4.32	0.05	-0.01					
600	4.32	0.07	0.02					
720	4.32	0.06	-0.01					
840	4.32	0.06	0					
960	4.32	0.07	0.01					
1080	4.32	0.06	-0.01					
1200	4.32	0.07	0.01					
1500	4.32	0.07	0					
1800	4.32	0.07	0					
2100	4.32	0.07	0					
2400	4.32	0.07	0					
2700	4.32	0.06	-0.01					
3000	4.32	0.07	0.01					
3300	4.32	0.07	0		1	l	<u> </u>	

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3600	4.32	0.07	0		
3660		0	-0.07		
3720		0	0		
3900		0	0		

Hydraulic Head vs Elapse Time - BH12-OP6





cate No. 642



icate No. 007883









		Permeability	Test in a Boreh	ole using Open Sy	stems			
		Γ	according to IS	O 22282-2		<u> </u>		
Project		Newton Stev	vart FPS	Client			nd Galloway uncil	
Engineer		SWEC	o	Contract Number		17/082		
Test Method Drilling Method		Constant	Flow	Test No.	1	Date	25.04.18	
		Rotary Open Hole		Static				
				Hydraulic	2.20			
	1		Ι	Head (m)				
Borehole No.	BH13-OP6	Easting (m)	241329.323	Northing (m)	565279.663	Elevation	8.066	
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05			
	Size Gravel	Device		Filter Tube (m)				
Test section	0.17	Upper level (m)	1.00	Lower level (m)	14.00	Length (m)	13.0	
Diameter (m)								
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
(sec)	√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	
0	0	0	0					
120	4.4	0.03	0.03					
240	4.4	0.04	0.01					
360	4.4	0.05	0.01					
480	4.4	0.04	-0.01					
600	4.4	0.06	0.02					
720	4.4	0.04	-0.02					
840	4.4	0.05	0.01					
960	4.4	0.05	0					
1080	4.4	0.06	0.01					
1200	4.4	0.05	-0.01					
1500	4.4	0.05	0					
1800	4.4	0.06	0.01					
2100	4.4	0.05	-0.01					
2400	4.4	0.06	0.01					
2700	4.4	0.05	-0.01					
3000	4.4	0.05	0					
3300	4.4	0.06	0.01					

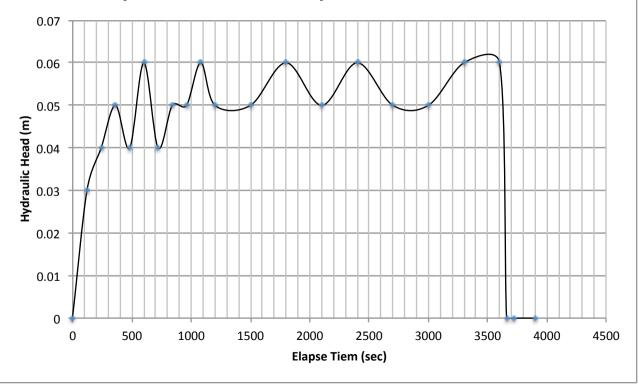
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3600	4.4	0.06	0		
3660		0	-0.06		
3720		0	0		
3900		0	0		

Hydraulic Head vs Elapse Time - BH13-OP6





cate No. 642



icate No. 007883









		Permeability	Test in a Boreh	ole using Open Sy	stems			
		Γ	according to IS	SO 22282-2				
Project		Newton Stewart FPS		Client			nd Galloway uncil	
Engineer		SWECO		Contract Number		17/082		
Test Method		Rotary Open Hole		Test No.	1	Date	25.04.18	
Drilling Method				Static				
				Hydraulic	1.90			
	Γ		r	Head (m)				
Borehole No.	BH14-OP6	Easting (m)	241386.187	Northing (m)	565302.529	7.311		
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05			
	Size Gravel	Device		Filter Tube (m)				
Test section	0.17	Upper level (m)	1.00	Lower level (m)	13.00	Length (m)	12.0	
Diameter (m)								
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
(sec)	V (m3/hr)	Head h (m)	Changes ∆h	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	
0	0	0	0					
120	3.74	0.03	0.03					
240	3.74	0.04	0.01					
360	3.74	0.05	0.01					
480	3.74	0.06	0.01					
600	3.74	0.05	-0.01					
720	3.74	0.05	0					
<u>840</u> 960	3.74 3.74	0.05	0					
1080	3.74	0.05	0					
1200	3.74	0.05	0					
1200	3.74	0.05	0					
1800	3.74	0.05	0					
2100	3.74	0.05	0					
2400	3.74	0.05	0					
2700	3.74	0.05	0					
3000	3.74	0.05	0					
3300	3.74	0.06	0.01					

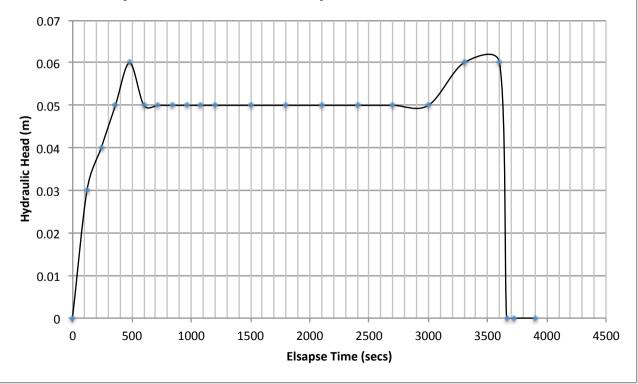
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3600	3.74	0.06	0		
3660		0	-0.06		
3720		0	0		
3900		0	0		

Hydraulic Head vs Elapse Time - BH14-OP6





te No. 642



ıte No. 007883









			according to IS	SO 22282-2				
Project		Newton Stev		Client			nd Galloway uncil	
Engineer Test Method Drilling Method		SWEC	0	Contract Number		17/082		
		Constant Flow		Test No.	1	Date	24.04.18	
		Rotary Ope	en Hole	Static				
				Hydraulic	1.10			
				Head (m)				
Borehole No.	BH1-OP7	Easting (m)	241566.161	Northing (m)	564717.077	Elevation	5.22	
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05			
	Size Gravel	Device		Filter Tube (m)				
Test section	0.17	Upper level (m)	1.00	Lower level (m)	14.00	Length (m)	13.0	
Diameter (m)								
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
(sec)	√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆/	
0	0	0	0					
120	3.07	0.32	0.32					
240	3.07	0.33	0.01					
360	3.07	0.33	0					
480	3.07	0.33	0					
600	3.07	0.33	0					
720	3.07	0.33	0					
840	3.07	0.33	0					
960	3.07	0.33	0					
1080	3.07	0.33	0					
1200	3.07	0.33	0					
<u>1500</u> 1800	3.07 3.07	0.33	0					
2100	3.07	0.33	0					
2100	3.07	0.33	0					
2400	3.07	0.33	0					
3000	3.07	0.33	0					
3300	3.07	0.33	0					

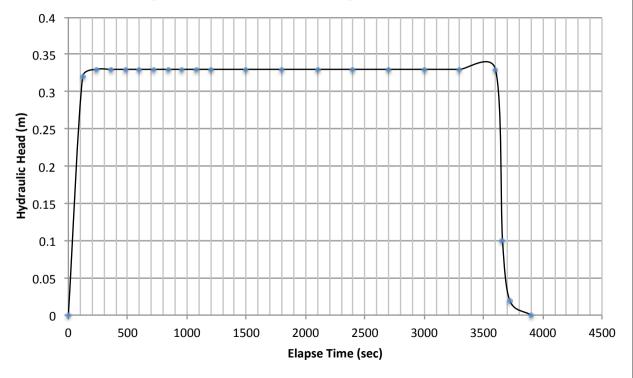
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3600	3.07	0.33	0		
3660		0.1	-0.23		
3720		0.02	-0.08		
3900		0	-0.02		

Hydraulic Head vs Elapse Time - BH1-OP7

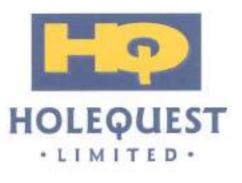




cate No. 642



icate No. 007883









		Permeability	Test in a Boreh	ole using Open Sy	stems		
			according to IS	SO 22282-2		<u> </u>	
Project		Newton Stev	vart FPS	Client			nd Galloway uncil
Engineer		SWEC	o	Contract Number		17/082	
Test Method		Constant	Flow	Test No.	1	Date	23.04.18
Drilling Method	Drilling Method		Rotary Open Hole				
				Hydraulic	3.50		
	I		I	Head (m)			
Borehole No.	BH1-SP	Easting (m)	241242.675	Northing (m)	565144.772	Elevation	9.238
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05		
	Size Gravel	Device		Filter Tube (m)			
Test section	0.17	Upper level (m)	3.00	Lower level (m)	13.00	Length (m)	10.0
Diameter (m)							
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head
(sec)	√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h
0	0	0	0				
120	2.81	0.25	0.25				
240	2.81	0.34	0.09				
360	2.81	0.35	0.01				
480	2.81	0.39	0.04				
600	2.81	0.37	-0.02				
720	2.81	0.37	0				
840	2.81	0.39	0.02				
960 1080	2.81 2.81	0.4	0.01				
1200	2.81	0.4	-0.01				
1200	2.81	0.4	-0.01				
1800	2.81	0.39	0.02				
2100	2.81	0.39	-0.02				
2400	2.81	0.38	-0.01				
2700	2.81	0.4	0.02				
3000	2.81	0.41	0.01				
3300	2.81	0.41	0				

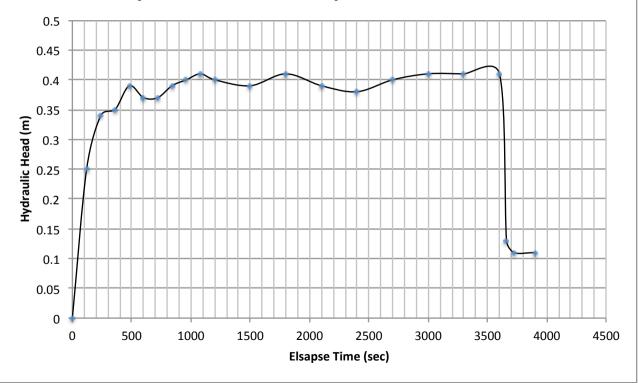
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3600	2.81	0.41	0		
3660		0.13	-0.28		
3720		0.11	-0.02		
3900		0.11	0		

Hydraulic Head vs Elapse Time - BH1-SP

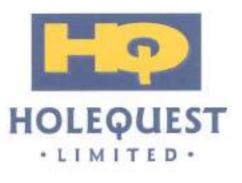




cate No. 642



icate No. 007883









		Permeability	Test in a Boreh	ole using Open Sy	stems			
		Γ	according to IS	0 22282-2				
Project		Newton Stev	vart FPS	Client			nd Galloway uncil	
Engineer		SWEC	o	Contract Number		17/082		
Test Method		Constant	Flow	Test No.	1	Date	24.04.18	
Drilling Method		Rotary Open Hole		Static				
				Hydraulic	1.60			
			ſ	Head (m)				
Borehole No.	BH2-SP	Easting (m)	241297.315	Northing (m)	565148.683	Elevation	7.561	
Type of Filter	10mm Single	Isolation	N/A	Diameter of	0.05			
	Size Gravel	Device		Filter Tube (m)				
Test section	0.17	Upper level (m)	1.00	Lower level (m)	10.00	Length (m)	9.0	
Diameter (m)								
Time	Flow Rate	Hydraulic	Head	Time	Flow Rate	Hydraulic	Head	
(sec)	√ (m3/hr)	Head h (m)	Changes ∆ <i>h</i>	(sec)	√ (m3/hr)	Head h (m)	Changes ∆h	
0	0	0	0					
120	4.25	0.05	0.05					
240	4.25	0.05	0					
360	4.25	0.06	0.01					
480	4.25	0.05	-0.01					
600	4.25	0.06	0.01					
720 840	4.25 4.25	0.06	0					
960	4.25	0.05	-0.01					
1080	4.25	0.05	-0.01					
1200	4.25	0.05	0					
1500	4.25	0.06	0.01					
1800	4.25	0.06	0.01					
2100	4.25	0.06	0					
2400	4.25	0.05	-0.01					
2700	4.25	0.06	0.01					
3000	4.25	0.06	0					
3300	4.25	0.06	0					

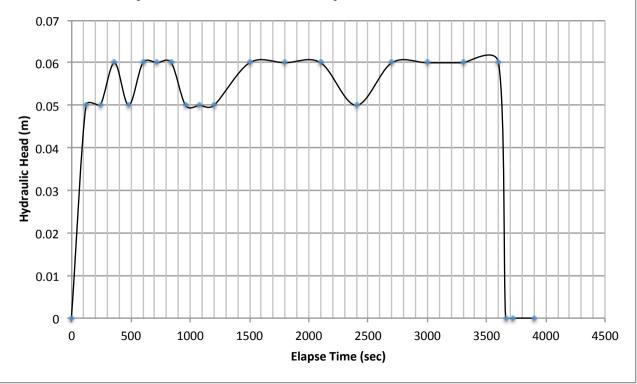
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3600	4.25	0.06	0		
3660		0	-0.06		
3720		0	0		
3900		0	0		

Hydraulic Head vs Elapse Time - BH2-SP



APPENDIX VI

Photographic Records







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH01 OP7





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D







Newton Stewart Flood Protection Scheme CONTRACT: CLIENT: Dumfries and Galloway Council **ENGINEER: SWECO**

BH01 OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH01 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH01 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH02A OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH02A OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







Newton Stewart Flood Protection Scheme CONTRACT: Dumfries and Galloway Council CLIENT: **ENGINEER: SWECO**

BH03 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH03 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

U)







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH04 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH04 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH04 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH05 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH05 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







Newton Stewart Flood Protection Scheme CONTRACT: Dumfries and Galloway Council CLIENT: **ENGINEER: SWECO**

BH03 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH07 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH07 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH08 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH08 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH9 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

U)







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH09 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH9 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH09 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH11 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

U)

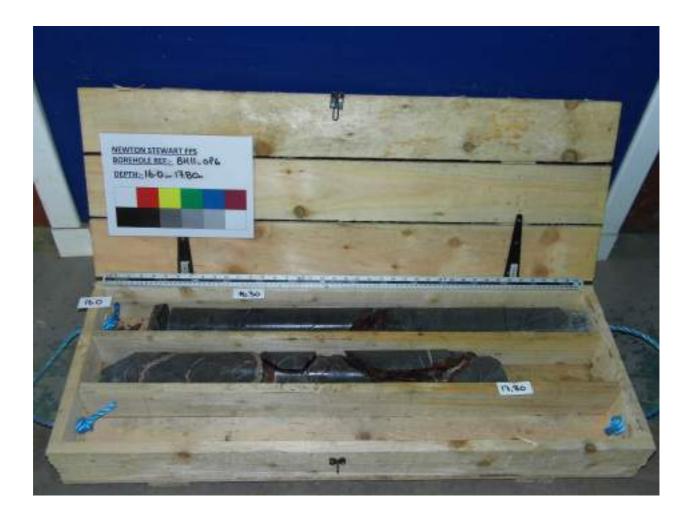






CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH11 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH12 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH12 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH13 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

U)







Newton Stewart Flood Protection Scheme CONTRACT: CLIENT: Dumfries and Galloway Council **ENGINEER: SWECO**

BH13 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

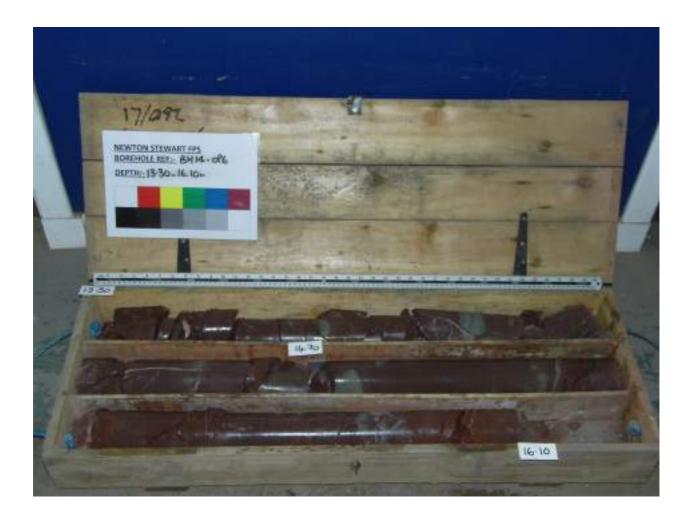






CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH14 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH14 OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH01 SP





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH01 SP





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH02 SP





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

U)







CONTRACT:Newton Stewart Flood Protection SchemeCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

BH02 SP





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP1-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP1-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP1-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP3-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP3-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP4-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING



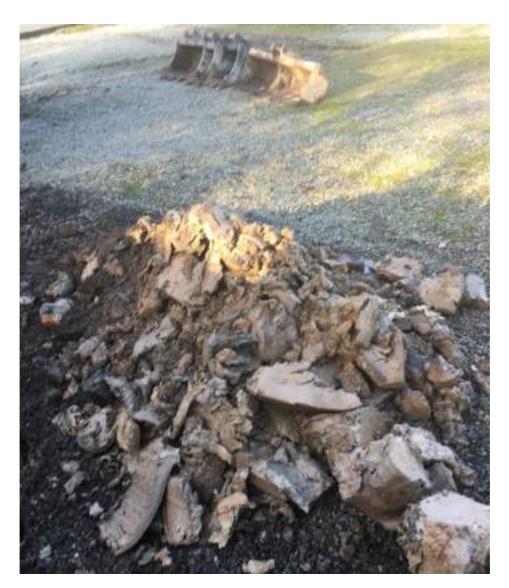






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TP4-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING



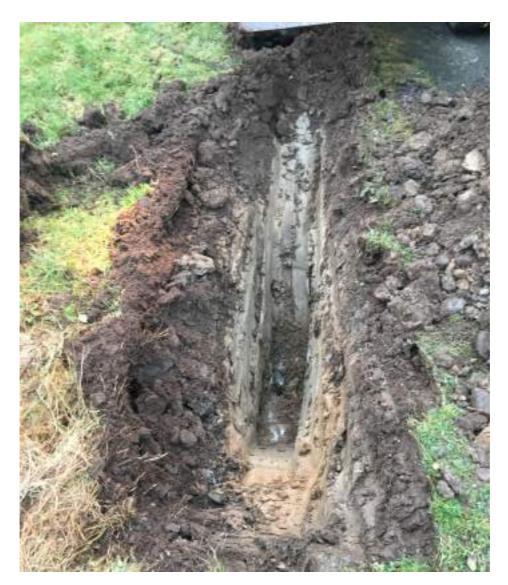






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP11-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP13-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP13-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TW1-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TW1-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TW2-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TW2-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING



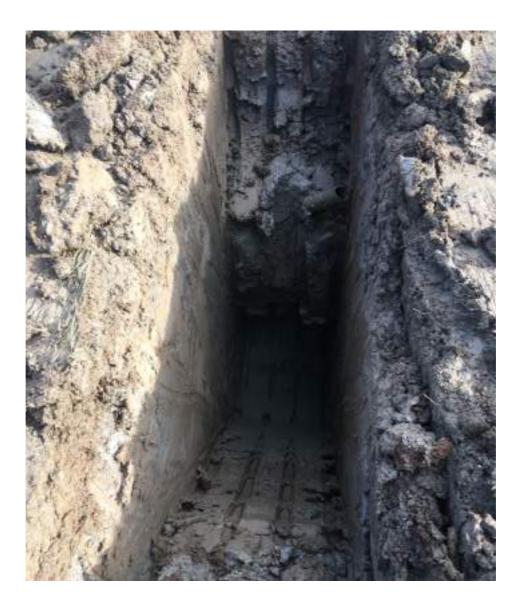






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP1-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP1-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP1-OP7















CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP3-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP3-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP4-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP4-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT: Newton Stewart FPS CLIENT: Dumfries and Galloway Council ENGINEER: **SWECO**

TP5-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP5-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP6-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP6-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP8-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP8-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP9-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP9-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP9-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP10-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP10-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP10-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP12-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP12-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING



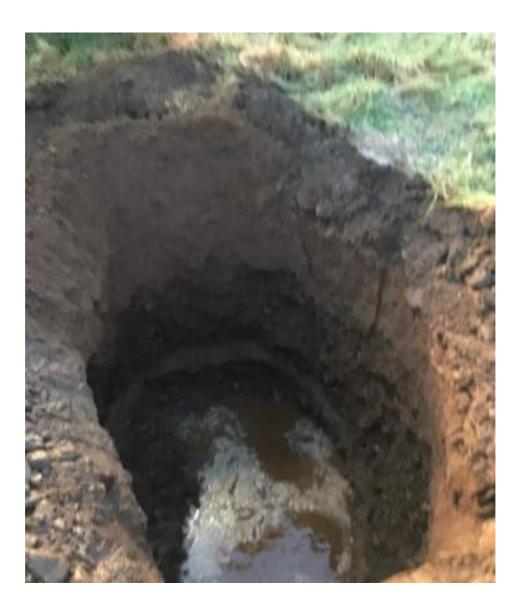






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP2-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP3-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP3-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP4-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP4-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP5-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP5-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP6-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP6-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP6-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP7-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT: Newton Stewart FPS CLIENT: Dumfries and Galloway Council ENGINEER: SWECO

TP10-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP10-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

TP10-OP24





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING



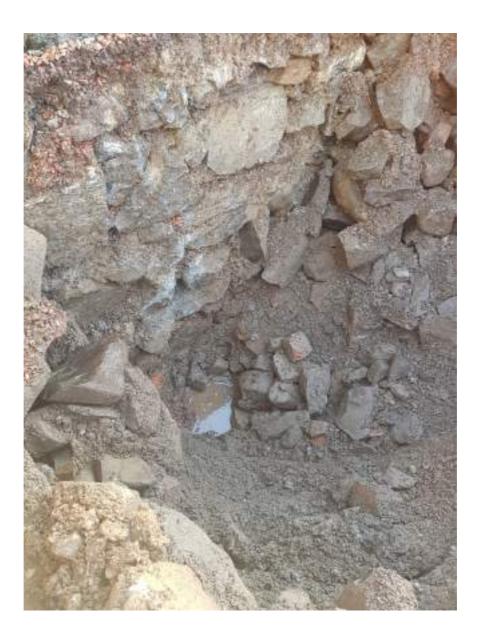






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP1-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP1-OP6





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Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address <u>admin@holequest.co.uk</u> Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP2-OP6







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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP2-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP2A-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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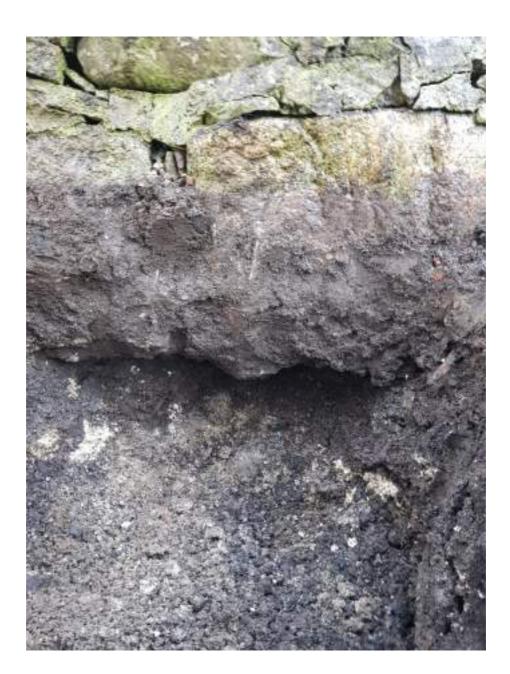






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP2A-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP3-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP4-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP4-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP5-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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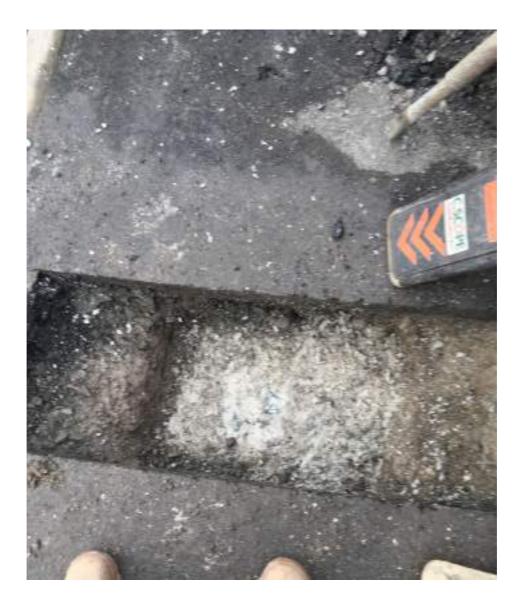






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP5-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP6-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP7-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D







CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP8-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP10-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP11-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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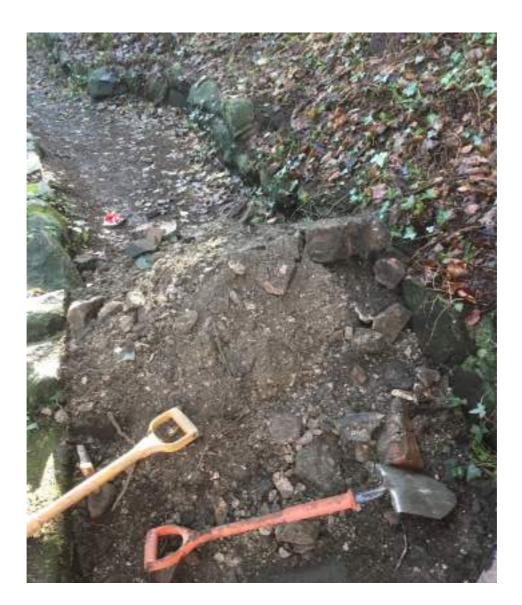






CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP11-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP12-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING









CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP12-OP6





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

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CONTRACT:Newton Stewart FPSCLIENT:Dumfries and Galloway CouncilENGINEER:SWECO

HP2-OP7





GEOTECHNICAL • SITE INVESTIGATION • WELL DRILLING

D

APPENDIX VII

SPT Hammer Energy Ratio Certificates



Instrumented Rod Data

Diameter dr (mm):	54
Wall Thickness tr (mm):	6.7
Assumed Modulus Ea (GPa):	208
Accelerometer No.1:	10334
Accelerometer No.2:	11794

SPT Hammer Energy Test Report

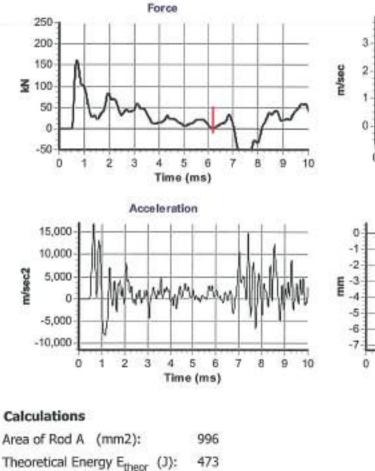
in accordance with BSEN ISO 22476-3:2005

HQ01 0412
04/12/2017
19/04/2018
HQ01 0412.spt
FM

SPT Hammer Information

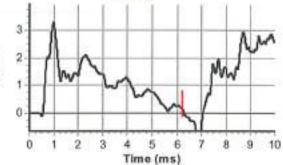
Hammer Mass	m (kg):	63.5
Falling Height	h (mm):	760
SPT String Leng	gth L (m):	16.3

Comments / Location

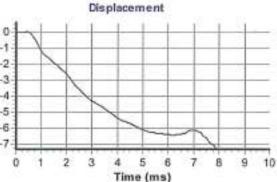


345

73



Velocity



han

Signed: Fraser Murray Title: Assistant Contracts Manager

The recommended calibration interval is 6 months

Measured Energy Emeas (J):

Energy Ratio Er (%):



Instrumented Rod Data

Diameter dr (mm):	54
Wall Thickness tr (mm):	6.7
Assumed Modulus Ea (GPa):	208
Accelerometer No.1:	10334
Accelerometer No.2:	11794

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref:	HQ02 0412
Test Date:	04/12/2017
Report Date:	19/04/2018
File Name:	HQ02 0412.spt
Test Operator:	FM

SPT Hammer Information

Hammer Mass	m (kg):	63.5
Falling Height	h (mm):	760
SPT String Len	gth L (m):	16.3

Velocity

3 4 5 6

3

Time (ms)

5

Time (ms)

6

4

Displacement

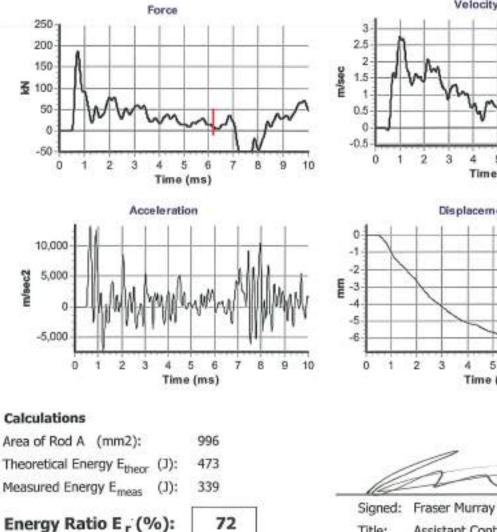
8 .9 10

10

7

7 8 9

Comments / Location



The recommended calibration interval is 6 months



Instrumented Rod Data

Diameter dr (mm):	54
Wall Thickness t _r (mm):	6.7
Assumed Modulus Ea (GPa):	208
Accelerometer No.1:	10334
Accelerometer No.2:	11794

SPT Hammer Energy Test Report

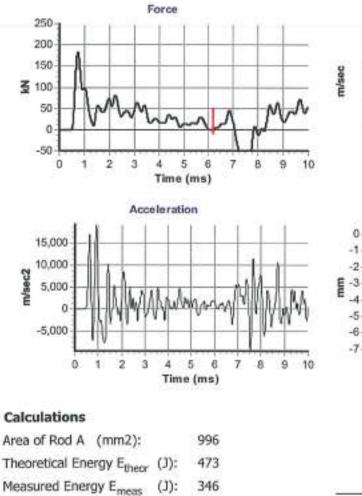
in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref:	HQ03 0412
Test Date:	04/12/2017
Report Date:	19/04/2018
File Name:	HQ03 0412.spt
Test Operator:	FM

SPT Hammer Information

Hammer Mass	m (kg):	63.5
Falling Height	h (mm):	760
SPT String Leng	gth L (m):	16.3

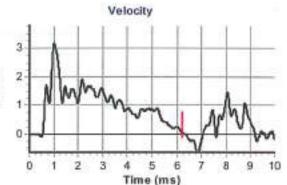
Comments / Location



Energy Ratio E_r (%):

The recommended calibration interval is 6 months

73





Signed: Fraser Murray Title: Assistant Contracts Manager

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Instrumented Rod Data

Diameter d _r (mm):	54
Wall Thickness tr (mm):	6.7
Assumed Modulus Ea (GPa):	208
Accelerometer No.1:	10334
Accelerometer No.2:	11794

SPT Hammer Energy Test Report

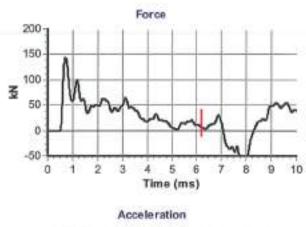
in accordance with BSEN ISO 22476-3:2005

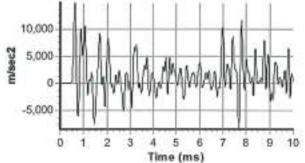
SPT Hammer Ref:	HQ04 0412
Test Date:	04/12/2017
Report Date:	19/04/2018
File Name:	HQ04 0412.spt
Test Operator:	FM

SPT Hammer Information

Hammer Mass	m (kg):	63.5
Falling Height	h (mm):	760
SPT String Len	gth L (m):	16.3

Comments / Location

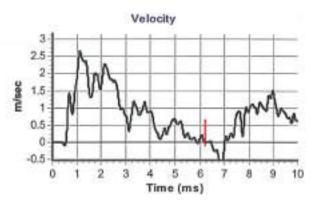


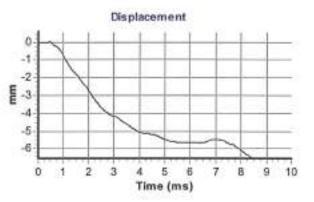


Calculations

Energy Ratio E _r (%):	71
Measured Energy E _{meas} (J):	334
Theoretical Energy E _{theor} (J):	473
Area of Rod A (mm2):	996

The recommended calibration interval is 6 months





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Signed: Fraser Murray Title: Assistant Contracts Manager