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## **APPENDIX 4-4**

CAUSEWAY GEOTECH LAURCLAVAGH WF – GROUND INVESTIGATION REPORT



## Laurclavagh WF – Ground Investigation

Client:

## Turnkey Developments

Client's Representative: Enerco Energy

Report No.:

23-0237

Date:

Status:

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Final for Issue

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### **Document Control Sheet**

Report No.:		23-0237								
Project Title:		Laurclavagh WF	; Ground Investig	gation						
Client:		Turnkey Develo	pments							
Client's Repres	entative:	Enerco Energy								
Revision:	A00	Status:Final for IssueIssue Date:24th May 2023								
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The works were conducted in accordance with:

British Standards Institute (2015) BS 5930:2015+A1:2020, Code of practice for ground investigations.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

Laboratory testing was conducted in accordance with:

British Standards Institute BS 1377:1990 parts 2, 4, 5, 7 and 9



#### **METHODS OF DESCRIBING SOILS AND ROCKS**

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Ground Investigation.

Abbreviations used	l on exploratory hole logs
U	Nominal 100mm diameter undisturbed open tube sample (thick walled sampler).
UT	Nominal 100mm diameter undisturbed open tube sample (thin walled sampler).
Р	Nominal 100mm diameter undisturbed piston sample.
В	Bulk disturbed sample.
LB	Large bulk disturbed sample.
D	Small disturbed sample.
С	Core sub-sample (displayed in the Field Records column on the logs).
L	Liner sample from dynamic sampled borehole.
W	Water sample.
ES / EW	Soil sample for environmental testing / Water sample for environmental testing.
SPT (s)	Standard penetration test using a split spoon sampler (small disturbed sample obtained).
SPT (c)	Standard penetration test using 60 degree solid cone.
(x,x/x,x,x,x)	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length.
(Y for Z/Y for Z)	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm).
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm).
HVP / HVR	In situ hand vane test result (HVP) and vane test residual result (HVR). Results presented in kPa.
V VR	Shear vane test (borehole). Shear strength stated in kPa.V: undisturbed vane shear strengthVR: remoulded vane shear strength
Soil consistency description	In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of Nx5=Cu is used (as set out in Stroud & Butler 1975).
dd-mm-yyyy	Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns.
$\bigtriangledown$	Water strike: initial depth of strike.
•	Water strike: depth water rose to.
Abbreviations relating	to rock core – reference Clause 36.4.4 of BS 5930: 2015+A1:2020
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run.
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.
(xxx/xxx/xxx)	Spacing between discontinuities (minimum/average/maximum) measured in millimetres.



## Laurclavagh WF; Ground Investigation

#### **1 AUTHORITY**

On the instructions of Enerco Energy ("the Client's Representative"), acting on the behalf of Turnkey Developments ("the Client"), a ground investigation was undertaken at the above location to provide geotechnical and environmental information for input to the design and construction of a proposed wind farm development including access roads and areas of hardstanding.

This report details the work carried out both on site and in the geotechnical and chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results.

All information given in this report is based upon the ground conditions encountered during the ground investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

#### 2 SCOPE

The extent of the investigation, as instructed by the Client's Representative, included boreholes, trial pits, soil and rock core sampling, in-situ and laboratory testing, and the preparation of a factual report on the findings.

#### **3 DESCRIPTION OF SITE**

As shown on the site location plan in Appendix A, the works were conducted over several sites, located in Laurclavagh, County Galway. The sites comprised 3<sup>rd</sup> Party Owned agricultural lands, within an area spanning approximately 5km located west of the N83 in Clough, County Galway. Elevations vary across the area of the ground investigation.





#### **4** SITE OPERATIONS

#### 4.1 Summary of site works

Site operations, which were conducted between the 20<sup>th</sup> of March and the 27<sup>th</sup> of April 2023, comprised:

- ten boreholes by rotary drilling
- seven machine dug trial pits
- an infiltration test performed in thirteen trial pits; and
- indirect CBR tests at forty-six locations.

The exploratory holes and in-situ tests were located as instructed by the Client's Representative, and as shown on the exploratory hole location plan in Appendix A.

#### 4.2 Boreholes

Ten boreholes (RC01-RC09 and RC11) were put to their completion by rotary drilling techniques only. The boreholes were completed to a maximum depth of 10.50m using a Comacchio 602 drilling rig.

Hand dug inspection pits were carried out between ground level and 1.20m depth to ensure boreholes were put down at locations clear of services or subsurface obstructions.

Symmetrix-cased full hole rotary percussive drilling techniques were employed to advance the boreholes to bedrock, after which rotary coring was employed to recover core samples of the bedrock. SPTs were carried out at standard intervals throughout the overburden, with small and bulk disturbed samples obtained where possible through the soils strata.

Standard penetration tests were carried out in accordance with BS EN 22476-3:2005+A1:2011 at standard depth intervals throughout the overburden using the split spoon sampler ( $SPT_{(s)}$ ) or solid cone attachment ( $SPT_{(c)}$ ). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The N-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix I.

Where coring was carried out within bedrock strata, Geobor S Coring was used. The core was extracted in up to 1.5m lengths using an SK6L core barrel, which produced core of nominal 102mm diameter, and was placed in single channel wooden core boxes.



The core was subsequently photographed and examined by a qualified and experienced Engineering Geologist, thus enabling the production of an engineering log in accordance with *BS 5930: 2015+A1:2020: Code of practice for ground investigations.* 

Appendix B presents the borehole logs, with core photographs presented in Appendix C.

#### 4.3 Trial Pits

Seven trial pits (TP01–TP03 and TP05-TP08) were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to depths ranging between 0.80m and 3.50m.

Disturbed (bulk bag) samples were taken at standard depth intervals and at change of strata.

No groundwater strikes were encountered during excavation. The stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arising provided in Appendix D.

#### 4.4 Infiltration tests

An infiltration/soakaway test was carried out at thirteen locations (ITP01-ITP13) in accordance with BRE Digest 365 - Soakaways (BRE, 2016). The tests were conducted in similarly numbered trial pits.

Appendix F presents infiltration pit logs and the results and analysis of the infiltration test. The absence of the outflow from the pits precluded calculation of infiltration coefficients.

#### 4.5 Indirect CBR tests (DCP)

An indirect CBR test was conducted at forty-six locations (DCP01-DCP40 and DCP13A, DCP15A, DCP16A, DCP24A, DCP26A, DCP26A, DCP32A and DCP38A) using a Dynamic Cone Penetrometer (DCP). The equipment was developed in conjunction with the UK Transport Research Laboratory, and is discussed in Highways England CS229 (2020) which refers to the methodology described in TRL Overseas Road Note 18 (1999).

The test results are presented in Appendix G in the form of plots of the variation with depth of the penetration per blow. Straight lines have been fitted to the plots and the CBR for each depth range estimated using the following relationship, which is taken from TRRL Overseas Road Note 8 (1990), *A user's manual for a program to analyse dynamic cone penetrometer data*.

Log CBR = 2.48-1.057 Log (mm/blow)

The frequently elevated CBR values are a consequence of the coarse-grained content of the penetrated soils and are often not representative of the soil matrix.



#### 4.6 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R10 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole location plan presented in Appendix A shows these as-built positions.

#### 5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described, and their descriptions incorporated into the borehole logs.

#### 5.1 Geotechnical laboratory testing of soils

Laboratory testing of soils comprised:

- **soil classification:** moisture content measurement, Atterberg Limit tests and particle size distribution analysis.
- soil chemistry: pH and water soluble sulphate content

Laboratory testing of soils samples was carried out in accordance with British Standards Institute: *BS 1377, Methods of test for soils for civil engineering purposes; Part 1 (2016), and Parts 2-9 (1990).* 

The test results are presented in Appendix H.

#### 5.2 Geotechnical laboratory testing of rock

Laboratory testing of rock sub-samples comprised:

- point load index
- unconfined compressive strength (UCS) tests

Test	Test carried out in accordance with												
Point load index	ISRM Suggested Methods (1985) Suggested method for determining point-loa												
	strength. Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 22, pp. 53–60												
Uniaxial	ISRM Suggested Methods (1981) Suggested method for determining												
compression	deformability of rock materials in uniaxial compression, Part 2												
strength tests	and												





ISRM (2007) Ulusay R, Hudson JA (eds) The complete ISRM suggested methods for rock characterization, testing and monitoring, 2007

The test results are presented in Appendix H.

#### **6 GROUND CONDITIONS**

#### 6.1 General geology of the area

Published geological mapping indicate the superficial deposits underlying the site comprise till derived from limestone and outcrop/subcrop. These deposits are underlain by pale grey clean skeletal limestone of the Burren Formation.

#### 6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Topsoil:** encountered typically in 200mm thickness across the site.
- **Glacial Till:** sandy gravelly clay, frequently with low cobble content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth, with occasional sand horizons.
- **Bedrock (Limestone):** Medium strong to strong grey limestone rockhead was encountered at depths ranging from 2.50m in RC02 to 5.85m in RC07. In addition, possible limestone rockhead recovered as gravel through rotary drilling was noted in RC02 at a depth of 1.75m

#### 6.3 Groundwater

Groundwater was not noted at any of the exploratory hole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out.

It should be noted that any groundwater strikes within bedrock may have been masked by the fluid used as the drilling flush medium.

Seasonal variation in groundwater levels should also be factored into design considerations.



#### 7 **REFERENCES**

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland.

IS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. National Standards Authority of Ireland.

BS 5930: 2015+A1:2020: Code of practice for ground investigations. British Standards Institution.

BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

BS 1377: 1990: Methods of test for soils for civil engineering purposes. British Standards Institution.

BS EN ISO 14689-1:2018: Geotechnical investigation and testing. Identification and classification of rock. Identification and description.

BS EN ISO 22476-3:2005+A1:2011: Geotechnical investigation and testing. Field testing. Standard penetration test.

Building Research Establishment (2007), BRE Digest 365: Soakaways.



# APPENDIX A SITE AND EXPLORATORY HOLE LOCATION PLANS



CALISEWAY	Project No.:	23-0237	Client:	Turnkey Developments
GEOTECH	Project Name:	Laurclavagh WF; Ground Investigation	Client's Representative:	Enerco Energy
GEOTECH	Project Name:		Client's Representative:	<page-header></page-header>
Title: Site Location Plan				1 Kinneres
Last Revised: Scale: 10/05/2023 1:25000	bing Microsoft product screen s	shoti(s) reprinted with permission from Microsoft Corporation		4000 Feet

















	Project No.:	23-0237	Client:	Turnkey Developments
GEOTECH	Project Name:	Laurclavagh WF; Ground Investigation	Client's Representative:	Enerco Energy
Legend Key Locations By Type - DCP Locations By Type - RC Locations By Type - TP				
			RC02	
			ITP02	
			DCP20	
<b>Title:</b> Exploratory Hole Location Plan - 9				
Last Revised:         Scale:           24/05/2023         1:1000	bing Microsoft pr <u>oduct screen s</u>	shot(s) reprinted with permission from <u>Microsoft Corporation</u>		50 Metres 100 Feet



# APPENDIX B BOREHOLE LOGS

			<b>E</b>		A	<b>Y</b> H		Pro 23	ject No. 3-0237	. Projec Client: Client	Project Name: Laurclavagh WF; Ground Investigation         Client:       Turnkey Developments         Client's Rep       Enerco Energy						
Met	hod	Plant I	Jsed		Тор	(m)	Base (	m) Cor	ordinates	5 Final D	<b>anth:</b> 10 E0 m	Start Data	2/02/2022	Drillor	CT	Shee	t 1 of 2
Rotary Pe Rotary	rcussion Coring	Comacch Comacch	1io 60 1io 60	)2 )2	0.0 3.1	00 50	3.50 10.50	<b>)</b> 535	359.65 E 829.76 M	Elevati	<b>201:</b> 33.61 mOD	End Date: 2	22/03/2023	Logger:	DM	Scal FI	e: 1:40 NAL
Depth	Samples	/ Field Records	TCR	SCR	ROD	FI	Casing W Depth D	ater Leve	Dept	h Legend		Descri	ntion			Ja Ba	ckfill
(m)							(m) (i	n) mOD	(m)	-eBerry	Soft brown slightly	sandy CLAY. Sand	d is fine to coar	rse.		š <sup>50</sup>	-
1.50 1.50 - 1.95	D1 SPT(S) I (2,2/2,3	D1 SPT(5) N=9 (2,2/2,3,2,2) 31.41 2.20 31.41 2.20 Soft brown CLAY (Driller's Description) 										cobble					
3.00 3.00 - 3.29	D2 SPT(S) 5 for 136	50 (10,15/50 mm)						51.4			Stiff to very stiff bro and boulder conter	ownish grey sanc	dy gravelly CLAY	Y with low	cobble		2.5 — - 3.0 — - - - - - - - - - - - - - - - - - - -
						NI		30.1	1 - 3.50	0	Dense light brownis subrounded fine to	ish grey sandy sli o medium GRAVE	ghtly clayey sul L. Sand is fine t	bangular to to coarse.	o		
			95	50	10			29.6	L — 4.00		Medium strong ligh reduced strength, c discolouration on jc Discontinuities: 1. 5-10 degree frac and rough with ligh	ht grey LIMESTON closer fracture sp oint surfaces. ctures medium sp ht brown staining	NE. Moderately bacing, with cor baced (35/220/ g on joint surfac	v weathere mmon ligh 475), undu ces.	ed: t brown ulating		4.0
5.00									-		2. 45-50 degree fra undulating, rough v	actures medium s with light brown	spaced (90/430 staining on joir	)/1170), nt surfaces	i.		
			97	60	35	11			- - - - - - - - - - -		3.80-90 degree join undulating, rough v	ints from 5.65-5.6	80m, 7.70-7.85 staining on joir	m and 9.2 nt surfaces	0-9.30m, :.		5.5 5.6  6.0  
6.50 - 6.60	C1			-					-		L I						6.5 —
6.80 - 6.90	C2		97 TCR	80 SCR	20 RQD	FI	-		- - - - -		T T T						
	Wate	r Strikes		<u> </u>	R	lema	rks										
Struck at (m) Casing to (m)     Time (min) Rose to (m)     Inspection pi       Casing Details     Core Barrel     No obvious g       To (m)     Diam (mm)     SK6L       10.50     200     Flush Type       Terminatio     Water     Terminatio								hand dug oundwate	to 1.20m.	water added	during coring.				Last Up	dated	
	Water Terminated a								i depth.						23/05/2	2023	AGS

		AUS	F	w		Y		Project No.         Project Name: Laurclavagh WF; Ground Investigation           23-0237         Client:         Turnkey Developments						Borehole ID RC01			
	- <i>H</i>	(	GEC	ЭΤΙ	EC	Н			0207	Client'	s Rep Enerco F	Energy					
Met	hod	Plant I	Jsed		Тор	(m)	Base (n	n) Cool	dinates		10 50			CT	Sheet	: 2 of 2	
Rotary Pe Rotary	rcussion Coring	Comacch Comacch	nio 60 nio 60	02 02	0. 3.	00 50	3.50 10.50	5353	59.65 E	Final De	epth: 10.50 m	Start Date: 22/03/2023	Driller:	GI	Scale	e: 1:40	
	_							7438	29.76 N	Elevatio	on: 33.61 mOD	End Date: 22/03/2023	Logger:	DM	FIN	NAL	
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Wat Depth Dept (m) (m)	h Level mOD	Depth (m)	Legend		Description			Mater Bac	kfill	
									-		Medium strong ligh reduced strength, c	t grey LIMESTONE. Moderat loser fracture spacing, with	ely weathere common light	d: t brown		7.5 —	
									ан 11		discolouration on jo Discontinuities:	pint surfaces.				-	
8.00									-		1. 5-10 degree fract and rough with ligh	tures medium spaced (35/22 t brown staining on joint sur	0/475), undu faces.	llating		 8.0	
									-		2. 45-50 degree fra undulating, rough v	ctures medium spaced (90/4 vith light brown staining on j	30/1170), oint surfaces			-	
			05	00	20	. 20			-		3. 80-90 degree joi	nts from 5.65-5.80m, 7.70-7.	85m and 9.20	0-9.30m,		-	
			95	90	20	>20			89 89		undulating, rough v	vith light brown staining on j	oint surfaces			-	
									-							9.0	
									-							-	
9.50 9.70 - 9.80	C3								-							9.5 -	
									-							-	
			75	70	30	8			-							10.0	
10.30 - 10.4	40 C4								-							-	
10.50								23.11	- 10.50			End of Borehole at 10.50n	ı			10.5 -	
									-							-	
									-							11.0	
																-	
									-							11.5 —	
									-							-	
									-							12.0 -	
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									-							12.5 -	
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									-							14.5	
	14/-+	Striker	TCR	SCR	RQD	FI											
Struck at (m)	Casing to (m	)) Time (min)	Rose	e to (n	n) Ir N	nspec lo ob	tion pit h vious gro	and dug to undwater	) 1.20m. strikes - wa	ter added	during coring.						
Casing	Details	Core	Barro	el													
10 (m) 10.50	0.50 200 SK6L																
		Flush	тур	e	T	ermi	nation	on Reason Last Upda						Jated			
		Wa	ater			ermir	nated at s	cheduled	eduled depth. 23/05/.								

Metho Rotary Perci Rotary Co Depth (m)	od cussion pring Samples / SPT(C) 50 Omm/50	Plant ( Comacch Comacch / Field Records	Jsed nio 60 nio 60	)2 )2 SCR	Top           0.0           2.1	(m) 00 50 FI	Base 2.5 10.0 Casing Depth (m)	(m) 50 00 Water Depth (m)	Coord 53659 74440 Level mOD	4.85 E 0.04 N Depth (m)	Final De	epth: 10.00 m Sta	aart Date: 20/04/2023 and Date: 20/04/2023 Description	Driller: GT Logger: DM	Shi Sc I ter	eet 1 of 2 :ale: 1:40 -INAL Backfill
Rotary Perci Rotary Co Depth (m)	SPT(C) 50 Omm/50	Comacch Comacch / Field Records 0 (25 for 0 for 0mm)	TCR	)2 )2 SCR	0.0 2.1 RQD	00 50 FI	Casing Depth (m)	00 00 Water Depth (m)	53659 74440 Level mOD	4.85 E 0.04 N Depth (m)	Elevatio	n: 54.18 mOD En	nd Date: 20/04/2023	Logger: DM	Nater	ale: 1:40 -INAL Backfill
Depth (m)	Samples / SPT(C) 50 Omm/50	/ Field Records 0 (25 for ) for 0mm)	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m) -	Legend	Firm brown CLAY	Description		Water	Backfill
1.50 - 1.50	SPT(C) 50 0mm/50	0 (25 for ) for 0mm)					(m)	(m)		-	E	Eirm brown CLAV	Legend Description			
									52.98 52.43 51.68	1.20 1.75		Loose grey COBBLES an Grey angular GRAVEL o Description).	nd BOULDERS (Driller's Des of limestone. (Possible bedr STONE with white calcite ve	cription). rock) (Driller's		
4.00			97	95	90	6						<ul> <li>thick. Slightly weathered fracture spacing, with r surfaces.</li> <li>Discontinuities:</li> <li>1. 5-10 degree joints m and clean.</li> <li>2. 80-90 degree fractur and clean.</li> </ul>	ed: slightly reduced strengt rare orangish brown discolo nedium spaced (50/300/75 res from 8.50-8.60m and 9.	h, slightly closer ouration on fractu 0), planar, smooth 60-9.75m, smooth	e I	
5.50											5.5					
7.00			TCR	SCR	RQD	FI				- - -						7.0
Struck at (m) Cas Casing De To (m) Di 10.00	Water asing to (m) etails iam (mm) 200	Strikes Time (min) Core Sk Flush	Rose Barre	to (r	R n) Ir N	ermi	rks tion pi vious g	it han ground	d dug to dwater st ason	l 1.20m. rikes - wa	l ter added	during coring.		Last	Updated	

	8 c		Ē	V		Y			Proje 23-(	ct No.	Project	Name: Laurclavagh WF; Ground Investigation	Borehole ID RC02					
	<i>-</i>		GEC	DT	EC	Н					Client's	Ren Enerco Energy		-				
Met	hod	Plant l	Jsed		Тор	(m)	Base	(m)	Coorc	dinates			Sheet	2 of 2				
Rotary Pe	ercussion	Comacch	nio 60	)2 )2	0.	00	2.5	0	53650		Final De	pth: 10.00 m Start Date: 20/04/2023 Driller: GT	Scale:	1:40				
notary	comig	connacci	10 00	52	2.	50	10.0		74440	)0.04 N	Elevatio	n: 54.18 mOD End Date: 20/04/2023 Logger: DM	FIN	AL				
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing V Depth C (m)	Vater Pepth (m)	Level mOD	Depth (m)	Legend	Legend Description						
			97	97	95					-		Strong dark grey LIMESTONE with white calcite veins up to 10mm thick. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, with rare orangish brown discolouration on fracture surfaces. Discontinuities:		7.5				
8.50							-						8.0 — - - 8.5 —					
90 90 80 8										- - - - - - -								
										-				9.5 —				
10.00									44.18	- 10.00		End of Borehole at 10.00m		10.0 -				
										-				-				
										-				10.5 — 				
										- 								
										-				11.5 — - - -				
														12.0 — — — 12.5 —				
										-								
										- - -								
										-								
										-								
			TCR	SCR	RQD	FI				-								
Struck at (m) Casing To (m) 10.00	Water Casing to (m) Details Diam (mm) 200	Strikes Time (min) Core	Rose Barre	el el	R n) Ir N	ema nspec lo obv	inatio	: han roun	id dug to dwater st	1.20m. trikes - wat	ter added	during coring.	dated					
		Wa	ater		Т	ermir	nated a	t sch	ieduled d	/2023 <b>AGS</b>								

			SE		A EC	<b>Y</b> H			Proje 23-(	ct No. 0237	Project Client: Client's	Name: Laurclav Turnkey Rep Enerco F	ragh WF; Gro Developme Energy	ound Investig	ation		Bore R	hole ID CO3
Met	hod	Plant	Used		Тор	(m)	Base (	m)	Coord	linates							Shee	et 1 of 2
Rotary I Rotary	Drilling	Comacch	nio 6	02 12	0. 3	00	3.00	)	53471	6 37 F	Final De	epth: 10.00 m	Start Date:	27/04/2023	Driller:	GT	Sca	le: 1:40
Notary	comg	contacti	10 0	52	5.	00	10.0		74313	80.35 N	Elevatio	<b>n:</b> 24.52 mOD	End Date:	ate: 27/04/2023 Logger: AK		AK	FI	NAL
Depth (m)	Sample	s / Field Records	TCR	SCR	RQD	FI	Casing W Depth D (m)	/ater epth (m)	Level mOD	Depth (m)	Legend		Dese	cription	<u>.</u>		Water	ockfill
1.50 - 1.95	SPT(C) (6,8/8,	N=44 10,12,14)							23.32 21.82 21.52	- 1.20 - 2.70 - 3.00		Brown CLAY with lo subrounded. Bould Dense grey GRAVEL Dense grey GRAVEL LIMESTONE (Driller Strong thickly lamir slightly reduced stro discolouration	w cobble and lers are subrou L (Driller's desc 's description) nated dark gre ength, closer f	boulder content. nded. rription) y LIMESTONE. Sli racture spacing v	ghtly weat	hered:, orange		
		100       98       88         3       3											3.5 - - 4.0 - - - - -					
4.50			97	95	8				- - - - - - - - - - - - -								4.5	
6.00 Struck at (m)	Wate Casing to (r	100 SCR	85 RQD Ir N	5 7 FI Cema nspec to obv	rks tion pit	han	d dug to dwater st	1.20m.		led during coring.						6.0 		
Casing To (m)	Details Diam (mm	Core ) Flush W	Barro K6L Typ	el e	 ד זו	<b>ermi</b>	natior nated at	<b>Re</b> a	<b>ason</b> eduled d	epth.						<b>Last Up</b> 23/05/2	<b>dated</b> 2023	AGS

										ect No.	No. Project Name: Laurclavagh WF; Ground Investigation					Borehole ID		
	X) C	AUS	E	W		Y			23-1	0237	Client:	Turnkey	Developments				RC03	3
	$\mathcal{D}$ –		GEC	DT	EC	Н					Client's	<b>Rep</b> Enerco E	Energy					
Met	hod	Plant I	Jsed		Тор	(m)	Base	(m)	Coord	dinates					CT	Sh	eet 2 c	of 2
Rotary Rotary	Drilling Coring	Comacch Comacch	nio 60 nio 60	02 02	0. 3.	00 00	3.0	0 00	53471	16.37 E	Final De	epth: 10.00 m	Start Date: 27/04/2023	Driller:	GT	Sc	ale: 1:	40
	8								74313	30.35 N	Elevatio	on: 24.52 mOD	End Date: 27/04/2023	Logger:	AK	I	INA	L
Depth	Samples	/ Field Pecords	тср	SCP.	POD	E1	Casing	Water	Level	Depth	Logond		Description			ter	Packfill	
(m)	Jampies		Ten	Jen	ng.	-	(m)	(m)	mOD	(m)	Legenu	Strong thickly lamir	nated dark grey LIMESTONE. S	ightly weat	hered:,	Ň	Dackini	_
7.50										-		slightly reduced stru discolouration	ength, closer fracture spacing	with slight o	orange			7.5 —
										-		Discontinuities:						-
										-		1. 5-10° bedding fra	actures closely spaced (40/150	/450) undu	lating,			8.0
			100	100	95							on the fracture at 5	5.70m up to 1mm thick.	ng and smo	oth			-
										-		with patch orange s	staining on fracture surface	ng and sind	oun			8.5 —
						4				-								-
										er.								-
9.00										-								9.0
																		-
			100	95	88					-								9.5 —
										a.								-
10.00							-		14.52	- — 10.00			End of Borebole at 10 00m					- 10.0
										-								-
																		- 10.5
										-								-
										а. м								-
										-								11.0
										-								-
																		11.5 —
										-								-
										-								- 12.0
										-								-
										-								-
										-								
										-								-
										-								13.0
										-								-
										-								13.5 -
										-								-
										-								
										-								-
									l	-								-
			TCP	SCP	ROD	FI			l	F						╞		14.5 -
	Water Strikes Remarks						irks			1	1							1
Struck at (m)	Casing to (m) Time (min) Rose to (m) Inspection p No obvious g							t har	nd dug to	1.20m.	ter added	during coring						
						10 00	nous e	Tour		trikes wat		during coring.						
Casing	sing Details Core Barrel																	
To (m)	n) Diam (mm) SK6L																	
		Flush	тур	e	T	ermi	natio	n Re	ason						Last Upo	lated		
		Т	ermir	nated a	ıt scł	neduled d	lepth.					23/05/2	023	A	GS			

	c		SEC GEC		A EC	Y		F	Proje 23-(	ct No. )237	Project Name: Laurclavagh WF; Ground Investigation         Client:       Turnkey Developments         Client's Rep       Enerco Energy	Borehole ID RC04
Met	hod	Plant I	Used		Тор	(m)	Base (	n) (	Coord	linates	Final Danth: 10.50 m Start Data: 22/02/2022 Driller: CT	Sheet 1 of 2
Rotary Pe Rotary	rcussion Coring	Comacch Comacch	nio 60 nio 60	)2 )2	0. 3.	00 50	3.50 10.50	) 5 7	53536 74377	3.88 E '5.96 N	Elevation: 34.05 mOD End Date: 23/03/2023 Logger: DM	Scale: 1:40 FINAL
Depth	Samples /	Field Records	TCR	SCR	RQD	FI	Casing Wa Depth De	ter Lo	evel	Depth	Legend Description	Backfill
1.50 1.50 - 1.95	D1 SPT(S) N (2.2/2.2	=9						32	2.85	1.20	Firm brown slightly sandy CLAY. Sand is fine to coarse.	
	(2,2/2,3,					32	2.25	- 1.80	Very stiff greyish brown slightly sandy slightly gravelly CLAY (Driller's Description).	2.0		
3.00 - 3.15	SPT(S) 50 67mm/5 87mm)	0 (25 for 0 for						30	0.55	- - - - 3.50	Dense greyish brown sandy clayey subangular to subrounded fine to	3.0
						NI				-	medium GRAVEL. Sand is fine to coarse.	-
	87 70							30	0.05	- 4.00	Medium strong to strong dark grey LIMESTONE with white calcite mineralisation throughout. Moderately weathered: reduced strength, closer fracture spacing, occasional light brown discolouration. Discontinuities:	4.0
5.00	100 90					9				-	2. 45-50 degree joints widely spaced (120/818/2670), undulating, rough with light brown staining on joint surfaces. 3. 80-90 degree joints from 5.20-5.30m, 5.90-6.00m and 6.20-6.30m undulating, rough with light brown staining on joint surfaces.	5.0
6.25 - 6.50	C1			ĺ						-		-
6.25 - 6.50 C1 6.50 90 80 TCR SCR Water Strikes						13 FI				- - - - - - - - - - -		6.5 - - - 7.0 - - - - - - - - - - - - - - - - - -
Struck at (m)	Water Strikes         Remarks           Struck at (m) Casing to (m) Time (min) Rose to (m)         Inspection pit									1.20		
Casing Details     Core Barrel       To (m)     Diam (mm)       10.50     200       Flush Type     Terminat       Water     Terminat								hand d bundwa Reasc schedu	on Jug to ater st	1.20m. rikes - wa	r added during coring.	Updated

CAUSEWAY									Proje	ect No.	No. Project Name: Laurclavagh WF; Ground Investigation					Borehole ID			e ID
	C	AUS	E	W	A	Y			23-(	0237	Client:	Turnkey	Developme	ents				RC04	1
		C	SEC	DTI	EC	Н					Client'	<b>Rep</b> Enerco E	Energy						
Meth	hod	Plant I	Jsed		Тор	(m)	Base (	<u>m)</u>	Coord	linates	Final De	• <b>oth:</b> 10.50 m	Start Date:	23/03/2023	Driller:	GT	Sł	neet 2 d	of 2
Rotary Pe Rotary (	Coring	Comacch	10 60 110 60	)2 )2	0. 3.	50	3.50	0	53536	53.88 E				20,00,2020			S	cale: 1	:40
									74377	75.96 N	Elevatio	on: 34.05 mOD	End Date:	23/03/2023	Logger:	DM		FINA	L
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing V Depth D (m)	/ater epth (m)	Level mOD	Depth (m)	Legend		Dese	cription			Water	Backfill	
										-		Medium strong to s mineralisation thro	strong dark gre ughout. Mode	ey LIMESTONE w rately weathere	ith white ca d: reduced	lcite			7.5 —
										-		strength, closer fra- discolouration.	cture spacing,	occasional light	brown				
8.00										-		Discontinuities:							-
8.00										-		1. 5-10 degree fract undulating, rough v	tures medium with light brow	spaced (40/210, n staining on joi	/450), plana nt surfaces.	r,			-
										-		2. 45-50 degree joi	nts widely spa	ced (120/818/26	70), undula	ting,			-
												rough with light bro	own staining o	n joint surfaces.					8.5 -
			95	90	50	10				-		<ol> <li>80-90 degree join undulating, rough v</li> </ol>	nts from 5.20- with light brow	5.30m, 5.90-6.00 n staining on joi	0m and 6.20 nt surfaces.	-6.30m,			-
										-									9.0
9.30 - 9.50	C2									-									-
9.50						<u> </u>				-									9.5 —
										-									-
	75   7									-									10.0
										-									-
10.50 - 10.7 10.50	75 C3								23.55	- 10.50			End of Bore	hole at 10.50m				<u>i</u>	10.5 -
										-									-
										-									11.0
										-									-
										-									11.5 -
										-									-
										-									12.0
										-									-
										-									- 12.5 —
										-									-
										-									
																			-
										-									-
										-									-
										-									14.0
										-									-
										-									-
			TCR	SCR	RQD	FI				-									
Ctruck at ()	Water	Strikes	Peer		R	lema	rks				•								
Struck at (m)	casing to (m)	initie (min)	KOSE	: .o (n	ויי N	1spec Io ob	tion pit vious gi	han oun	nd dug to ndwater st	1.20m. trikes - wat	ter added	during coring.							
Casing Details         Core Barrel           To (m)         Diam (mm)																			
10.50	200	Flush		e	<b>–</b> т	ermi	natio	ı Re	ason						I	Last Up	date	d 🖃	
		Wa	ater		Т	ermir	nated a	: sch	reduled d	epth.						23/05/2	2023	A	GS

			SEC SEC		A EC	<b>Y</b> H		Proje 23-	ect No. 0237	Project Client:	Name: Laurclav Turnkey	agh WF; Gro Developme	ound Investiga nts	ation		Boreh RC	ole ID 05
Met	hod	Plant	Jsed		Тор	(m)	Base (r	n) Coor	dinates							Sheet	1 of 2
Rotary	Drilling	Comacch	nio 60	)2	0.	00	3.00	5004	00.01.5	Final De	epth: 10.00 m	Start Date:	27/04/2023	Driller: G	στ	Scale	: 1:40
Rotary	Coring	Comaccr	110 60	)2	3.	00	10.00	7437	80.01 E 83.20 N	Elevatio	on: 43.53 mOD	End Date:	27/04/2023	Logger: A	ĸ	FIN	IAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Wa Depth Dep (m) (n	er Level th ) mOD	Depth (m)	Legend		Desc	ription			Aate Bacl	cfill
1.50 - 1.65	SPT(C) 5 62mm/ 87mm)	50 (25 for 50 for						42.33	2.30		Stiff brown CLAY wi subangular. Boulde Dense brownish gre	ith low cobble rs are subroun ey GRAVEL (Dri 's description)	and boulder con ded. Iler's description	tent. Cobbles	s are		
4.50			100	97	93	4		40.53	- 3.00 		Strong thickly lamir weathered: slightly slight yellowish bro Discontinuities: 1. 10-20 degree bee undulating, smooth up to 2mm thick. 2. Seven 50-60 deg and 9.80m, undulat surfaces up to 2mm	nated greyish b reduced stren wn discoloura dding fracture: n, with brownis ree joints at 3. ting, rough, wi n thick.	rown LIMESTON gth, closer fractu- tion on fracture s 5, closely spaced th grey clay infill 15m, 3.30m, 3.6 th brownish grey	IE. Slightly ure spacing, v surfaces. (50/150/500 on joint surfa 5m, 5.00m, 8 v clay infill on	with )), aces 3.20m I joint		3.0
6.00			100	85	80												5.0 — 5.0 — 5.5 — 5.5 — 6.0 —
	)						rks										6.5 — - - - - - - - - - - - - - - - - - - -
Struck at (m)	itruck at (m) Casing to (m) Time (min) Rose to (m)       Inspection p         Casing Details       No obvious         To (m)       Diam (mm)         SK6L       Flush Type         Terminated								9 1.20m. trikes - wa	ater added	during coring.				<b>Last Upd</b> 23/05/2	lated	AGS

2					Proje	ct No.	No. Project Name: Laurclavagh WF; Ground Investigation					Borehole ID											
	-}) C	AUS	E	W	A	Y			23-0	0237	Client:	:	Tu	ırnkey	Developm	ents			F	RC05			
	8	(	GEC		EC	Н					Client's	s Rep	<b>o</b> Er	nerco E	Energy								
Met Botary	hod Drilling	Plant l	Jsed	02	Top	(m)	Base	( <b>m)</b>	Coord	linates	Final De	epth:	10	).00 m	Start Date	27/04/2023	Driller:	GT	She	et 2 of 2			
Rotary	Coring	Comacch	nio 6	02	3.	00	10.0	0	53648	30.01 E									Sca	ale: 1:40			
									74378	3.20 N	Elevatio	on:	43.53	3 mOD	End Date:	27/04/2023	Logger:	AK	F	INAL			
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Vater Depth (m)	Level mOD	Depth (m)	Legend				De	scription			Water	ackfill			
7.50										-		Stro wea	ong thick athered:	kly lamir slightly	nated greyish reduced stre	brown LIMESTON ngth, closer fract	IE. Slightly ure spacing	g, with		7.5	-		
										-		sligh	ht yellov continuit	vish bro ties:	wn discolour	ation on fracture	surfaces.				_		
										-		1. 10 und	0-20 de lulating,	gree bee smooth	dding fracture n, with brown	es, closely spaced ish grey clay infill	(50/150/5 on joint su	i00), urfaces			_		
						>20						up t 2. Se	o 2mm even 50	thick. -60 deg	ree ioints at 3	3.15m. 3.30m. 3.6	- 5m. 5.00m	n. 8.20m		8.0	-		
			100	87	75	- 20				-		and surf	9.80m, aces up	undulat to 2mm	ting, rough, w n thick.	ith brownish grey	clay infill	on joint			_		
										-										8.5	-		
						7						Ī									-		
9.00										-		I								9.0	_		
										-		I									_		
			100	90	70	2						I								9.5	_		
										-		L T									_		
10.00									33.53	- 10.00		-			End of Bor	ehole at 10.00m				10.0			
																		-					
										-										10.5	_		
										-											_		
										_										11.0	_		
										-											_		
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										Ē										11.5	-		
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										-										13.0			
										-											_		
										-										13.5	_		
										-											-		
																				14.0	_		
										-											_		
										-											_		
			TCR	SCR	RQD	FI				-									-	14.5	-		
	Water Strikes Remarks								<u></u>	1	1								I	-			
struck at (m)	Casing to (m)	to (m) Time (min) Rose to (m) Inspection pit No obvious g							nd dug to ndwater si	1.20m. trikes - wat	ter added	durin	g coring										
Casing To (m)	n) Diam (mm)																						
, <i>,</i>	,	Sk Eluck	.6L		<b> </b> -	orm:	notic	D P -	2507									pet Lie	dated		-		
			i iyp	c		ermir	nated	i rie t sch	asun neduled d	enth								23/05/	2023		0		
1		1			-   "		.uccu d		uuu									23/03/1		HAUL	23/05/2023 AGS		

	C		<b>E</b> Geo		<b>A</b> EC	<b>Y</b> H			Proje 23-(	ct No. )237	Project Name:       Laurclavagh WF; Ground Investigation         Client:       Turnkey Developments         Client's Rep       Enerco Energy	Borehole ID RC06
Met	hod	Plant I	Jsed		Тор	(m)	Base	(m)	Coord	linates	inal Denth: 10.00 m Start Date: 30/03/2023 Driller: GT	Sheet 1 of 2
Rotary Pe Rotary	coring	Comacch Comacch	nio 60 nio 60	)2 )2	0. 3.	00 00	3.0 10.0	0	53736 74349	1.34 E 4.58 N	Elevation: 38.01 mOD End Date: 30/03/2023 Logger: DM	Scale: 1:40 FINAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth	Vater Depth	Level	Depth (m)	Legend Description	Backfill
1.50 1.50 - 1.95	D1 SPT(S) N (2,3/4,4,	=19 .5,6)					(m)	(m)	36.81	2.25	Soft brown slightly sandy CLAY. Sand is fine to coarse.         Soft brown slightly sandy CLAY. Sand is fine to coarse.         Stiff greyish brown sandy gravelly CLAY (Driller's Description).         Medium dense grey angular GRAVEL of limestone. (Possible weathered bedrock) (Driller's Description).	
3.10 - 3.40	C1	90	55	6 >20			35.01	- 3.00	Strong dark grey LIMESTONE with white calcite mineralisation         Strong dark grey LIMESTONE with white calcite mineralisation         throughout. Slightly weathered: slightly reduced strength, slightly         closer fracture spacing, with occasional brown discolouration.         Discontinuities:         1         1. 5-10 degree fractures medium spaced (40/212/470), planar,         undulating, rough with light brown staining and clay infill on fract         surfaces.         2. 35-45 degree fractures widely spaced (100/700/1250), undulat         rough with light brown staining on joint surfaces.	1.0		
4.50 6.00 6.30 - 6.45	.50 .50 .00 .30 - 6.45 C2 .90 85										3. One 90 degree fracture from 9.15-9.30m, undulating, rough, greyish brown staining on joint surface.	4.5
Struck at (m)	Water Casing to (m) Details Diam (mm)	Strikes Time (min) Core St Flush	Rose Barre	SCR to (r	RQD R n) Ir N	FI ema hspec o obv	rks tion pi vious g	t han roun	nd dug to dwater st ason	1.20m.	r added during coring.	t Updated

	¢		E			Y		Project No. 23-0237		ct No. )237	<ul> <li>Project Name: Laurclavagh WF; Ground Investigation</li> <li>Client: Turnkey Developments</li> <li>Client's Rep Energy</li> </ul>					Borehole ID RC06		
			100				<u> </u>			<u> </u>	Client's	s Rep Enerco E	nergy I					
Rotary Pe	nod	Comacch	Jsed	02	<b>Тор</b> 0.	(m) 00	Base ( 3.00	<b>m)</b> 0	Coord	linates	Final De	epth: 10.00 m	Start Date: 30/03/2023	Driller:	GT	Sh S <sup>,</sup>	eet 2 c cale: 1:	∍f 2 :40
Rotary (	Coring	Comacch	10 60	)2	3.	00	10.0	0	53736 74349	1.34 E 14.58 N	Elevatio	on: 38.01 mOD	End Date: 30/03/2023	Logger:	DM		FINAI	Ĺ
Depth (m)	Samples /	/ Field Records	TCR	SCR	RQD	FI	Casing V Depth D (m)	/ater ∙epth (m)	Level mOD	Depth (m)	Legend		Description			Water	Backfill	
7.50						-						Strong dark grey LIN throughout. Slightly closer fracture spac Discontinuities: 1. 5-10 degree fract undulating, rough w	VESTONE with white calcite m v weathered: slightly reduced s cing, with occasional brown dis tures medium spaced (40/212/ vith light brown staining and cl	ineralisatior trength, slig colouration (470), plana ay infill on f	n ghtly  Ir, fracture			7.5
9.00			95	85					- - - - - - - -		<ol> <li>2. 35-45 degree fraction of the second second</li></ol>	ctures widely spaced (100/700 own staining on joint surfaces. acture from 9.15-9.30m, undu ing on joint surface.	/1250), unc lating, roug	dulating, h,			8.5 — 9.0 —	
9.60 - 9.75	C3	65	20	10				-										
10.00									28.01	- 10.00			End of Borehole at 10.00m					
	Water Strikes     RQD       (m) Casing to (m) Time (min) Rose to (m)     Ir						-									_		
Struck at (m)	Casing to (m)     Time (min)     Rose to (m)     Inspection pit       inspection pit     No obvious gr       inspection pit     SK6L       Flush Type     Termination       Water     Terminated a							han 'oun <b>1 Re</b> t sch	id dug to dwater st rason	1.20m. :rikes - wat	ter added	during coring.			<b>Last Upo</b> 23/05/2	<b>Jatec</b> 2023		GS

	C		<b>BE</b>		<b>A</b> EC	<b>Y</b> H			Proje 23-(	ct No. )237	<ul> <li>Project Name: Laurclavagh WF; Ground Investigation</li> <li>Client: Turnkey Developments</li> <li>Client's Rep Enerco Energy</li> </ul>					Borehole ID RC07		
Met	hod	Plant	Used	12	Тор	(m)	Base	(m)	Coord	inates	Final De	<b>pth:</b> 10.50 m	Start Date: 30/03/202	3 Driller	GT	Sh	eet 1 of 2	2
Rotary Pe Rotary	coring	Comacch	110 60 110 60	)2 )2	0. 3.	00	3.0 10.1	0 50	53737	0.78 E		20.47 = 00	Fud Date: 20/03/202			Sc	ale: 1:40	)
Depth							Casing	Water	/4351	0.49 N	Elevatio	n: 39.47 mOD	End Date: 30/03/202	B Logger:		5		
(m)	Samples	Field Records	TCR	SCR	RQD	FI	Depth (m)	Depth (m)	mOD	(m)	Legend	Soft brown CLAY.	Description			Wat	Backfill	
1.50 - 1.95	SPT(C) N (2,3/2,3,	=12 4,3)							38.27	- 1.20		Firm to stiff greyish	brown sandy gravelly CLAY	(Driller's Des	scription)		0 1 1 2	
3.00 - 3.45	SPT(C) N (4,7/7,8,	=29 7,7)							36.47	- - - - - - - - - - - - - - - -		Medium dense ligh subangular fine to r	t brown slightly sandy claye nedium GRAVEL. Sand is fir	y subrounde e to coarse.	d to		3	2.5
			90						35.77	- 3.70 - - - -		Dense light brown s Gravel is subangula	slightly gravelly sandy CLAY. r to subrounded fine to me	Sand is fine t dium.	to coarse.		4	- - - 1.0
4.50 - 4.64 4.50	SPT(C) 5 67mm/5 78mm)	0 (25 for 0 for			NI				-							4	+.5       	
5.00 - 5.15			93	15	15				34.17	- - - 5.30 - -		Dense light orangisl coarse SAND. Grave	h brown slightly gravelly cla I is subangular to subround	yey slightly fi ed fine to m	ine to edium.		5	3.0         3.5
6.00									33.62	- 5.85 - - -		Strong dark grey LIN throughout. Slightly closer fracture spac Discontinuities:	MESTONE with white calcite y weathered: slightly reduce ing, rare light brown discole	mineralisati d strength, s puration.	on lightly		6	
			93	80					- - - - -		undulating and roug	gh.	, ₀, ¬↔₀, µıdl	indiy		7	7.0	
		SCR	RQD	FI				-										
Struck at (m)	Water Casing to (m) Details Diam (mm)	el e	R n) Ir N Т	Rema hspec lo obv	irks ition pi vious g <b>inatio</b> nated a	t har rour <b>n Re</b>	nd dug to idwater st eason	1.20m. rikes - wa	ater added	during coring.			Last Up 23/05/	<b>dated</b> 2023	AC	L S		
						Proje	ect No.	Project	t Name: Laurclav	agh WF; Ground Investig	ation		Boreh	ole ID				
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	C	AUS	SE	W		Y		23-	0237	Client:	Turnkey	Developments			RC	07		
	$\mathcal{D}$ –		GEC	DTI	EC	Н				Client's	<b>s Rep</b> Enerco E	Energy						
Met	hod	Plant U	Jsed		Тор	(m)	Base (m	) Coor	dinates		10 F0 m				Sheet	2 of 2		
Rotary Pe Rotary	coring	Comacch Comacch	1io 60 1io 61	02 02	0. 3.	00 00	3.00	5373	70.78 E	Final De	epth: 10.50 m	Start Date: 30/03/2023	Driller: (	51	Scale	: 1:40		
, ·				-				74352	16.49 N	Elevatio	on: 39.47 mOD	End Date: 30/03/2023	Logger: [	м	FIN	IAL		
Depth	Samples	Field Records	TCR	SCR	ROD	FI	Casing Wate	Level	Depth	Legend		Description			b Back	fill		
(m)							(m) (m)	mOD	(m)		Strong dark grey LI	MESTONE with white calcite m	ineralisation		<u>×</u>	-		
7.50				<u> </u>		1			-		throughout. Slightly closer fracture space	y weathered: slightly reduced s cing, rare light brown discolour	trength, slig ation.	htly		7.5 —		
									-		Discontinuities:					-		
									-		1. 5-10 degree fract undulating and rou	tures medium spaced (90/270, gh.	(440), planar	;		8.0		
8.20 - 8.40	C2		95	95	95				-							-		
									-							8.5 —		
																-		
9.00						6			-							9.0		
									-							-		
									-							-		
9.55 - 9.90	СЗ															9.5 -		
			83	80	75				-							-		
									-							10.0		
									-							-		
10.50				$\vdash$				28.97	10.50			End of Borehole at 10.50m				10.5 -		
									-							-		
									-									
									-							-		
																-		
									-							-		
									-							-		
									-							12.0 -		
																-		
									-							12.5 —		
									-							-		
									-									
																-		
									_							- 13.5		
									-							-		
									-							-		
																14.0		
									-							-		
				<u> </u>		<u> </u>			-							14.5 -		
	Water	Strikes	TCR	SCR	RQD	FI	urks											
Struck at (m)	Casing to (m)	Time (min)	Rose	e to (r	n) Ir	ispec	tion pit h	and dug to	) 1.20m.									
					N	0 00	vious grou	indwater s	trikes - wat	ter added	during coring.							
Casing	Details	Core	Barr	el	$\neg$													
To (m)	Diam (mm)	Sk	(6L															
		Flush	і Тур	e	Т	ermi	nation F	eason						Last Upd	ated			
	Water Terminated					nated at s	cheduled c	lepth.					23/05/20	)23	AGS			

	CAUSEWAY GEOTECH Method Plant Used Top (m) Base								Proje 23-(	ct No. )237	Project Client: Client's	Name: Laurclava Turnkey Rep Enerco E	agh WF; Groun Developments Energy	nd Investiga ;	ation		Boreho RCO	ole ID )8
Meth	hod	Plant L	Jsed		Тор	(m)	Base	(m)	Coord	linates	Final De	• 10.00 m	Start Date: 25	/04/2023	Driller	GT	Sheet 2	1 of 2
Rotary [ Rotary (	Orilling Coring	Comacch Comacch	1io 60 1io 60	)2 )2	0.0 3.1	00 50	3.5 10.	50 00	53650 74380	0.99 E )5.31 N	Elevatio	n: 43.75 mOD	End Date: 25	/04/2023	Logger:	АК	Scale: FIN	1:40 AL
Depth	Samples	/ Field Records	TCR	SCR	ROD	EL	Casing	Water Depth	Level	Depth	Legend		Descripti	ion			a Back	611
(m)							(m)	(m)	mOD	(m) -		Brown CLAY with lo	w boulder content	t. Boulders ar	re angular.		3	-
1.50 - 1.95	SPT(C) № (4,7/10,	√=44 ,12,12,10)							42.55	- - - - - - - - - - - - - - - - - - -		Dense grey BOULDE	ERS and COBBLES (	(Driller's desc	ription)			
						41.25 41.25 40					's description)					2.5		
		100 90 95 4 <u>&gt;20</u> 9					40.25	- 3.50		Strong very thinly la Moderately weather spacing with occasin Discontinuities: 1. 10-20° bedding fr Undulating, rough vy yellowish brown cla 2. One 45° joint at 8 staining. 3. Three 80-90° join and rough, with occ	aminated light grey ered: slightly reduc onal yellowish bro ractures medium s with rare yellowish ay infill up to 5mm .55m planar, smoo nts at 4.5-4.6m, 5.0 casional yellow, bro	y dolomotise sed strength, wm discolour spaced (50/2! h brown staini thick. oth with yello D-5.7m, 9.35- own staining,	d LIMESTC closer fra- ation on s 50/750). ing. Comn owish brov 9.5m und , clean.	DNE, cture surfaces. non wn ulating		4.0		
5.00			97	90	86	<u>&gt;20</u> 6 >20												5.0
6.50 Struck at (m)	Water Casing to (m	• <b>Strikes</b> )  Time (min)	100 TCR Rose	100 SCR	100 RQD R N Ir N	FI lema hspeci lo obv	r <b>ks</b> tion p	it har grour	nd dug to ndwater st	- - - - - - 1.20m. trikes - wa	ater added	during coring.						6.5 — — 7.0 — — —
Casing To (m)	Details Diam (mm)	j Core Sk Flush Wa	Barre	эl e	 ग	<b>ermi</b>	natio	on Re	<b>:ason</b> neduled di	epth.						<b>Last Upd</b> 23/05/2	lated	AGS

						Proje	ect No.	Project	: Name: Laurclav	agh WF; Gro	ound Investig	ation		Boi	rehole	e ID			
	C		SE'	W	A	Y			23-(	0237	Client:	Turnkey	Developme	nts				RC08	3
	/ -		SEC	DTE	EC	Н					Client's	<b>Rep</b> Enerco E	Energy						
Met	hod	Plant L	Jsed	02	Тор	(m)	Base	(m)	Coord	linates	Final De	<b>epth:</b> 10.00 m	Start Date:	25/04/2023	Driller:	GT	Sh	eet 2 o	of 2
Rotary I Rotary	Coring	Comacch	110 60 110 60	)2 02	0. 3.	.50	3.50	0	53650	)0.99 E		<b></b> 10.00 m		23/01/2023			Sc	ale: 1:	40
									74380	)5.31 N	Elevatio	<b>43.75 mOD</b>	End Date:	25/04/2023	Logger:	AK	F	INAL	L
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing V Depth D (m)	Vater Pepth (m)	Level mOD	Depth (m)	Legend		Desc	ription			Water	Backfill	
								. /				Strong very thinly la Moderately weather	aminated light	grey dolomotise	ed LIMESTO	ONE, cture	-		
												spacing with occasi	ional yellowish	brown discolou	ration on s	surfaces.			
										-		1. 10-20° bedding f	ractures medi	um spaced (50/2	50/750).				-
8.00						1				-		yellowish brown cla	ay infill up to 5	mm thick.	ing. comi	non			8.0
						3				-		<ol> <li>One 45° joint at 8 staining.</li> </ol>	3.55m planar, s	mooth with yell	owish brov	vn			-
										-		<ol> <li>Three 80-90° joir and rough, with occ</li> </ol>	nts at 4.5-4.6m casional yellow	, 5.0-5.7m, 9.35 , brown staining	-9.5m und ;, clean.	ulating			8.5 —
			97	80	76														-
										-									- 9.0
										-									-
						>20				-									-
9.50				-		120				-									9.5 —
			100	100	100	2				-									-
10.00			<u> </u>	–		<u> </u>			33.75	- 10.00			End of Borel	hole at 10.00m					10.0
										-									-
										L									10.5 —
										-									-
										-									-
										-									11.0
										-									-
										-									- 11.5
										-									-
										-									-
										[									
										-									-
										-									12.5 -
										-									-
										-									
										-									-
										-									-
										-									13.5 -
										-									
										[									14.0
										-									-
										-									- 14.5
			TCR	SCR	RQD	FI				-							-		
	Water	Strikes			R	tema	rks				•								
Struck at (m)	Casing to (m)	lime (min)	Rose	2 to (n	n) Ir N	nspec Io obi	tion pit vious gr	: har roun	ıd dug to ıdwater s <sup>ı</sup>	1.20m. trikes - wa	ter added	during coring.							
Casing	Details	Core	Barro	el															
To (m)	Diam (mm)	- SK	(6L																
		Flush	Тур	e	Т	ermi	natior	ו Re	ason							Last Upo	lated		
		Water Terminated a						t sch	ieduled d	epth.						23/05/2	2023	A	GS

	C		SEC GEC		A EC	<b>Y</b> H			Proje 23-(	ct No. 0237	Project Client: Client's	Name: Laurclav Turnkey Rep Enerco E	agh WF; Gro Developme Energy	ound Investig nts	ation		Borehole I RC09	D
Met	hod	Plant U	Jsed		Тор	(m)	Base (	m)	Coord	linates							Sheet 1 of 2	2
Rotary Pe Rotary	rcussion	Comacch Comacch	nio 60 nio 60	)2 )2	0. 3	00 00	3.00		53688	9 19 F	Final De	epth: 10.00 m	Start Date:	30/03/2023	Driller:	GT	Scale: 1:40	)
notary		comaco		-			10.0		74354	8.39 N	Elevatio	<b>n:</b> 36.62 mOD	End Date:	30/03/2023	Logger:	DM	FINAL	
Depth	Samples	/ Field Records	TCR	SCR	ROD	FI	Casing W Depth D	ater	Level	Depth	Legend		Desc	ription			ਸ਼ੁੱ ਸ਼ਿ Backfill	
(m)							(m) (	m)	mOD	(m)		Soft brown slightly	sandy CLAY. Sa	nd is fine to coa	rse.		3	
1.50 1.50 - 1.95	D1 SPT(S) N (4,4/4,5	=19 .5,5)						:	35.42	1.20		Stiff brownish grey	sandy gravelly	CLAY. (Driller's E	Description).		0 1 1 2 2	
4.50	50 92 85 7				50	8			33.62	- 3.00		<ul> <li>Strong dark grey LII throughout. Slightly closer fracture spac Discontinuities:</li> <li>1. 5-10 degree fracture undulating, rough v</li> <li>2. 40-45 degree fracture and rough.</li> <li>3. 90 degree fracture undulating and rough</li> </ul>	MESTONE with y weathered: s ing, rare light tures closely sg vith light brow ctures widely s res from 4.35-4 gh.	white calcite m lightly reduced s brown discolour paced (20/115/3 n discolouration spaced (110/777 4.50m, 5.75-6.00	ineralisatior strength, slig ation. 40), planar, on joint sur 7/1650), und Dm and 6.50	rfaces. Iulating	3 4 5 5	
6.00						12				-							6	- i.0
6.70 - 7.10	C1		99	95	87					-							6	i.5     1.0     1.0
		<b>a</b> . <b>r</b>	TCR	SCR	RQD	FI	ĻĹ											
Struck at (m) Casing To (m)	Water Casing to (m) Details Diam (mm)	Strikes Time (min) Core Sk Flush	Rose Barre	<u>e</u> to (r	R n) Ir N T	ermir	rks tion pit vious gr nation	hand oundv Reas	dug to water st son duled de	1.20m. rikes - wa	iter added	during coring.				Last Upo 23/05/2	Jated 2023	

						Proje	ct No.	Project	t Name: Laurclav	agh WF; Ground	Investiga	ation		Во	rehole	e ID			
	C	AUS	E	W		Y			23-0	0237	Client:	Turnkey	Developments					RC09	)
	$\mathcal{D}$ –		GEC	DT	EC	Н					Client's	<b>s Rep</b> Enerco E	Energy						
Met	hod	Plant I	Used		Тор	(m)	Base	(m)	Coord	linates						от.	Sh	ieet 2 c	of 2
Rotary Pe Rotary	rcussion Coring	Comacch Comacch	nio 60 nio 60	02 02	0. 3.	00 00	3.00	0	53688	39.19 E	Final De	eptn: 10.00 m	Start Date: 30/0	J3/2023	Driller: (	31	S	cale: 1:	40
	0								74354	48.39 N	Elevatio	on: 36.62 mOD	End Date: 30/0	03/2023	Logger: [	DM		FINAI	L
Depth	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing V Depth D	Vater epth	Level	Depth	Legend		Description	n			ater	Backfill	
(m)							(m)	(m)	mOD	(m) -		Strong dark grey LI	MESTONE with white	e calcite mi	neralisation		3		_
7.50										-		closer fracture space	y weathered: slightly cing, rare light brown	y reduced s n discoloura	trength, slig ation.	htly			7.5 —
												Discontinuities:							-
										_		<ol> <li>5-10 degree fract undulating, rough v</li> </ol>	tures closely spaced with light brown disc	(20/115/34 colouration	40), planar, on joint sur	faces.			8.0
			97	95	65	15				-		2. 40-45 degree fra	ctures widely space	d (110/777,	/1650), und	ulating			-
0.00.000										-		and rough.							8.5 —
8.60 - 8.80	CZ									-		3. 90 degree fractur undulating and rou	res from 4.35-4.50m gh.	n, 5.75-6.00	m and 6.50	-6.55m,			-
9.00										-			0						9.0
9.20 - 9.30	C3									-									-
										-									-
			100	97	97	4				_									9.5 -
										-									_
10.00									26.62	- 10.00			End of Borehole a	at 10.00m					10.0
										-									-
										-									10.5 —
																			-
										-									-
										-									-
										-									-
										-									11.5 -
										-									12.0
										-									-
										-									- 12.5 —
										-									-
										-									
										-									-
										-									13.5 -
										_									14.0
										-									-
										-									 14.5
			TCR	SCR	RQD	FI	$1 \mid $			<u> </u>									
Struck at (m)	Water Casing to (m)	Strikes Time (min)	Rose	e to (r	n) I	lema	irks	har	nd dug te	1 20m									
	0 -= ()			- 1	Ň	lo ob	vious gi	roun	idwater si	trikes - wat	er added	during coring.							
Casing To (m)	Details Diam (mm)	Core	Barr	ei															
		Sk 	.6L			<b>.</b>	in at									10-1 1		, I <del></del>	
		Flush	і Гур	e		ermi	inatior	ı Ke	ason							Last Up	Jatec		
		Wa	ater			ermir	nated a	t sch	neduled d	epth.						23/05/2	:023	A	նՏ

GEOTECH  Method Plant Used Top (m) Base								Proje 23-(	ct No. 0237	Project Client: Client'	t Name: Laurclav Turnkey s Rep Enerco E	agh WF; Ground Invo Developments Energy	estigation		Во	rehole ID RC11	
Met	hod	Plant l	Jsed	12	Тор	(m)	Base (	m)	Coord	linates	Final De	epth: 10.00 m	Start Date: 25/04/20	D23 Driller:	GT	She	eet 1 of 2
Rotary	Coring	Comacch	nio 60	)2	3.	50	10.0	0	53649 74379	98.64 E 90.15 N	Elevatio	on: 43.37 mOD	End Date: 25/04/20	D23 Logger	: AK	Sc I	FINAL
Depth (m)	Samples ,	/ Field Records	TCR	SCR	RQD	FI	Casing W Depth De	ater epth	Level mOD	Depth (m)	Legend		Description			Vater	Backfill
(m)	SPT(C) N Omm/50	I=50 (25 for ) for 75mm)	100	95	86	4		m)	42.17 39.87	(m) (m) (m) (m) (m) (m) (m) (m)		Brown CLAY. Grey GRAVEL and B Grey GRAVEL and B Strong thickly lamir weathered: Slightly occasional yellowis Discontinuities: 1. 10-20 degree bec undulating, smooth surfaces. 2. Five 40-50 degree	NOULDERS (Driller's descri nated brownish grey LIME reduced strength, slight h brown discolouration o dding fractures, closely sp , with brownish grey stai e joints at 4.50m, 5.30m,	STONE. Slightl y closer fractur n fracture surfa paced (20/95/5 ning on fractur 7.50m, 9.10m	y re spacing, aces. 00), e and	Wa	2.0
5.00 6.50 Struck at (m) Casing To (m)	Water Casing to (m) Details Diam (mm)	Strikes Time (min) Core	100 100 TCR Rose Barro	95 98 scr to (r	88 86 RQD I I I I N	5 >20 6 FI Rema	rks tion pit	han	d dug to dwater st	1.20m.		during coring.				batch	5.0
		Flush Wa	ater	e	т т	<b>ermi</b> ermir	nation	sche	<b>ason</b> eduled d	epth.					23/05/:	<b>dated</b>	AGS

							Proje	ct No.	Project	: Name: Laurclav	agh WF; Gro	ound Investig	ation		Во	rehole	e ID		
	C	AUS	E	W		Y			23-0	0237	Client:	Turnkey	Developme	nts				RC11	L
	8/ -	C	GEC	DTI	EC	Н					Client's	<b>Rep</b> Enerco E	Energy						
Met	hod	Plant l	Jsed		Тор	(m)	Base	(m)	Coord	dinates				05/04/0000			Sh	ieet 2 d	of 2
Rotary I Rotary	Drilling Coring	Comacch Comacch	nio 60 nio 60	02 02	0. 3.	00 50	3.5 10.0	0	53649	98.64 E	Final De	epth: 10.00 m	Start Date:	25/04/2023	Driller: (	GI	S	cale: 1	40
,	8								74379	90.15 N	Elevatio	on: 43.37 mOD	End Date:	25/04/2023	Logger: /	AK		FINA	L
Depth	Samples	/ Field Pecords	TCP	sc.	POD	-	Casing	Nater	Level	Depth	Logond		Dors	rintion			tter	Packfill	
(m)	Jampies		Ten	Jen	NQD		(m)	(m)	mOD	(m)	Legenu	Strong thickly lamir	nated brownish	grey LIMESTON	IE. Slightly		Ň	Dackini	_
										-		weathered: Slightly occasional vellowis	reduced stren	gth, slightly clos ouration on frac	er fracture s ture surface	spacing, es.			7.5 —
						5				-		Discontinuities:	dding fractures	closely spaced	(20/95/500	0			
8.00										-		undulating, smooth	h, with brownis	h grey staining o	on fracture	),			8.0
										-		surfaces. 2. Five 40-50 degre	e joints at 4.50	m, 5.30m, 7.50ı	n, 9.10m an	d			-
										-		9.60m, undulating, surfaces.	rough, with br	ownish grey sta	ining on frac	ture			-
										-									8.5 —
			100	83	83	7				-									-
										-									9.0
										-									-
0.50										-									-
9.50																			9.5 -
			100	70	70	3				_									
10.00									33.37	- 10.00			End of Boreh	ole at 10.00m					10.0
										-									-
										-									- 10.5 —
										-									-
										-									-
										-									11.0
										-									-
										-									11.5 —
										-									-
										-									-
																			12.0 -
																			-
										-									12.5 -
										-									-
										-									-
										-									
										-									-
										-									13.5 -
										-									-
										-									- 14.0
										-									-
										-									-
			TCR	SCR	ROD	FI				-							╞		
	Water	Strikes	1	1.2.1	R	lema	rks			<u> </u>	1								1
Struck at (m)	Casing to (m)	Time (min)	Rose	e to (r	n) Ir	nspec	tion pi	t har	nd dug to	1.20m.		dunta e conta e							
					IN	10 01	vious g	rour	iuwater si	unkes - wai	ter added	during coring.							
Casing	Details	Core	Barro	el	$\neg$														
To (m)	Diam (mm)	Sk	(6L																
		Flush	Tvp	e	┝	ermi	natio	n Re	ason							Last Unr	Jater	1 I	
		W/:	ater	-	т.	ermir	nated a	t scł	neduled d	epth.						23/05/2	2023	Л	6
1					- L "					P						_3, 33, 2			UD



### APPENDIX C CORE PHOTOGRAPHS

### Report No.: 23-0237

### Laurclavagh



RC01 Box 1 (3.50-5.00m)



RC02 Box 2 (5.00-6.50m)



RC01 Box 3 (6.50-8.00m)



RC01 Box 4 (8.00-9.50m)



RC01 Box 5 (9.50-10.50m)



### Report No.: 23-0237

### Laurclavagh

		Proje	u Laurclawagh	NP		Project No.:	23-02	37				
	01 02	BHN	RCOL	Вох:	De	pth: 2.5	5-4m					
1	WALL AND	THE REAL		Der Carlor	0.8	0.9	1.0		1.2	1.3	1.4	1.5
11 je		1 6				the state		10.0	AR Sa	121-	and the second second	EL.

RC02 Box 1 (2.50-4.00m)



RC02 Box 2 (4.00-5.50m)



RC02 Box 3 (5.50-7.00m)



RC02 Box 4 (7.00-8.50m)



RC02 Box 5 (8.50-10.00m)







### Laurclavagh Report No.: 23-0237 Image: Conserve of the state of the stat

RC04 Box 1 (3.50-5.00m)



RC04 Box 2 (5.00-6.50m)



RC04 Box 3 (6.50-8.00m)



RC04 Box 4 (8.00-9.50m)



RC04 Box 5 (9.50-10.50m)



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### Laurclavagh



RC05 Box 1 (3.00-4.50m)



RC05 Box 2 (4.50-6.00m)



RC05 Box 3 (6.00-7.50m)



RC05 Box 4 (7.50-9.00m)





RC06 Box 1 (3.00-4.50m)



RC06 Box 2 (4.50-6.00m)



RC06 Box 3 (6.00-7.50m)



RC06 Box 4 (7.50-9.00m)



RC06 Box 5 (9.00-10.00m)



### 

RC07 Box 1 (3.00-4.50m)



RC07 Box 2 (4.50-6.00m)



RC07 Box 3 (6.00-7.50m)



RC07 Box 4 (7.50-9.00m)



RC07 Box 5 (9.00-10.50m)



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### RC08 Box 2 (5.00-6.50m)



### RC08 Box 3 (6.50-8.00m)



### RC08 Box 4 (8.00-9.50m)



### RC08 Box 5 (9.50-10.00m)



### LaurclavaghReport No.: 23-02370.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 m

RC09 Box 1 (3.00-4.50m)



RC09 Box 2 (4.50-6.00m)



RC09 Box 3 (6.00-7.50m)



RC09 Box 4 (7.50-9.00m)



RC09 Box 5 (9.00-10.00m)



# Laurclavagh Report No.: 23-0237 Image: Conserved to the served to the served



### RC11 Box 2 (5.00-6.50m)



RC11 Box 3 (6.50-8.00m)



RC11 Box 4 (8.00-9.50m)



RC11 Box 5 (9.50-10.00m)





### APPENDIX D TRIAL PIT LOGS

			Proje	ect No.	Project	Name:	٦ 🗌	Trial Pit ID
	CALIS	EWAY	23-	·0237	Laurcla	vagh WF; Ground Investigation		
		FOTECH	Coor	dinates	Client:			TP01
			5356	30 50 E	Turnke	y Developments		
Method:			7/25	00.00 L	Client's	s Representative:	S	heet 1 of 1
Trial Pitting			74550	55.62 1	Enerco	Energy	0	Scale: 1:25
Plant:			Elev	<i>v</i> ation	Date:	Logger:		EINIAI
13T Tracked Exe	cavator		32.58	3 mOD	22/03/	2023 MMC		TINAL
Depth (m)	Sample /	Field Records	Level	Depth (m)	Legend	Description	Nater	
(11)	16313			- (111)		TOPSOIL: Firm greyish brown slightly sandy CLAY with rootlets. Sand is	-	
			22.20	6 0.20		fine to coarse.		-
			32.38	0.20		Firm light greyish brown slightly sandy CLAY. Sand is fine to coarse.		
0.40	B1			ŀ				_
				F				0.5
			31.98	0.60	a	Soft to firm light grey sandy gravelly CLAY with low cobble content. San	4	
				Ĺ	4 00 P	is fine to coarse. Gravel is subrounded fine to coarse of limestone.		
				ŀ	000 ° 100 0 10 0 0	Cobbles are subrounded of limestone.		-
0.90	B2			F	000 000 100 000 00			_
				Ē	200 - 00 200 - 00 200 - 00			1.0
				-				_
				F				_
				E				
				-	0000 0000 0000			1.5 —
				F	0000 0000 0000			-
1.80	<b>D</b> 2			F	0.00 0.00 0.00			-
1.80	53			Ĺ	م <u>من</u> م			
				+  -	64 60 U			2.0
				F				-
				Ē	÷a : 0 0 0			
				-				
				F				-
			30.08	- 2.50 [	XXXX	Firm to stiff light grey slightly sandy slightly gravelly SILT. Sand is fine to		2.5
				F	XXXX	coarse. Gravel is subrounded fine to medium of limestone.		_
				F	XXXX			_
				ŧ	XXXX			-
3.00	B4				XXXX			3.0
				F	XXXX			-
				ŧ	$\times \times \times$			_
				ŀ	$\times \times $			_
			29.08	3.50		End of trial nit at 3.50m	-	3.5 —
				Ē				
				ŀ				
				F				
				ļ L				4.0
				ŀ				
				F				-
				Ē				-
				ŀ				
				F				4.5
				Ē				
				ŀ				_
				F				-
				ŀ				
Water	Strikes	Depth: 3.50	Rem	arks:				
Struck at (m)	Remarks	Width 0.70	No g	groundwate	er encou	ntered.		
		Length: 3.50	<u> </u>					• I <del></del>
		Stability:	Tern	nination R	eason	Last	Update	
	Term	inated due	to pit wall	s collapsing. 23/	05/2023	AGS		

			Proje	ect No.	Projec	t Name:			Tri	al Pit ID
	CAUS	FWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation				
	(	GEOTECH	Coor	dinates	Client:				-	TP02
			5365	12.78 E	lurnke	y Developments				
			7439	72.98 N	Client	s Representative:			She	et 1 of 1
Irial Pitting					Enerco	Energy	1.00000		Sca	ale: 1:25
Plant:	a vata r		Elev	vation		2022	Logger:		F	INAL
13t Tracked Exc			47.40	Denth	17/04/	2023	IVIIVIC		5	
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description			Wate	
			47.26	0.20	-	Light grey very clayey fine to coarse SAND and angular	to subang	ular fine		-
0.40	B1		46.96	- 0.50		Light grou very candy silty angular to subangular GRAV	FL of lime	stone		0.5 —
				- - - - - - - - - - - - - - - - - - -		with medium cobble and boulder content. Sand is fine are subangular of limestone. Boulders are subangular (Possible weathered bedrock)	of limestor	. Cobbles ne.		  1.0
1.20	82		46.06	- 140						-
			40.00	- 1.40		End of trial pit at 1.40m				1.5 —
			-						-	
				- 						2.0
				-						-
				-						-
				- - -						2.5
				- - -						_
				-						
				-						5.0
				-						_
				-						_
				-						_
				-						3.5 —
										_
				-						_
				-						_
										4.0
				-						_
				-						_
				-						4.5
				-						_
				-						-
				ŀ						_
				-						
14/_4	Strikes		Ron	narks:						
Water Struck at (m)	Remarks	<b>Depth:</b> 1.40	No s	groundwat	er encou	ntered.				
		Width: 1.00								
		Length: 2.50								
		Stability:	Terr	nination R	eason			Last Upo	lated	
		Unstable	Term	ninated on p	ossible be	drock.		23/05/2	2023	AGS

			Proje	ect No.	Project	Name:			Tria	al Pit ID
	CAUS	FWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation				
	G	EOTECH	Coor	dinates	Client:				٦	ГРОЗ
			5382	79 07 F	Turnke	y Developments				
Method:			7/38	08.34 N	Client's	Representative:			She	et 1 of 1
Trial Pitting			7430	00.54 1	Enerco	Energy			Sca	ale: 1:25
Plant:			Elev	vation	Date:		Logger:		F	ΙΝΔΙ
13T Tracked Exe	cavator		41.01	L mOD	23/03/	2023	MMC			
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description			Water	
						TOPSOIL				
				-						_
			40.76	- 0.25	XXXX	Firm light brownish grey sandy gravelly SILT. Sand is	fine to coars	e. Gravel		_
					XXXX	is subangular to subrounded fine to medium of lim	estone.			_
				-	XXXX					0.5
0.60	B1			F	XXXX					_
					XXXX					
				-	× × × × × × × ×					_
				-	× × × × × × × ×					1.0
					× × × × × × ×					_
				-	$( \times \times$					_
1.30	B2			-	(					_
					(					15
				-	(					-
				-	(					_
			39.21	1.80	× × ×	End of trial pit at 1.80m				_
				-						_
				-						2.0
				-						_
				-						
				-						_
				-						2.5
										_
				-						_
				-						_
				-						30
				-						5.0
				F						_
				-						_
				-						_
				r F						3.5 —
				-						_
				-						_
				-						4.0
				-						_
				-						_
				-						_
				-						4.5
				-						
				E						_
										-
				-						-
				<u> </u>						
Water	Strikes	<b>Depth:</b> 1.80	Rem	iarks:	ar encou	ntered				
Struck at (m)	Remarks	<b>Width:</b> 0.70	NUE	Soundwald	Li encou	nicicu.				
		Length: 3.50								
		Stability:	Tern	nination R	eason			Last Upd	ated	
		Unstable	Torm	ninated on p	ossihle be	drock		23/05/2	023	ACC
		Unstable	lein	mateu on pi	Second DE			23/03/2	523	AUD

			Proj	ect No.	Project	Name:			Trial Pit ID
	CAUS	SEWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation			TDOF
		GEOTECH	Coor	dinates	Turnke	v Developments			1905
Method:			- 5384	93.40 E	Client's	s Representative:			Chaot 1 of 1
Trial Pitting			7439	23.97 N	Enerco	Energy			Scale: 1:25
Plant:			Ele	vation	Date:		Logger:		56416. 1.25
13T Tracked Ex	xcavator		39.74	4 mOD	23/03/	2023	MMC		FINAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	•	Mater	
(,			1	-		TOPSOIL: Firm brown sandy CLAY with rootlets			_
				-					_
			39.44	0.30		Light brownish grey subangular COBBLES and BOUL	DERS of limest	one	-
0.50	B1			-		with some sandy gravelly clay. Sand is fine to coarse subrounded to subangular fine to coarse of limesto	e. Gravel is ne.		0.5 —
				-					-
				- -					-
			20.01	- 0.90					_
			50.04	- 0.90		End of trial pit at 0.90m			1.0
				-					-
				-					-
				-					
				-					1.5 —
				-					_
				-					_
				-					_
				-					2.0
				-					_
				 m					_
				-					-
				-					2.5 —
				-					
				-					_
				-					-
									3.0
				-					_
				-					-
				-					-
				-					3.5
				-					_
				-					-
				-					4.0
				-					_
				-					-
				-					
				-					4.5
				-					-
				ŀ					
			<u> </u>						
Wate	r Strikes	<b>Depth:</b> 0.90	Rem	narks:	er enco:	ntered			
Struck at (m)	Remarks	<b>Width:</b> 0.80		5i UunuWdD	er encou	กแต่เติน.			
		Length: 3.00							
		Stability:	Terr	nination R	eason			Last Upda	ted
		Stable	Term	ninated on p	ossible be	drock.		23/05/202	<sup>23</sup> AGS

			Project No.		Project Name:				Trial Pit ID	
GEOTECH			23-0237		Laurclavagh WF; Ground Investigation				TP06	
			<b>Coordinates</b> 537723.12 E		Client: Turnkey Developments					
Trial Pitting			Flouetion		Enerco	Energy		Scale: 1:25		
Tialit:			49.39 mOD					FINAL		
Depth	Sample /		Level	Depth	20,00,			er		
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description	in fine to	Wat		
				-		coarse.	is line to		-	
			49.09	0.30		Firm light grow dightly growelly condy CLAV with low cohele of	d bouldor		_	
				Ĺ	$\mathbf{\hat{O}}^{\mathbf{O}}$	content. Sand is fine to coarse. Gravel is subrounded fine to c	oarse of		_	
				+	$\mathbf{\hat{O}}$	limestone. Cobbles and boulders are subrounded of limeston	e.		0.5 —	
0.60	B1			E	0-0				_	
				- -	Ď-Ô-				_	
				E					_	
				 F	$\dot{\mathbf{O}}$				1.0	
				F	Ď-,Ò-				-	
				-					_	
				F					_	
1.50	B2			Ē	0-0-				1.5 —	
				ŀ	0-0-				-	
				E	0-0				_	
				-	0-0				_	
				F	0-0				2.0	
				Ē	0-0				-	
				F	0-0				-	
				E	O = O				_	
			46.89	2.50					2.5	
2.60	В3			F	O = O	Stiff light brownish grey slightly gravelly sandy CLAY with low boulder content. Sand is fine to coarse. Gravel is subangular	cobble and o		-	
				Ē		subrounded fine to coarse.			-	
				F F					_	
				Ĺ	O = O				30	
				-					_	
				E					-	
3.30	B4			-					-	
				F					-	
			45 79	3.60					3.5 —	
				F		End of trial pit at 3.60m			_	
				Ē					-	
				ŀ					-	
				E					4.0	
				ŀ					_	
				F					-	
				Ĺ					-	
				F					4.5	
				Ĺ					_	
				+ +					_	
				F					-	
				- 						
Wate	Strikes	<b>Depth:</b> 3.60	Rem	arks:	·					
Struck at (m)	Remarks	Width: 0.60	Nog	roundwate	er encou	ntered.				
		Length: 3.00								
		Stability:	Torn	nination P	eason		last line	dated		
		Ctok!-								
Stable		lerm	Terminated on refusal in very stiff clay. 23/05/							

				Project No.		Project Name:			
			23	23-0237		Laurclavagh WF; Ground Investigation			
GEOTECH				Coordinates		Lient: Turnkey Developments			
Method:				537204.42 E		Client's Representative:			
Trial Pitting				743569.80 N Elevation 39.20 mOD		Enerco Energy			
Plant:						Date: Logger:			
13T Tracked Excavator						2023	MMC		FINAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water	
(,			(1100)	- (,		TOPSOIL: Firm brown slightly sandy CLAY with rootle	ts		
				-					_
			38.95	0.25	XXXX	Stiff grey slightly gravelly sandy SILT with medium co	bble and boulder	_	-
				-	× × × ×	medium of limestone. Cobbles are subangular of lim	to angular fine to estone. Boulders ar	e	_
0.50	B1			-	$\times \times \times \times$	subrounded of limestone.			0.5
				-					
			38.40	0.80	× × × ×	End of trial pit at 0.80m		_	_
				-		End of that pit at 0.00m			_
				-					1.0
				-					-
				-					
				-					_
				-					1.5 —
				-					-
				-					_
				-					2.0
				-					_
									-
				-					-
				-					
				-					2.5
				-					_
				-					_
				-					-
									3.0
				-					
				-					_
				-					-
				-					3.5 —
				-					_
				-					
				-					_
				-					4.0
				-					-
				-					-
				-					_
				-					4.5
				-					-
				-					
				-					-
				[					
\\/ə+o	r Strikes		Ren	narks:					
Struck at (m)	Remarks	<b>Depth:</b> 0.80	No g	groundwat	er encou	ntered.			
		<b>Width:</b> 0.70							
		Length: 3.00							
		Stability:	Terr	nination R	eason		Last	Jpdate	ed 📕
		Stable	Term	Terminated on possible bedrock. 23/05					

			Project No.		Project Name:				Trial Pit ID	
	CAUSEWAY			23-0237		Laurclavagh WF; Ground Investigation				
GEOTECH			<b>Coordinates</b> 537713.99 E		Client: Turnkey Developments				TP08	
Method:			743859.60 N		Client	Sheet 1 of 1				
Irial Pitting			Flevation		Enerco Energy				Scale: 1:25	
Fiant: 13T Tracked Excavator			48.82 mOD					FIN		
Depth Sample /		Level Depth		1			fe			
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description	Sand is fine to	Ma		
				-		coarse.			-	
				-					_	
			48.52	- 0.30		Firm light brownish grey slightly sandy slightly gravelly (	CLAY. Sand is fine		_	
				-		to coarse. Gravel is subangular to subrounded line to co	barse.		0.5 —	
				-					-	
				-					-	
0.80	B1			-					_	
				-					1.0	
				-					-	
				-					-	
				-					_	
				-					- 15	
1.60	B2			-						
				-					-	
				-					_	
				-					-	
			46 72	- 2 10					2.0	
			40.72	2.10		Light grey subrounded COBBLES and BOULDERS of lime	stone.		_	
				-					_	
				-					-	
			46.32	- 2.50	P ∩ • (	End of trial pit at 2.50m		-	2.5	
				-					_	
				-					_	
				-						
				-					3.0	
				-					-	
				-					_	
				-					_	
				-					3.5 —	
				-					_	
				-					_	
				-					_	
				-					4.0	
				-					-	
				-						
				-					_	
				-					45	
				-						
				-					_	
				-					_	
				-					_	
	Chuilte -		Por	arks:						
Water Struck at (m)	Remarks	<b>Depth:</b> 2.50	No g	groundwate	er encou	ntered.				
		<b>Width:</b> 0.60								
		Stability:	Tern	nination R	eason		Last U	odate	d 📕	
		Unstable	Terminated on possible bedrock.						AGS	



### APPENDIX E TRIAL PIT PHOTOGRAPHS



### Report No.: 23-0237





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ITP04



### Report No.: 23-0237





### Report No.: 23-0237





### Report No.: 23-0237





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## Report No.: 23-0237




#### Laurclavagh WF; Ground Investigation

#### Report No.: 23-0237



ITP13



#### Laurclavagh WF; Ground Investigation

#### Report No.: 23-0237



ITP13





# APPENDIX F INFILTRATION TEST LOGS AND RESULTS

			Project No.		Project Name:				al Pit ID
	CAUS	EWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation			
		EOTECH	Coor	dinates	Client:			ľ	ГР01
	0		5377	88 12 F	Turnke	y Developments			
Method:			7/20	00.42 L	Client's	s Representative:		She	et 1 of 1
Trial Pitting			74300	06.44 N	Enerco	Energy		Sca	ale: 1:25
Plant:			Elev	vation	Date:	Logger:		С	
13T Tracked Exe	cavator		48.39	∮mOD	28/03/	2023 MMC			INAL
Depth (m)	Sample /	Field Records	Level	Depth (m)	Legend	Description		Vater	
(m)			48.09	(m) 		TOPSOIL: Firm brown slightly sandy CLAY with rootlets. Sand is fice	ine to	>	
0.40	B1		47 89	- 0.50		Firm orangish brown slightly sandy CLAY. Sand is fine to coarse.			
1.00	В2		47.03			Firm light brownish grey slightly gravelly sandy CLAY with low co content and one boulder. Sand is fine to coarse. Gravel is subang to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulder is subrounded of limestone.	bble gular fine f		1.0
			47.09	1.30		Firm to stiff light brownish grey slightly sandy slightly gravelly CL low cobble and low boulder content and some pockets of orang brown very sandy CLAY. Sand is fine to coarse. Gravel is subangu to medium of limestone. Cobbles are subangular to subrounded limestone. Boulders are subrounded of limestone.	AY with ish lar fine l of		
2.00	83			- - - - - - - - - - - - - - - - - - -					2.0
2.70	B4		45.59	- 2.80		End of trial pit at 2.80m			_
									3.0
				-					
				-					_
				F					-
				E					3.5 —
				-					-
				F					-
				E					_
				-					4.0
				Ē					-
				-					_
				-					-
									4.5
				-					-
				Ē					-
				Ē					-
				-					_
Water	Strikes	<b>Depth:</b> 2.80	Rem	narks:	01 02	ntarad			
Struck at (m)	Remarks		NO g Soal	si oundwat kaway com	er encou ipleted.	ntereu.			
		Length: 3.00		,					
		Stability	Torr	nination P	eason		act   Ind	hated	
		Stability.		mation K	203011		Last Opt	.ateu	
	Stable			inated on p	ossible be	drock.	23/05/2	2023	AGS

			Project No.		Project Name:				Tria	l Pit ID
	CALIS	EWAY	23	-0237	Laurcla	vagh WF; Ground Investigation				
		EOTECH	Coor	dinates	Client:				17	Г <b>Р02</b>
	0		5265	00 08 E	Turnke	y Developments				
Method:				55.50 E	Client's	s Representative:			Shee	et 1 of 1
Trial Pitting			/445	04.08 N	Enerco	Energy			Sca	le: 1:25
Plant:			Ele	vation	Date:		Logger:			
13t Tracked Ex	cavator		54.29	€ 9 mOD	17/04/	2023	MMC		F	INAL
Depth	Sample /	Field Records	Level	Depth	Legend	Description			'ater	
(m)	Tests		(mOD)	(m)		TOPSOIL: Firm brown slightly sandy CLAY. Sand is fin	e to coarse.		3	
				-						-
			54.09	0.20		Firm to stiff light grey slightly sandy slightly gravelly	CLAY. Sand is	fine to		_
				-		coarse. Gravel is subangular to subrounded fine to n	nedium of lim	estone.		_
				-						
0.60	P1			E						0.5
0.00	DI			_						
				-						_
				-						_
			53.29	1.00		End of trial nit at 1 00m				1.0
				-						_
				-						_
				[						_
				-						_
				-						1.5 —
				-						-
				-						_
				E						
				-						2.0
				-						_
				-						_
				-						_
				-						_
				[						2.5
				-						_
				-						_
				-						-
				-						
				-						3.0
				[						_
				-						_
				-						_
				-						3.5
				-						_
				[						-
				-						_
				-						-
				-						4.0
				-						_
				[						
				-						_
				-						4.5
				-						-
				E						_
				ŀ						-
				ŀ						-
Water	Strikes	<b>Depth:</b> 1.00	Ren	narks:						
Struck at (m)	Remarks	Width: 0.50	No g	groundwate	er encou	ntered.				
		Longth: 2.00	SUd	way com	pieteu.					
		Length: 2.00					ı		<u> </u>	
		Stability:	Terr	nination R	eason			Last Upd	ated	
	Stable			Terminated on possible bedrock. 23/05/2						AGS

			Proj	ect No.	Projec	t Name:			Trial Pit ID
	CAUS	FWAY	23	-0237	Laurcla	wagh WF; Ground Investigation			
	G	EOTECH	Coor	dinates	Client:				ITP03
			5373	84.54 E	lurnke	y Developments			
			7435	52.95 N	Client	s Representative:			Sheet 1 of 1
Irial Pitting			Гю		Enerco	Energy	Lagger		Scale: 1:25
Plant:	an unter		LIE	vation	Date:	2022	Logger:		FINAL
131 Ifacked Ex			39.80	Denth	24/03/	2023	IVIIVIC	2	
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description		Wate	
				-		TOPSOIL: Firm brown slightly sandy CLAY with rootle	ets		_
			39.65	0.15	Ю <sup>°</sup>	Light grey subangular BOULDERS of limestone with I	high cobble con	tent	_
				[	$\left  \bigcirc \right\rangle \circ$	and some sandy slightly clayey gravel. Sand is fine to subangular to angular fine to coarse of limestone. Co	o coarse. Gravel obbles are	is	-
				-	၀္ဂံ၀	subangular to angular of limestone.			-
0.50	B1			-	၀္ဂၴ၀				0.5 —
					၀္ဂၴ၀				
				-	ု၀ွိ၀	- -			_
				-	ုပ္ခ်ဳပ္				_
			38.80	- 1.00		End of trial pit at 1 00m			1.0
				[					-
				-					-
				-					-
									15
				-					
				-					_
				-					_
				[					-
				-					2.0
				-					-
				-					_
				-					2.5 —
				-					_
				[					-
				-					-
				-					-
									3.0
				-					_
				-					_
				-					-
				[					3.5 —
				-					-
				-					-
				-					4.0
				-					_
				-					-
				[					-
				-					-
				-					4.5
				[					
				-					_
				-					-
Water	Strikes	Dorth: 1.00	Ren	narks:	1	1		1	1
Struck at (m)	Remarks		Nog	groundwat	er encou	ntered.			
		width: 0.70	Soal	kaway com	pieted.				
		Length: 1.80					<u> </u>		
		Stability:	Terr	nination R	eason		Li	ast Updat	ed 📕
Stable		Term	ninated on p	ossible b	edrock.		23/05/202	³ AGS	

Concrete         23-0237         Concrete         Unit         Concrete         Concrete <thconcrete< th=""> <thconcrete< th=""> <thcon< th=""><th></th><th></th><th></th><th>Proj</th><th>ect No.</th><th colspan="4">Project Name:</th><th>al Pit ID</th></thcon<></thconcrete<></thconcrete<>				Proj	ect No.	Project Name:				al Pit ID
Contribute         Contrib			EWAY	23-	-0237	Laurcla	wagh WF; Ground Investigation			
Weited:         Sizzorzzi         Sance 7.25         Sance 7.25           Parti 131 Tracket Sowner         4001 H00         2002/002         Meri         Image Filter Source 1.25           Parti 131 Tracket Sowner         1000 H00         2002/002         Meri         Image Filter Source 1.25           Partit 131 Tracket Sowner         1000 H00         2002/002         Meri         Image Filter Source 1.25           Partit 131 Tracket Sowner         1000 H00         2002/002         Defendit Firer Source 2.05         Meri         Image Filter Source 1.25           Partit         Partit         1000 H00         2002/002         Defendit Firer Source 2.05         Image Filter Source 2.05		G	EOTECH	Coor	dinates	Client:			ľ	ТР04
Motified Turn (Tring Netrogenerative: Trial Netrove: Trial Netrove: Trial Netrogenerative: Trial Netrogenerative:		0	LOTLETT	E 202	20 22 Г	Turnke	y Developments			
Trial Plant:       Energy 1000       Description       Scale 1:25       Scale 1:25         Period:       Stale 2:25       2411/2023       MAXC       FINAL         Period:       Stale 2:25       2411/2023       Description       2       2         Period:       Stale 2:25       2411/2023       Description       2       2       2       Period:       Period:       Period:       2       2       Period:       Period:<	Method:			7420	20.32 E	Client'	s Representative:		She	et 1 of 1
Plant:         USU         Dot:         Logger:         Plant:           23 Tracked Excrator         400°         0°         0°         20023         MRC         7         7           Derifinity         Stracked Excrator         600°         0°<	Trial Pitting			/438.	11.54 N	Enerco	Energy		Sca	ale: 1:25
131 Tracked Scanador         Unit         2002/02/3         MMC         PTUNL           0ml         Statut         Field Record         Group         Statut         2         Comparing         Statut         2         2         Statut         2         2         Statut         2         2         2         2         2         2         2         2         2	Plant:			Elev	vation	Date:	Logger		г	
Depth (n)         Sample / Lett         Fraid Records         Lett         Part         Part <t< td=""><td>13T Tracked Exc</td><td>cavator</td><td></td><td>40.01</td><td>1 mOD</td><td>23/03/</td><td>2023 MMC</td><td></td><td>Г</td><td>INAL</td></t<>	13T Tracked Exc	cavator		40.01	1 mOD	23/03/	2023 MMC		Г	INAL
initial         initial <t< td=""><td>Depth</td><td>Sample /</td><td>Field Records</td><td>Level</td><td>Depth</td><td>Legend</td><td>Description</td><td></td><td>/ater</td><td></td></t<>	Depth	Sample /	Field Records	Level	Depth	Legend	Description		/ater	
Wet Strue       Dept:: 2.0 Metaway complex       Dept:: 2.0 Metaway complex       Sector       Dest::	(m)	lests		(mod)	(m) -		TOPSOIL: Firm brown slightly sandy CLAY with rootlets. Sand is f	ine to		
Weter Strikes       Partial Strikes       Pa					-		coarse.			-
Weter Strike:         Depth: 2.00 Stuck at (n)         Part         Remarks Information Resource of Integrate 2.80m         Information Resource 0.80m         I				39.76	0.25		Firm light grev sandy gravelly CLAV with low cobble content. Sar	nd is fine		_
Week Strikes     Dept:     2.80     End of bits pt of 2.80m     Image of bits pt of 2.80m     1.40       Struck at (m)     Remarks     Partial Struck at (m)     Remarks     Remarks     Remarks       Struck at (m)     Remarks     Partial Struck at (m)     Remarks     Remarks     Remarks       Struck at (m)     Remarks     Partial Struck at (m)     Remarks     Remarks     Remarks       Struck at (m)     Remarks     Partial Struck at (m)     Remarks     Remarks     Remarks					[		to coarse. Gravel is subrounded fine to coarse of limestone. Cob	bles are		
Weter Struck at (m)     Performation     Remark: Struck at (m)     Performation     Performation     Performation					-		subrounded of limestone.			0.5
Verter Struce     pept:     2.80     Imministrate constructed.     Firm light gave such graveship (LMV with how boulder content. Sould is not such such such such such such such such					-					_
Weter Strike     Performants     Per					-					_
Mater Strike     Depth:     2.0     Remarks:       Subconding of Imagine and Strike     Depth:     2.0       Subconding of Imagine and Strike     Permise on possible bedrock.     Subconding of Imagine and Strike     Imagine and Strike       Subconding of Imagine and Strike     Permise on possible bedrock.     Subconding of Imagine and Strike     Imagine and Strike					[					_
Vater Strike     Depth:     2.0     End of twip pt at 2.80m     I					-					_
Water Strikes     Dept:     2.80     End of trial pit groups and gradely (CM with low boulds: content. Sond is fine; up of groups and gradely (CM with low boulds: content. Sond is fine; up of groups and gradely (CM with low boulds: content. Sond is fine; up of groups and gradely (CM with low boulds: content. Sond is fine; up of groups and gradely (CM with low boulds: content. Sond is fine; up of groups and gradely (CM with low boulds: content. Sond is fine; up of gradely (CM with low bould					-					1.0
Water Strike:       Dept:       2.00       Remarks						00000				
Water Strikes     Depth: 2.80 Lingth: 3.00     Partial Part Strikes     Part S					ŀ					_
Wate: Strikes     Dept:     2.80     End of trial pit at 2.80m     Image: Strike s				38.61	1.40		Firm light group conduction of the CLAV with low hould be content. Co	und is fins		_
Water Strikes     Dept:     2.00     Remarks     Remarks       Struck at (m)     Remarks     Permination Reason     Last Updated       Vurdate in marks     Last Updated     Termination Reason     Last Updated					E	0.0	to coarse. Gravel is subrounded fine to coarse of limestone. Bou	ilders are		1.5
Vate: Strike:     Pert: 2.80     Remark: Struck at (m)     Remark: Vidt: 0.80     Remark: Struck at (m)     Struck at (m)     Remark: Struck at (m)     Struck at (m)     Remark: Struck at (m)     Struck at (m)     St					[		subrounded of limestone.			_
Vate: Strike:         Dept::         2.80         End of frial pit at 2.80n         1 </td <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>_</td>					-					_
Vater Strikes     Peptr: 2.80     Remarks     Peptr: 2.80     Remarks     Normation Reson     Image: Completed Strikes       Vater Strikes     Peptr: 2.80     Remarks     Normation Reson     Image: Completed Strikes     Image: Completed Strikes       Struck at (m)     Remarks     Peptr: 2.80     Remarks     Normation Reson     Image: Completed Strikes       Vater Strikes     Peptr: 2.80     Remarks     Normation Reson     Image: Completed Strikes     Image: Completed Strikes					-	0 +0 +0				_
Value Strikes       Perfer: 2.80       Remarks:       Perfer: 2.80       Remarks:       Normation Resourced.       Social Action Remarks:       Social Action Remarks:       Normation Resourced.       Social Action Resourced. <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.0</td></t<>										2.0
Water Strikes       Perfix       2.80       End of trial pit at 2.80m       I <td< td=""><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td>_</td></td<>					-					_
Water Strikes       Peptri 2.80       Remarks:       Normation Resource       Source Art (m)       Remarks:         Struck at (m)       Remarks:       Normation Resource       Source       Sou					-					_
Water Strikes         Depth: 2.80         Remarks:         No groundwater encountered.         Social and an appreciate on possible bedrock.         Social and an appreciate on possible bedrock.         Last Updated         23/2021         End of trial pit at 2.80m         Last Updated         23/2021         End of trial pit at 2.80m         End of trial pit at 2.					E					_
Water Strikes         Depth:         2.80         Remarks:         Social of trial pit at 2.80m         List Updated           Struck at (m)         Remarks:         No groundwater encountered.         Social of trial pit at 2.80m         List Updated           Struck at (m)         Remarks:         No groundwater encountered.         Social of trial pit at 2.80m         List Updated           Struck at (m)         Remarks:         No groundwater encountered.         Social of trial pit at 2.80m         List Updated           Struck at (m)         Remarks:         No groundwater encountered.         Social of trial pit at 2.80m         List Updated           Viotable         Terminated on possible bedrock.         23/05/2021         List Updated         23/05/2021					-					_
Water Strikes         Dept::         2.80         Remarks:         No groundwater encountered.           Struck at (m)         Remarks         No groundwater encountered.         Soakaway completed.         Soakaway complet					-					2.5
Water Strikes       Depti:       2.80       Emarks:       No roundwater encountered.         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.       Last Updated         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.       Last Updated       Last Updated         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.       Last Updated       Last Updated         Vintable       Termination Reason       Last Updated       Z2005/2023       Terminated on possible bedrock.       Last Updated       Z2005/2023       Terminated on possible bedrock.					-					_
Water Strikes       Depth: 2.80 Width: 0.80 Struck at (m)       Depth: 2.80 Width: 0.80 Struck at (m)       Remarks: No groundwater encountered. Stability:       Remarks: No groundwater encountered. Stability:       Image: Countered. Stability:				27.21	2 20					
water Strikes       Depth: 2.80 Width: 0.80       Remarks:       Remarks:       Remarks:         Struck at (m)       Remarks:       Remarks:       No completed.       Last Updated         Struck believe:       Last Updated       Last Updated       Last Updated       Last Updated         Unstable       Termination Reason       Last Updated       Last Updated <td< td=""><td></td><td></td><td></td><td>57.21</td><td>2.80</td><td></td><td>End of trial pit at 2.80m</td><td></td><td></td><td>_</td></td<>				57.21	2.80		End of trial pit at 2.80m			_
Water Strikes         Depth:         2.80 Vidt:         Remarks: No groundwater encountered. Soakaway completed.         Remarks: Length:         Remarks: No groundwater encountered. Soakaway completed.         Last Update Z305/2023         Last Update Z305/2023					-					3.0
Water Strikes     Depth:     2.80       Struck at (m)     Remarks       Vidth:     0.80       Length:     3.50         Stability:     Termination Reason       Unstable     Terminated on possible bedrock.					E					_
Vater Strikes       Dept:       2.80         Struck at (m)       Remarks         Vidti:       0.80         Estuditi:       3.50					-					_
Water Strikes       Depti:       2.80         Struck at (m)       Remarks:         Width:       0.80         Length:       3.50					-					_
Water Strikes       Depth: 2.80       Remarks:       No groundwater encountered.         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.         Unstable       Termination Reason       Last Updated       23/05/2023					-					
Water Strikes       Depth: 2.80       No groundwater encountered. Soakaway completed.       Nemarks: No groundwater encountered. Soakaway completed.       Last Updated 23/05/2023         Struck at (m)       Remarks: No groundwater encountered. Soakaway completed.       Last Updated 23/05/2023       East Updated 23/05/2023					-					3.5
Water Strikes       Depth:       2.80         Struck at (m)       Remarks:         Width:       0.80         Bergh:       3.50         Stability:       Termination Reason         Unstable       Termination Reason         Stability:       Termination nessible bedrock.					-					_
Water Strikes       Depth: 2.80       Remarks:       No groundwater encountered.         Struck at (m)       Remarks       Vidth: 0.80       Soakaway completed.         Struck at (m)       Remarks       Pepth: 3.50       Last Updated         Stability:       Terminated on possible bedrock.       Last Updated       23/05/2023					-					_
water Strikes       Depth:       2.80         Struck at (m)       Remarks         Width:       0.80         Struck at (m)       Remarks         Struck at (m)       Remarks:         Struck at (m)       Remarks:         Struck at (m)       Remarks:         Struck at (m)       Remarks:         Unstable       Termination Reason         Length:       3.50					-					_
water Struck at (m)       Remarks         Struck at (m)       Remarks         Width:       0.80         Unstable       Termination Reason         Length:       3.50					-					4.0
Water Strikes       Depth: 2.80       No groundwater encountered. Soakaway completed.       No groundwater encountered. Soakaway completed.         Struck at (m)       Remarks       No groundwater encountered. Soakaway completed.       No groundwater encountered. Soakaway completed.       No groundwater encountered. Soakaway completed.       No groundwater encountered. Soakaway completed.         Struck at (m)       Remarks       No groundwater encountered. Soakaway completed.       No groundwater encountered. Soakaway completed.       No groundwater encountered. Soakaway completed.         Vidth:       0.80       Iength:       3.50       Iength:       Soakaway completed.					ŀ					_
Water Strikes       Depth: 2.80       Remarks:       No groundwater encountered.       No groundwater encountered.       Soakaway completed.         Struck at (m)       Remarks:       No groundwater encountered.       Soakaway completed.       Last Updated         Stability:       Termination Reason       Last Updated       Z3/05/2023       Cast Updated					-					_
Mater Strikes       Depth: 2.80       No groundwater encountered. Soakaway completed.       No gro										
$ \begin{array}{ c c c c c } \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $					-					4.5
Mater Strikes   Struck at (m)   Remarks:   Width:   0.80   Struck at (m)   Remarks:   Width:   0.80   Struck at (m)   Remarks:   Width:   0.80   Struck at (m)   Remarks:   Struck at (m)   Remarks:   Vidth:   0.80   Struck at (m)   Remarks:   Vidth:   0.80   Vidth:   0.80   Stability:   Termination Reason   Last Updated   23/05/2023					-					_
Water Strikes     Depth:     2.80     Remarks:     No groundwater encountered.       Struck at (m)     Remarks     No groundwater encountered.     Soakaway completed.       Length:     3.50     Stability:     Termination Reason       Last Updated     23/05/2023										_
Mater Strikes     Depth:     2.80     Remarks: No groundwater encountered. Soakaway completed.     Image: Complete and the strike and					ŀ					-
Water Strikes       Depth:       2.80       Remarks: No groundwater encountered. Soakaway completed.       Last Updated         Struck at (m)       Remarks       Vidth:       0.80       Soakaway completed.       Soakaway completed.         Stability:       Termination Reason       Last Updated       23/05/2023       AGGS					-					
Value     Depth:     2.80     No groundwater encountered.       Struck at (m)     Remarks     Width:     0.80     Soakaway completed.       Length:     3.50     Termination Reason     Last Updated       Unstable     Terminated on possible bedrock.     Zaylo5/2023	14/	Strikes		Rom	narks					
Width:     0.80     Soakaway completed.       Length:     3.50     Soakaway completed.       Stability:     Termination Reason     Last Updated       Unstable     Terminated on possible bedrock.     23/05/2023	Struck at (m)	Remarks	<b>Depth:</b> 2.80	No g	groundwat	er encou	ntered.			
Length:     3.50       Stability:     Termination Reason       Unstable     Terminated on possible bedrock.			<b>Width:</b> 0.80	Soal	kaway com	pleted.				
Stability:     Termination Reason     Last Updated       Unstable     Terminated on possible bedrock.     23/05/2023			Length: 3.50							
Unstable Terminated on possible bedrock. 23/05/2023			Stability:	Tern	nination R	eason		Last Up	dated	
			Unstable	Term	ninated on p	ossible be	drock.	23/05/	2023	AGS

				ect No.	Project Name:				l Pit ID
	CAUS	EWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation			
	G	EOTECH	Coor	dinates	Client:	v Dovelenments		11	P05
Method:			- 5347	58.34 E	Client'	s Representative:		Ch -	+ 1 - £ 1
Trial Pitting			7431	42.61 N	Enerco	Energy		Snee	et 1 of 1 le: 1:25
Plant:			Elev	vation	Date:		Logger:		
13T Tracked Exc	avator		25.11	1 mOD	25/04/	2023	MMC	F	INAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water	
(,			25.01	0.10		TOPSOIL		-	
			25.01	0.10	، فت، ہے۔ ف فت،	Light grey slightly gravelly very clayey fine to coarse S cobble content. Gravel is subangular to subrounded f	AND with low ine to coarse.		_
				-	، هـ هـ. ف فحمه	Cobbles are subangular to subrounded of limestone.			_
				-					
				-					0.3
				-	ب. م. م م. ف				_
				-	ب میں: ، ف ب				_
				-	ب مب م				1.0
				ŀ	۰۰ ٽيپ م				_
				-	، ف ، به ، . ، ف ، به				_
			23.81	1.30		End of trial pit at 1.30m			_
				-					1.5 —
				-					_
									_
				-					_
				-					2.0
				-					_
				-					_
				-					_
				-					2.5
				-					_
				-					_
				-					_
				-					3.0
				-					_
				-					_
				-					3.5 —
				-					_
				-					_
				-					_
				-					4.0
				-					_
				-					_
				-					_
				-					4.5
				-					_
				-					_
				ŀ					_
			<u> </u>	<u> </u>					
Water	Strikes	— Depth: 1.30	Rem No.4	narks: groundwat	er encou	ntered.			
Struck at (M)	Remarks	<b>Width:</b> 0.60	Soal	kaway carr	ied out a	t 0.70m.			
		Length: 3.50							
		Stability:	Terr	nination R	eason		Last Upo	lated	
		Terminated on possible bedrock. 23/05/2							

			Proj	ect No.	Project	Name:			Trial Pit ID
	CAUS	FWAY	23	-0237	Laurcla	vagh WF; Ground Investigation			
	(	GEOTECH	Coor	dinates	Client:				ITP06
			5394	57.42 E	Turnke	y Developments			
			7437	74.26 N	Client	s Representative:			Sheet 1 of 1
Irial Pitting			Гю		Enerco	Energy	Legger		Scale: 1:25
Plant:	requetor		20.09			2022	Logger:		FINAL
Denth	Sample /			Denth	20/03/	2023	IVIIVIC	1	
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description		Wat	
				-		TOPSOIL			_
			29.88	0.20		Soft to firm light orangish brown slightly sandy CLAY	Sand is fine to		-
				[		coarse.			-
0.40	B1			-					-
			29.58	- 0.50	$\times$ $\times$ $\times$	Stiff light grey slightly sandy slightly gravelly SILT wit	h medium boul	der	0.5
				-	$\times \times \times \times$	Boulders are subangular to angular of limestone.	nne to coarse.		
				-	$\times \times \times \times$				_
					$\times \times \times \times$				-
				-	$\times \times \times \times$				1.0
				-	XXXX				_
1.20	В2			-	$\times \times \times \times$				
				[	$\times \times \times$				
				-	$\times \times \times \times$				1.5 —
					XXXX				_
				-	XXX				-
			28.28	1.80	<u> </u>	End of trial pit at 1.80m			_
				-					20
				-					2.0
				-					_
				-					-
				[					-
				-					2.5 —
				-					_
				-					_
				-					3.0
				-					-
				-					-
				-					3.5 —
				-					_
				[					-
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				-					40
				-					+.0
				-					-
									_
				-					_
				-					4.5
				-					
				-					
				ŀ					-
Water	Strikes	<b>Depth:</b> 1.80	Ren	narks:					
Struck at (m)	Remarks	Width: 1.00	No g	groundwat kaway com	er encou	ntered.			
		Length 2 50	504	uy COII	.picicu.				
		Stability		nination P	00000			act linds	od 💻 – 🗖
		Stability:	ierr	mination R	eason			asi updat	
Stable			Term	ninated on p	ossible be	drock.		23/05/202	³ AGS

			Proje	ect No.	Project	Name:		Tr	ial Pit ID
		ΕΨΛΥ	23-	0237	Laurcla	vagh WF; Ground Investigation			
	G	EOTECH	Coor	dinates	Client:				ITP07
	0		53876	50.65 F	Turnke	y Developments			
Method:			74374	13 99 N	Client's	Representative:		Sh	eet 1 of 1
Trial Pitting			/43/-	+3.33 N	Enerco	Energy		Sc	ale: 1:25
Plant:			Elev	ation	Date:	Lo	gger:		ΓΙΝΔΙ
13T Tracked Exc	cavator		31.30	mOD	21/03/	2023 M	MC		
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Wate	
						TOPSOIL: Brown slightly sandy CLAY with rootlets. Sand is	fine to coarse.		_
									_
			20.05						_
			30.95	0.35	0-0-	Firm light grey mottled light brown gravelly very sandy CL	AY with		-
				-	00+	is subangular fine to coarse of limestone. Cobbles are sub	angular of		0.5 —
					0.0	limestone. Boulders are subangular of limestone.			_
0.80	B1			-	0-0-				
0.00					0.0				_
				-	00-				1.0
					0.0				_
			30.10	1.20	00-	Stiff light grey sandy gravelly CLAY with medium cobble ar	nd boulder		-
				-	0.0	content and some light greyish brown sandy slightly grave	elly clay. Sand is		_
1 50	B2			-	0.0	subangular to angular of limestone. Boulders are angular	to subangular		15
1.50	02					of limestone.			
				-					_
			29.50	1.80	<u></u>	End of trial pit at 1.80m			-
									_
				-					2.0
				-					
									_
				-					_
				-					2.5 —
									_
				-					
									_
				-					3.0
				-					-
									_
				-					3.5 —
									_
				- -					-
									-
				-					-
				 - -					4.0
									_
									_
				-					_
				-					4.5
									_
									-
								$\rightarrow$	
Water	Strikes	<b>Depth</b> : 1.80	Rem	arks:				- 1	
Struck at (m)	Remarks	Width: 1.00	No g	roundwate	er encou nleted	ntered.			
		Length: 3.00	JUdk	away com	pieteu.				
		Ctoh!!!	<b>T</b>	inotio- P			1	d a + -	
		stability:	lern	ination R	eason		Last Up	uateo	╵┠╜
		Stable	Term	inated on p	ossible be	drock.	23/05/	2023	AGS

				Project No. P		Project Name:				Pit ID
	CAUS	FWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation				
	(	GEOTECH	Coor	dinates	Client:				ITI	P08
			5349	76.50 E	Turnke	/ Developments				
Trial Ditting			7437	77.84 N	Client	S Representative:			Sheet	t1of1
Plant:			Flor	vation	Date	Ellergy	l ogger		Scale	2: 1:25
13T Tracked Ex	cavator		30.15		22/03/	2023	MMC		۶IN	NAL
Depth	Sample /	5110 I	Level	Depth						
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description	Lic fina to co			
			30.05	0.10		Brown subangular to subrounded COBBLES of limest	one with mu	ch		_
				-	هـ. مـــــــــــــــــــــــــــــــــــ	sandy gravelly clay. Sand is fine to coarse. Gravel is s	ubrounded fi	ne to		-
				-	۰ <u>۰</u> ۰ می مح					_
				-	۰ <u>۰</u> ۰۰ می					0.5
0.60	B1			-	0 0 0 0 0 0 0 0					-
				-	-0°-0°					-
				-	- <u>-</u>					_
				-	0 0 0 0					1.0
				-	0 0 0 0					-
				-	0 0 0 0					_
			28.85	- 1.30		Light grey very sandy clayey subrounded fine to coal	se GRAVEL o	f		_
1.50	B2			-		limestone. Sand is fine to coarse.				1.5 —
				-						_
				-						_
			28.35	- 1.80		End of trial pit at 1.80m				-
				-						2.0
				-						_
				-						-
				-						-
				-						25
				-						_
				-						_
				-						_
				-						3.0
				-						
				-						_
				-						_
				-						25
				-						_
				-						_
				-						_
				-						4.0
				-						
				-						_
				-						-
				-						
				-						4.5
				-						_
				-						-
				-						
\A/_+	Strikes		Rom	narks <sup>.</sup>						
Struck at (m)	Remarks	<b>Depth:</b> 1.80	No g	groundwat	er encou	ntered.				
/		<b>Width:</b> 0.70	Soal	kaway com	pleted.					
		Length: 2.50								
		Stability:	Terr	nination R	eason			Last Upda	ted	
	Stable			Terminated on possible bedrock. 23/0						

			Proje	ect No.	Projec	Name:		Tri	al Pit ID
	CAUS	FWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation			
		GEOTECH	Coor	dinates	Client:			I	ТР09
		52012011		F	Turnke	y Developments			
Method:				N	Client'	s Representative:		She	et 1 of 1
Trial Pitting					Enerco	Energy		Sca	ale: 1:25
Plant:			Elev	vation	Date:	Logger:		F	INAI
13t Tracked Exe	cavator		<u> </u>	mOD	17/04/	2023 MMC			
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water	
						TOPSOIL: Firm brown slightly sandy CLAY. Sand is fine to coarse.			
				0.20					_
0.30	B1					Firm light brown slightly sandy slightly gravelly CLAY. Sand is fine coarse. Gravel is subangular to subrounded fine to coarse.	to		_
				0.40		Firm light grev slightly sandy slightly gravelly CLAY. Sand is fine to	o coarse.		_
				-		Gravel is subrounded fine to medium.			0.5
									-
				Ĺ					_
				-					_
1.00	B2			-					1.0
				Ē					_
				-					_
									_
				É					1.5
				1 60					
						Firm light brown mottled light grey sandy gravelly CLAY with mec cobble content. Sand is fine to coarse. Gravel is subrounded fine	dium to		_
				F	م من مع المن مع	coarse of limestone. Cobbles are subrounded of limestone.			_
									-
2.00	В3			-	م میں احد م				2.0
					م میں احد م				_
				2 30					_
				2.30	° × ° ° × 1	Light grey mottled light brown very sandy silty subangular fine to GRAVEL with medium cobble and boulder content. Sand is fine to	o coarse		_
					• × • • • •	Cobbles are angular of limestone. Boulders are angular of limesto	one.		2.5
				F		(Possible weathered bedrock).			_
				E	e X O				_
				-					-
2.00					• X • •				-
3.00	84			-	• X • •				3.0
				3.20	•°×	End of trial rites (200m			_
				F		End of that pit at 3.20m			-
									-
				-					3.5 —
				F					_
				Ē					_
				-					_
				-					4.0
				Ē					-
									-
									-
				É					45
				-					+.3
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Water	Strikes	<b>Depth:</b> 3.20	Rem	narks:					
Struck at (m)	Remarks	Width: 1.20	No g Soal	groundwate kaway com	er encou pleted.	nterea.			
		Length: 3.50		,					
		Stability <sup>.</sup>	Terr	nination P	eason	1	Last line	lated	
		line to the	-			des els			
	Unstable			inated on p	ossible be	arock.	23/05/2	.023	AGS

	Project No. P		Project Name:				al Pit ID			
	CAUS	FWAY	23-	0237	Laurcla	vagh WF; Ground Investigation				
	G	EOTECH	Coor	dinates	Client:				TP10	
Mathadi			5369	26.62 E	lurnke	y Developments		<u> </u>		
Trial Ditting			7435	52.52 N	Enorco	S Representative:		She	et 1 of 1	
Plant:			Flor	vation	Date	Log	or.	Sca	ale: 1:25	
13T Tracked Exc	cavator		36.35	5 mOD	28/03/	2023 MM	с.	F	FINAL	
Depth	Sample /	Field Decords	Level	Depth	Legend	Description		ter		
(m)	Tests		(mOD)	(m)	Legenu	TOPSOIL: Firm brown slightly sandy CLAY with rootlets. San	l is fine to	N		
				ŀ		coarse.			_	
			36.15	0.20		Firm light brownish grey slightly sandy slightly gravelly SILT.	Sand is fine		_	
				-	* * × ×   * * * *	limestone.	im of		_	
				E	$(\times \times $				0.5 —	
				- -	$\times \times $				_	
0.70	B1			E	$(\times \times $				_	
				-	$\times \times \times$				_	
				F	$\times \times \times$				1.0	
				-	$\times \times \times$				-	
			25.05	-	×××>				_	
			35.05	1.30		Firm to stiff light brownish grey slightly sandy gravelly CLAY.	Sand is fine	1	_	
				F F		limestone.			1.5 —	
				E					-	
1.70	B2			+ F						
				F					_	
				i H					2.0	
				F					_	
				Ē					-	
				F					-	
2 50	B3			Ĺ					2.5	
2.00				t F					_	
			33.65	2.70	·····	End of trial pit at 2.70m		-	-	
				+					_	
				Ĺ					3.0	
				- -						
				Ē					-	
				F F					-	
				£					35 —	
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				F					_	
				F					-	
				F					-	
				-					4.0	
				F					-	
				Ĺ					-	
				F					-	
				Ē					4.5 -	
				F					_	
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				t F					_	
Struck at (m)	Strikes Remarks	— <b>Depth:</b> 2.70	No ≨	aroundwat	er encou	ntered.				
	including including	<b>Width:</b> 0.70	Soal	away com	pleted.					
		Length: 3.00								
		Stability:	Tern	nination R	eason		Last Up	dated		
	Stable Ter				Terminated on possible bedrock. 23/05/20					

			Project No.		Project Name:				Trial Pit ID	
	CAUS		23-	0237	Laurcla	vagh WF; Ground Investigation				
	G	FOTECH	Coord	dinates	Client:			רו	ſP11	
		LOTEON	53530	98 89 F	Turnke	y Developments				
Method:			7437	21 63 N	Client's	s Representative:		Shee	et 1 of 1	
Trial Pitting			,	51.05	Enerco	Energy		Sca	le: 1:25	
Plant:		ļ	Elev	/ation	Date:	Logger	:	F	ΙΝΔΙ	
13T Tracked Ex	.cavator		33.28	; mOD	22/03/			· ·	11 10 12	
Depth (m)	Sample / Tests	Field Records	Levei (mOD)	Deptn (m)	Legend	Description		Wate		
						TOPSOIL: Soft to firm brown CLAY.		$\top$		
1		ļ		Ē_					_	
		ļ	33.03	· 0.25		Firm brown slightly sandy slightly gravelly CLAY with low cobble	content.		_	
		ļ		Ē		Sand is fine to coarse. Gravel is subangular to subrounded fine t of limestone.	o coarse		_	
0.50	B1	ļ		Ē					0.5	
		ļ	32.68	· 0.60		Light grey slightly sandy slightly gravelly CLAY. Sand is fine to co	arse.		-	
		ļ		Ē		Gravel is subangular to subrounded fine to medium of limeston	e.			
		ļ		Ē					_	
1.00	B2	ļ		-					1.0	
		ļ		Ē					_	
		ļ		Ē					_	
		ļ		ł					-	
		ļ		Ľ					15	
1.60	B3	ļ		Ĺ						
1.00		ļ		ŀ					_	
		ļ		ř					_	
		ļ		E					_	
		ļ	31.28	- 2.00		Stiff grey slightly gravelly sandy SILT. Sand is fine to coarse. Grav	el is		2.0	
2.20		ļ		ł		subrounded fine to medium.			_	
2.20	B4	ļ	30.98	230	( × × ×				_	
		ļ		2.50		End of trial pit at 2.30m			_	
		ļ		F					2.5	
		ļ	1 -	Ē					_	
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		ļ		Ē					3.5 —	
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				É					_	
				-					4.0	
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			1	Ē					_	
				t					-	
				Ē					45	
			1	Ē					+	
				É					_	
				t					-	
				F					-	
Water	Strikes	<b>Depth:</b> 2.30	Rem	arks:						
Struck at (m)	Remarks		No g Soak	;roundwate kawav com	er encou Ipleted.	ntered.				
		Length: 2.10		,						
		Stability:	Torr	nination P	200500		Last Lind	lated		
		Stability.	lein	infactori K	eason		Last Opu	aleu		
	Stable			inated on p	ossible be	drock.	23/05/2	023	AGS	

			Proj	ect No.	Project Name:					Trial Pit ID
		ΕΨΔΥ	23-	-0237	Laurcla	vagh WF; Ground I	Investigation			
	G	EOTECH	Coor	dinates	Client:					ITP12
			- 5365	03.17 E	Turnke	y Developments				
Method:			7437	61.47 N	Client's	s Representative:			S	heet 1 of 1
Irial Pitting					Enerco	Energy		• • • • • •		Scale: 1:25
Plant:			Elev	vation	Date:	2022		Logger:		FINAL
131 Tracked Exc	cavator		42.48	s mod	21/03/	2023		MIMC		
(m)	Tests	Field Records	(mOD)	(m)	Legend		Description		Wate	
				-		TOPSOIL.				_
				-						_
			42.42	0.25						
			42.13	0.35		Firm light grey slightly	y gravelly very sandy CLAY with	h medium cobb	le	-
				-		limestone. Cobbles ar	re angular of limestone.	to angular of		0.5
			44 70	0.70						_
			41.78	0.70			End of trial pit at 0.70m			
				-						_
				-						1.0
										-
				-						-
				-						-
										15
				-						
				-						_
										-
				-						-
				-						2.0
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				-						_
										2.5
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										3.0
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				-						3.5 —
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										-
				-						4.0
				-						-
				-						_
				-						4.5
										-
				-						-
				-						
Mator	Strikes		Rem	narks:						
Struck at (m)	Remarks	<b>Depth:</b> 0.70	No g	groundwat	er encou	ntered.				
		<b>Width:</b> 0.60	Soal	kaway com	pleted.					
		Length: 1.80								
		Stability:	Tern	nination R	eason			1	ast Update	ed
		Stable	Term	Terminated on possible bedrock. 23/05/.						

			Proj	ect No.	No. Project Name:			Trial Pit ID	
	CAUS	FWAY	23-	-0237	Laurclavagh WF; Ground Investigation				
	(	GEOTECH	Coor	dinates	es Client:			ľ	TP13
			5359	95.34 E	lurnkey Developments				
Trial Ditting			7435	743532.28 N		Energy		She	et 1 of 1
Plant:			Flor	Flowation		Logger:		Sca	ale: 1:25
13T Tracked Ex	cavator		34.46	5 mOD	24/03/	2023 MMC		F	INAL
Depth	Sample /	Field Deserve	Level	Depth	Legend	Description		ter	
(m)	Tests		(mOD)	(m)	Legend	TOPSOIL - Firm brown sandy CLAY with rootlets		Ň	
				-		Tor Sole. This brown salidy clear with rootices.			_
			34.26	0.20		Firm orangish brown slightly sandy slightly gravelly CLAY. Sand is	fine to		_
0.30	81		34.06	0.40		coarse. Gravel is subrounded fine to coarse of limestone.			_
			54.00	0.40		Firm light grey slightly gravelly very sandy CLAY with low cobble of Sand is fine to coarse. Gravel is subrounded fine to coarse of lime	content.		0.5
				-		Cobbles are subrounded of limestone.	estone.		_
				-	0000000 000000000000000000000000000000				_
				-	00000000000000000000000000000000000000				-
				-					-
1 10	22			E E					1.0
1.10	52			-					_
			33.16	1.30		Firm light arou slightly arough condy CLAV food is find to source	Crouol		_
				Ē		is subrounded fine to medium of limestone.	. Graver		_
				[					1.5
				-					_
				Ē					_
				[					
2.00	B3			-					2.0
				-					-
				[					_
				-					_
				-					-
				E					2.5
				-					_
			31.66	- 2.80		Firm light grey slightly sandy slightly gravelly CLAY with small leng	ses of		-
				-		brown very silty sand. Sand is fine to coarse. Gravel is subrounde	d fine to		_
3.00	B4			-		medium of limestone.			3.0
				È					_
				-					_
				-					_
			30.96	- 3.50		End of trial pit at 3.50m			3.5
				ŀ					_
				ŀ					_
									_
				-					4.0
				ŀ					-
									_
				-					-
				-					_
				Ē					4.5
				-					_
				F					-
				-					_
Wate	Strikes	<b>Depth:</b> 3.50	Rem	narks:	or oncour				
Struck at (m)	Remarks	<b>Width:</b> 0.80	Soal	si ounuwati kaway com	er encou pleted.	intereu.			
		Length: 3.50							
		Stability:	Terr	nination R	eason		Last Upo	lated	
		Unstable	Torm	ninated due	to pit wall	s collansing	21/05/1	2022	
Unstable		lein	erminated due to pit walls collapsing. 24/05/20						



Project No.:	23-0237
Site:	Laurclavagh

Test Location:ITP01Test Date:28 March 2023

		width (m)	length (m)		Anal	ysis using m	ethod as de	scribed in Bl	RE Digest 365
test pit top dimensions		0.50	2.00			and (	CIRIA Repo	rt C697-The .	SUDS Manual
test pit base	e dimensions	0.50	1.80						
		1 20		J					D
test	pit depth (m)	1.30	(	depth to gi	rounawa	iter before	addingw	ater (m) =	Dry
	denth to	denth of							
	water surface	water in nit							
time (mins)	(m)	(m)							
0	0.45	0.85	From	ranh helo	w.				
1	0.46	0.84		test start	- 75% de	enth at			
2	0.10	0.84		test start	0.6375	m water de	nth		
3	0.10	0.84			time is	not detern	nined		
4	0.47	0.83				not actor	iiiicu		
5	0.47	0.83		test end -	25% dei	nth at			
6	0.47	0.83	0.2125 m water denth						
7	0.47	0.83	time is not determined						
8	0.47	0.83							
9	0.47	0.83							
10	0.47	0.83		infiltra	tion ra	te (a) is v	erv low		
15	0.48	0.82				(4)	••• ••		
20	0.48	0.82							
25	0.49	0.81							
30	0.49	0.81							
40	0.50	0.80							
50	0.50	0.80							
60	0.51	0.79							
90	0.52	0.78							
	depth to	depth of	time	volum	e of	Area of w	alls and		
time	water	water in pit	elapsed	water	lost	base at 50	)% drop	q	q
(mins)	(m)	(m) <sup>1</sup>	(mins)	(m <sup>a</sup>	3)	(m	$\frac{2}{2}$	(m/min)	(m/h)
(	()	()	( -)	C	,	(	,		
0.00									
0.90									
0.80									





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP02 - Test 1
Test Date:	17 April 2023

test pit top dimensions test pit base dimensions test pit depth (m)	width (m) 0.50 0.50 1.00	length (m) 2.00 1.80	<i>Ana</i> depth to groundw	lysis using method as de and CIRIA Repo ater before adding w	escribed in Bl rt C697-The . ater (m) =	RE Digest 365 SUDS Manual Dry
depth to water surface         time (mins)       (m)         0       0.64         1       0.68         2       0.70         3       0.74         4       0.77         5       0.80         6       0.83         7       0.86         8       0.90         9       0.93         10       0.99         11       1.00	depth of water in pit (m) 0.36 0.32 0.30 0.26 0.23 0.20 0.17 0.14 0.10 0.07 0.01 0.00	From g	graph below: test start - 75% d 0.27 time is test end - 25% de 0.09 time is <b>test infil</b>	epth at m water depth 2.8 minutes epth at m water depth 8.3 minutes	1.038	m/h
time depth to (mins) (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m <sup>3</sup> )	Area of walls and base at 50% drop (m <sup>2</sup> )	q (m/min)	q (m/h)
2.75         0.73           8.25         0.91	0.27 0.09	5.5	0.17	1.74	1.7E-02	1.038





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP02 - Test 2
Test Date:	17 April 2023

test pit top dimensions test pit base dimensions test pit denth (m)		width (m) 0.50 0.50 1.00	length (m) 2.00 1.80	Anai	lysis using method as de and CIRIA Repo ater before adding w	escribed in Bl rt C697-The . ater (m) =	RE Digest 365 SUDS Manual Dry
time (mins) 0 1 2 3 4 5 6 7 8 9 10 11 12 13	pit depth (m) depth to water surface (m) 0.55 0.58 0.62 0.66 0.70 0.74 0.77 0.81 0.84 0.87 0.90 0.93 0.96 1.00	1.00 depth of water in pit (m) 0.45 0.42 0.38 0.34 0.30 0.26 0.23 0.19 0.16 0.13 0.10 0.10 0.07 0.04 0.00	From g	graph below: test start - 75% d 0.3375 time is test end - 25% de 0.1125 time is <b>test infil</b>	epth at m water depth 3.0 minutes pth at m water depth 9.5 minutes <b>tration rate (q) =</b>	ater (m) = 0.984	Dry m/h
time (mins) 3	depth to water (m) 0.66	depth of water in pit (m) 0.3375	time elapsed (mins) 6.5	volume of water lost (m <sup>3</sup> ) 0.21	Area of walls and base at 50% drop (m <sup>2</sup> ) 1.95	q (m/min) 1.6E-02	q (m/h) 0.984
0.50	0.09	0.1123					





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP03 Test 1
Test Date:	23 March 2023

test pit top dimensions test pit base dimensions		width (m) 0.70 0.50	length (m) 1.80 1.50	Ana	lysis using method as de and CIRIA Repo	escribed in Bl rt C697-The .	RE Digest 365 SUDS Manual
test	pit depth (m)	1.00		depth to groundwa	ater before adding w	ater (m) =	Dry
time (mins) 0 1 2	depth to water surface (m) 0.60 0.90 1.00	depth of water in pit (m) 0.40 0.10 0.00	From g	graph below: test start - 75% d 0.3 time is test end - 25% de 0.1 time is <b>test infil</b>	epth at m water depth 0.3 minutes pth at m water depth 1.0 minutes <b>tration rate (q) =</b>	9.586	m/h
time	depth to water	depth of water in nit	time elansed	volume of water lost	Area of walls and base at 50% drop	n	n
(mins)	(m)	(m)	(mins)	$(m^3)$	(m <sup>2</sup> )	۹ (m/min)	۹ (m/h)
0.33	0.70	0.3	0.67	0.17	1 58	1 6F-01	9 586
1	0.90	0.1	0.07	0.17	1.30	1.06-01	7.300
0.45					1	1	





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP03 Test 2
Test Date:	23 March 2023

test pit top dimensions test pit base dimensions test pit depth (m)		width (m) 0.70 0.50 1.00	length (m) 1.80 1.50	Anai depth to groundwa	lysis using method as de and CIRIA Repor ater before adding w	escribed in BF rt C697-The S ater (m) =	RE Digest 365 SUDS Manual Dry
time (mins) 0 1 2 	depth to water surface (m) 0.58 0.85 1.00	depth of water in pit (m) 0.42 0.15 0.00	From g	graph below: test start - 75% d 0.315 time is test end - 25% de 0.105 time is <b>test infil</b>	epth at m water depth 0.4 minutes pth at m water depth 1.3 minutes <b>tration rate (q) =</b>	7.338	m/h
time	depth to water	depth of water in pit	time elapsed	volume of water lost	Area of walls and base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m <sup>3</sup> )	(m <sup>2</sup> )	(m/min)	(m/h)
0.35	0.69	0.315	0.0	0.10	1.40	1 25 01	7 220
1.25	0.90	0.105	0.9	0.18	1.02	1.26-01	/.338





Project No.:	23-0237
Site:	Laurclavagh

Test Locati	on: ITP04					GE	OTECH
Test Date:	23 Marc	h 2023					
test pit to test pit bas test	p dimensions e dimensions pit depth (m)	width (m) 0.55 0.55 1.40	length (m) 2.20 1.70	Anal depth to groundwa	lysis using method as de and CIRIA Repor ater before adding w	escribed in Bl rt C697-The s ater (m) =	RE Digest 365 SUDS Manual Dry
time (mins) 0 1 2 3 4 5 6 8 10 15 20 25 30 40 60 75 90 100 110	depth to water surface (m) 0.52 0.53 0.54 0.55 0.56 0.57 0.58 0.60 0.62 0.62 0.65 0.68 0.71 0.74 0.81 0.93 0.99 1.10 1.20	depth of water in pit (m) 0.88 0.87 0.86 0.85 0.84 0.83 0.82 0.82 0.80 0.78 0.75 0.72 0.69 0.66 0.59 0.47 0.41 0.30 0.20	From g	graph below: test start - 75% d 0.66 time is test end - 25% de 0.22 time is <b>test infil</b>	epth at m water depth 30.0 minutes pth at m water depth 100.0 minutes <b>tration rate (q) =</b>	0.128	m/h
time	depth to water	depth of water in pit	time elapsed (mins)	volume of water lost (m <sup>3</sup> )	Area of walls and base at 50% drop $(m^2)$	q (m/min)	q (m/h)
30 100	0.74	0.66	70	0.45	3.00	2.1E-03	0.128
	•		•			-	





Project No.:	23-0237
Site:	Laurclavagh
Test Legation.	ITDOF

Test Location:	ITP05
Test Date:	25 April 2023

test pit top dimensions test pit base dimensions test pit depth (m)		width (m) 0.60 0.60 0.70	length (m) 2.00 1.80	Ana. depth to groundwa	lysis using method as de and CIRIA Repo ater before adding w	escribed in Bl rt C697-The . ater (m) =	RE Digest 365 SUDS Manual Dry
	denth to	denth of					
	water surface	water in pit					
time (mins)	(m)	(m)					
0	0.30	0.40	From g	raph below:			
1	0.31	0.39		test start - 75% d	enth at		
2	0.31	0.39		0.3	m water depth		
4	0.32	0.38		time is	30.0 minutes		
5	0.32	0.38					
8	0.33	0.37	test end - 25% depth at				
10	0.34	0.36	0.1 m water depth				
15	0.36	0.34		time is	120.0 minutes		
20	0.38	0.32					
25	0.39	0.31					
30	0.40	0.30		test infil	tration rate (q) =	0.072	m/h
40	0.42	0.28					
50	0.44	0.26					
60	0.46	0.24					
70	0.48	0.22					
80	0.50	0.20					
90	0.53	0.17					
120	0.60	0.10					
150	0.70	0.00					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	$(m^{3})$	(m <sup>2</sup> )	(m/min)	(m/h)
30	0.40	0.3	00	0.22	2.05	1 25 02	0.072
120	0.60	0.1	90	0.22	2.05	1.2E-U3	0.072





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP06 Test 1
Test Date:	20 March 2023

test pit top dimensions test pit base dimensions		width (m) 0.70 0.70	length (m) 1.50 1.00	Ana	lysis using method as de and CIRIA Repo	escribed in BI rt C697-The S	RE Digest 365 SUDS Manual
test pit depth (m)		1.30	(	depth to groundwa	ater before adding w	ater (m) =	Dry
time (mins) 0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 40	depth to water surface (m) 0.36 0.39 0.42 0.46 0.48 0.51 0.53 0.55 0.57 0.59 0.61 0.73 0.84 0.94 1.04 1.10	depth of water in pit (m) 0.94 0.91 0.88 0.84 0.82 0.79 0.77 0.75 0.73 0.73 0.71 0.69 0.57 0.46 0.36 0.26 0.20	From g	graph below: test start - 75% d 0.705 time is test end - 25% de 0.235 time is <b>test infil</b>	epth at m water depth 9.0 minutes epth at m water depth 35.0 minutes	0.373	m/h
	depth to	depth of	time	volume of	Area of walls and		_
time	water	water in pit	elapsed	water lost	base at 50% drop $(m^2)$	q (min)	q ( /h.)
(mins)	(m)	(m)	(mins)	(m)	(m )	(m/min)	(m/n)
9	0.60	0.705	26	0.39	2.40	6.2E-03	0.373
35	1.07	0.235	_0	0.07		0.11 00	0.070





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP06 Test 2
Test Date:	20 March 2023

test pit top dimensions test pit base dimensions test pit denth (m)		width (m) 0.70 0.70 1.30	length (m) 1.50 1.00	Ana. depth to groundw	lysis using method as de and CIRIA Repo ater before adding w	escribed in Bl rt C697-The . ater (m) =	RE Digest 365 SUDS Manual Dry
time (mins) 0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 40 50 	depth to water surface (m) 0.30 0.33 0.36 0.39 0.41 0.43 0.45 0.47 0.49 0.51 0.53 0.64 0.74 0.83 0.92 1.09 1.10	depth of water in pit (m) 1.00 0.97 0.94 0.91 0.89 0.87 0.85 0.83 0.81 0.79 0.77 0.66 0.77 0.66 0.56 0.47 0.38 0.21 0.20	From g	graph below: test start - 75% d 0.75 time is test end - 25% de 0.25 time is <b>test infil</b>	epth at m water depth 11.0 minutes pth at m water depth 37.0 minutes tration rate (q) =	0.382	m/h
time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m <sup>3</sup> )	Area of walls and base at 50% drop (m <sup>2</sup> )	q (m/min)	q (m/h)
11 37	0.55	0.75 0.25	26	0.42	2.52	6.4E-03	0.382





Project No.:	23-0237
Site:	Laurclavagh

Test Location: ITP07

Test Date: 21 March 2023

width (m) s 0.60 s 0.60	width (m)length (m)Analysis using method as described in BR0.601.90and CIRIA Report C697-The S0.601.601.20depth to groundwater before adding water (m) =				
depth of water in pit (m)	From graph below: test start - 75% depth at 0.9 m water depth time is not determined				
	time is not determined test end - 25% depth at 0.3 m water depth time is not determined Pit filled with 2000L of water and water soaked away instantly, indicating that infiltration rate (q) is quite high.				
depth of water in pit (m)	time elapsed (mins)	volume of water lost (m <sup>3</sup> )	Area of walls and base at 50% drop (m <sup>2</sup> )	q (m/min)	q (m/h)
	width (m) s 0.60 s 0.60 1.20 depth of water in pit (m) 	width (m)       length (m)         is       0.60       1.90         is       0.60       1.60         is       0.60       1.60         is       0.60       1.60         is       0.60       1.60         is       depth of water in pit manual       From g         is       is       is         <	width (m)       length (m)       Ana         is       0.60       1.90         is       0.60       1.60         i)       1.20       depth to groundw         depth of water in pit (m)       From graph below:       test start - 75% d         iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	width (m)       length (m)       Analysis using method as de and CIRIA Reported AT CONTRACT AND	width (m)       length (m)       Analysis using method as described in BI and CIRIA Report C697-The stand CIRIA Report C6



Project No.:	23-0237
Site:	Laurclavagh

**Test Location:** ITP08

**Test Date:** 22 March 2023

test pit toj test pit baso test j	o dimensions e dimensions pit depth (m)	width (m) 0.60 0.50 1.30	length (m) 1.80 1.00	m) Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual depth to groundwater before adding water (m) = Dry			≀E Digest 365 SUDS Manual Dry
time (mins)	depth to water surface (m)	depth of water in pit (m)	From graph below: test start - 75% depth at 0.975 m water depth time is not determined				
			test end - 25% depth at 0.325 m water depth time is not determined Pit filled with 2000L of water and water soaked away in 30 seconds, indicating that				
	depth to	depth of	time	infiltration in h	rate (q) is quite high.		
(mins)	(m)	(m)	(mins)	(m <sup>3</sup> )	(m <sup>2</sup> )	q (m/min)	q (m/h)
1.00 0.90 0.80 (m) 0.70 iti 0.60 i 0.50 jo 0.40 0.40 0.20 0.10 0.00							
$0.00 \stackrel{1}{=} 0$	0.1	0.2 0	).3 0.4	0.5 ( time (mins)	0.6 0.7 (	).8 0.9	 ) 1



Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP09

Test Date: 17 April 2023

test pit top test pit base test p	o dimensions e dimensions pit depth (m)	width (m) 0.50 0.50 1.30	length (m) 1.50 1.30 Analysis using method as described in BRE D and CIRIA Report C697-The SUD 1.30 depth to groundwater before adding water (m) = Dry				RE Digest 365 SUDS Manual Dry
	depth to water surface	depth of water in pit					
time (mins)	(m)	(m)					
0	0.31	0.99	From 9	ranh helow.			
1	0.31	0.99	1101112	test start - 75% d	enth at		
2	0.32	0.99		07425	m water denth		
4	0.32	0.98		time is	not determined		
5	0.32	0.98					
6	0.32	0.98	test end - 25% denth at				
7	0.33	0.97	0.2475 m water depth				
8	0.33	0.97	time is not determined				
9	0.33	0.97					
10	0.33	0.97					
15	0.34	0.96		infiltration ra	te (q) is very low		
20	0.34	0.96					
25	0.35	0.95					
30	0.35	0.95					
40	0.36	0.94					
50	0.37	0.93					
60	0.38	0.92					
90	0.40	0.90					
120	0.42	0.88					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	$(m^{3})$	(m <sup>2</sup> )	(m/min)	(m/h)





Project No.:	23-0237
Site:	Laurclavagh

Test Location: ITP10 Test Date: 28 March 2023

0.10

0.00

0

20

40

Test Date:	20 Marc	11 2025							
test pit toj test pit bas test j	o dimensions e dimensions pit depth (m)	width (m) 0.55 0.55 1.30	length (m)Analysis using method as described in BRE Dige2.50and CIRIA Report C697-The SUDS M2.00depth to groundwater before adding water (m) = Dry			n BRE Digest 3 The SUDS Man ) = Dry	}65 ual		
time (mins) 0 1 2 4 5 6 8 10 15 20 25 30 40 50	depth to water surface (m) 0.46 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47	depth of water in pit (m) 0.84 0.83 0.83 0.83 0.83 0.83 0.83 0.83 0.83	From g	graph below: test start - 75% d 0.63 time is test end - 25% de 0.21 time is <b>infiltration ra</b>	lepth at m water dep not determi epth at m water dep not determi <b>ate (q) is ve</b>	oth ined oth ined		) – Diy	
50 60	0.48	0.82							
70	0.48	0.82	t i i i i i i i i i i i i i i i i i i i						
80	0.48	0.82							
90	0.48	0.82	ł						
120	0.48	0.82	•						
time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m <sup>3</sup> )	Area of wa base at 509 (m <sup>2</sup> )	lls and % drop	q (m/mi	q n) (m/h)	1
			1						
0.90									]
0.80									-
0.70									
<u></u>									-
<u>1</u> <u>1</u> <u>1</u> <u>1</u> <u>1</u> <u>1</u> <u>1</u> <u>1</u> <u>1</u> <u>1</u>									
er ir									
1 to 10 to 1									-
б ц 0,30									
lept									
0.20									-

60

80

time (mins)

100

120

140



Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP11

Test Date: 22 March 2023

test pit top test pit base test j	o dimensions e dimensions pit depth (m)	width (m) 0.55 0.55 1.40	) length (m) Analysis using method as described 2.10 and CIRIA Report C697 1.50 depth to groundwater before adding water (r				RE Digest 365 SUDS Manual Dry
	depth to	depth of					
	water surface	water in pit					
time (mins)	(m)	(m)	-				
0	0.41	0.99	From g	graph below:			
1	0.41	0.99		test start - 75% d	epth at		
2	0.41	0.99		0.7425	m water depth		
3	0.41	0.99		time is	not determined		
4	0.41	0.99					
5	0.42	0.98	test end - 25% depth at				
6	0.42	0.98	0.2475 m water depth				
7	0.42	0.98	time is not determined				
8	0.42	0.98					
10	0.42	0.98					
15	0.42	0.98		infiltration ra	te (q) is very low		
20	0.43	0.97					
25	0.43	0.97					
30	0.43	0.97					
40	0.44	0.96					
50	0.44	0.96					
60	0.44	0.96					
70	0.45	0.95					
90	0.46	0.94					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	a	a
(mins)	(m)	(m)	(mins)	$(m^{3})$	$(m^2)$	(m/min)	(m/h)
()	()		<u> </u>				





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP12 Test 1
Test Date:	21 March 2023

test pit to test pit bas	p dimensions e dimensions	width (m) 0.60 0.60	length (m)Analysis using method as described in BRE1.60and CIRIA Report C697-The SUI1.20			RE Digest 365 SUDS Manual				
test	pit depth (m)	0.70		depth to	groundwa	ater bef	ore adding w	ater	· (m) =	Dry
time (mins) 0 1 2 3 4 5 6 7 8 9 10 11 	depth to water surface (m) 0.30 0.34 0.38 0.42 0.46 0.50 0.53 0.56 0.60 0.64 0.67 0.70	depth of water in pit (m) 0.40 0.36 0.32 0.28 0.24 0.20 0.17 0.14 0.10 0.06 0.03 0.00	From g	graph bel test star test end	ow: t - 75% d 0.3 time is - 25% de 0.1 time is	epth at m wate 2.5 min pth at m wate 8.0 min <b>tration</b>	r depth autes r depth autes <b>h rate (q) =</b>		1.172	m/h
time	depth to	depth of	time	volu	me of	Area o	of walls and		a	a
time	water	(m)	(mina)	wate	$n^{3}$	base a	$(m^2)$	(	y (min)	۲ ۲) (m
(mins)	(m)	(11)	(mms)	(n	цJ		(m)	լտ	i/IIIIIJ	(111/11)
2.5	0.40	0.3	5.5	0.	16		1.47	2.	0E-02	1.172
8	0.60	0.1		_						
0.45										





Project No.:	23-0237
Site:	Laurclavagh
Test Location:	ITP12 Test 2
Test Date:	21 March 2023

test pit top test pit base	p dimensions e dimensions pit dopth (m)	width (m) 0.60 0.60	length (m) 1.60 1.20	Ana	Analysis using method as described in BRE Dig and CIRIA Report C697-The SUDS			
	pre «ep « (…)	011 0	ľ				219	
	depth to	depth of						
	water surface	water in pit						
time (mins)	(m)	(m)						
0	0.30	0.40	From g	graph below:				
1	0.34	0.36		test start - 75% d	epth at			
2	0.37	0.33		0.3	m water depth			
3	0.40	0.30		time is	3.0 minutes			
4	0.43	0.27						
5 0.46 0.24			test end - 25% depth at					
6 0.49 0.21			0.1 m water depth					
7	0.52	0.18	time is 9.5 minutes					
8	0.55	0.15						
9	0.58	0.12						
10	0.61	0.09	test infiltration rate (q) = 0.991 m/h				m/h	
11	0.64	0.06						
12	0.70	0.00						
	depth to	depth of	time	volume of	Area of walls and			
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q	
(mins)	(m)	(m)	(mins)	$(m^{3})$	$(m^2)$	(m/min)	(m/h)	
3	0.40	0.3		0.17	1 4 7	1 75 0.2	0.001	
9.5	0.60	0.1	6.5	0.16	1.47	1./E-UZ	0.991	
-	-					-		
0.45	1							





Project No.:	23-0237
Site:	Laurclavagh
Tost Location	ITD12

40

50

0.50

0.51

0.80

0.79

Test Locati	on: ITP13			GEOTECH
Test Date:	24 Marc	h 2023		
test pit top dimensions test pit base dimensions test pit depth (m)		width (m) 0.50 0.50 1.30	length (m) 2.10 2.00 d	Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual epth to groundwater before adding water (m) = Dry
time (mins)	depth to water surface (m)	depth of water in pit (m)		
0	0.40	0.90	From gr	aph below:
1	0.40	0.90	t	est start - 75% depth at
2	0.41	0.89	I	0.675 m water depth
3	0.41	0.89		time is not determined
4	0.42	0.88		
5	0.42	0.88	t	est end - 25% depth at
6	0.42	0.88		0.225 m water depth
7	0.43	0.87		time is not determined
8	0.43	0.87		
9	0.43	0.87		
10	0.44	0.86		infiltration rate (q) is very low
15	0.45	0.85		
20	0.46	0.84		
25	0.47	0.83		
30	0.48	0.82	I	

60	0.52	0.78					
90	0.54	0.76					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m <sup>3</sup> )	(m <sup>2</sup> )	(m/min)	(m/h)





# APPENDIX G INDIRECT IN-SITU CBR TEST RESULTS



#### Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP01	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 6	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing: variation in moisture content or other factors may affect the insitu value. Oninions and
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

 Approved Name and Appointment

 Darren O'Mahony

 Director

March 2023

#### Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP02	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 9.5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: 60	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.

Deviation(s) from standard procedure	None
Observations and comments	

 Approved Name and Appointment

 Darren O'Mahony
 Director

 Director
 Director


Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP03	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 3.7	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: 16	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP04	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 4.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The institu DCP reading (mm/blow) and CBR
	Max: 85	values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP05	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.2	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The institu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the institu value. Oninions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP06	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 4.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP07	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 8	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Oninions and
	Max: 36	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP08	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 6.7	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: 26	values are valid at the time of testing; variation in moisture content of other factors may affect the institu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	

 Darren O'Mahony
 Ornor O'Mahony
 March 2023



Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP09	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 4.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of facting variation in maintum contact or other factors may affect the insitu value. Only one of the data is the time of the time
	Max: 58	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP10	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of facting variation in maintum contact or other factors may affect the insitu value. Only one of the data is the time of the time
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP11	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.2	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: 29	values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	

 Approved Name and Appointment
 March 2023

 Darren O'Mahony
 Director

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP12	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Onivious and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP13	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.2	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP13A	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 7.1	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of texting variation in maintum content or other feature may affect the insitu value. Only increased
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		
Darren O'Mahony Director	Dam O' dera 7.	March 2023	la contra de la co

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location		GEOTECH	
			_
Test Number	DCP14	Date Tested	14/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.6	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
	-		
Test Number	DCP15	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 12	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237				
Project Name	Laurclavagh			CAUSEWAY	
Site Location			-69	GEOTECH	
Test Number	DCP15A	Date	Tested		15/03/2023
Depth bgl (m)	0.25	We	ather		Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 12	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	values are valid at the time of testing; variation in moisture content of other factors may affect the institu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	

 Darren O'Mahony
 Director
 March 2023

Project Number	23-0237			-	
Project Name	Laurclavagh			CAUSEWAY	
Site Location				-5/	GEOTECH
	-				
Test Number	DCP16		Date Tested		15/03/2023
Depth bgl (m)	0.25		Weather		Wet and windy

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 12	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		
Darren O'Mahony Director	Jam O'dula 7.	March 2023	

Project Number	23-0237				
Project Name	Laurclavagh			CAUSEWAY	
Site Location				-64	GEOTECH
	-				
Test Number	DCP16A		Date Tested		15/03/2023
Depth bgl (m)	0.25		Weather		Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 17	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location		GEOTECH	
			-
Test Number	DCP17	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 3.5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
	·	<b></b>	-
Test Number	DCP18	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth	
N/A	CLAY	



CBR Range	Min: 3.5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	values are valid at the time of testing; variation in moisture content of other factors may affect the institu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	
-	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP19	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Surface preparation	Description of surface material at test depth	
N/A	CLAY	



CBR	Min: 14	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximu shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow values are valid at the time of testing variation in moisture content or other factors may affect the insitu value. Onin	
Range	Range Max: >100	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.	

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		
Darren O'Mahony Director	Jam O' Ulla 7.	March 2023	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP20	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 7.1	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		
Darren O'Mahony Director	Dam O'dula 7.	March 2023	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP21	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range M	Min: 5.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		et et
Darren O'Mahony Director	Jam O'dula 7.	March 2023	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP22	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.3	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP23	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 7.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Oninions and
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP24A	Date Teste	d 15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 16 The self-weight penetration at the start of the test (shown a shown to the left. The selection of layers is based on visual int	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		
Darren O'Mahony Director	Jam O' Ulla 7.	March 2023	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
	-		-
Test Number	DCP25	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 15	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP26	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 12	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237			-	
Project Name	Laurclavagh				CAUSEWAY
Site Location				-89	GEOTECH
	-				
Test Number	DCP26A		Date Tested		15/03/2023
Depth bgl (m)	0.25		Weather		Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 12	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP27	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 15	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum value shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and the selection of the data is the selection of layers is based on visual interpretation of the data.
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP28	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 2.5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum val shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and
	Max: 19	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP29	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 7.8	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP30	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 6.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: 55	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		G
Darren O'Mahony Director	Dam O dua 7.	March 2023	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP31	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.9	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of texting variation in maintum content or other feature may affect the insitu value. Only increased
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP32	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Onivious and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237			
Project Name	Laurclavagh			CAUSEWAY
Site Location				GEOTECH
		_		-
Test Number	DCP32A		Date Tested	15/03/2023
Depth bgl (m)	0.25		Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 4.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Onivious and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

 Darren O'Mahony
 Director
 March 2023

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP33	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 8.1	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	


Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP34	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 5.1	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

	Approved Name and Appointment		
Darren O'Mahony Director	Dam O'dula 7.	March 2023	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP35	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 6.7	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP36	Date Tested	15/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 6.2	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing, variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh	CAUSEWAY	
Site Location		GEOTECH	
			-
Test Number	DCP37	Date Tested	16/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



Min: 15 CBR Range Max: >100	Min: 15	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	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.	

Deviation(s) from standard procedure	None
Observations and comments	



Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
			-
Test Number	DCP38	Date Tested	16/03/2023
Depth bgl (m)	0.25	Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range	Min: 2.8	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: 36	values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237			
Project Name	Laurclavagh		CAUSEWAY	
Site Location				GEOTECH
	-			
Test Number	DCP38A		Date Tested	16/03/2023
Depth bgl (m)	0.25		Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range Max: 21	Min: 4.8	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
	Max: 21	values are valid at the time of testing; variation in moisture content or other factors may affect the institu value. 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.

Deviation(s) from standard procedure	None
Observations and comments	

Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP39	Date Tested	16/03/2023
Depth bgl (m)	0.25	Weather Wet	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR	Min: 2.5	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR
Range	Range Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	



Project Number	23-0237		
Project Name	Laurclavagh		CAUSEWAY
Site Location			GEOTECH
Test Number	DCP40	Date Tested	16/03/2023
Depth bgl (m)	0.25	Weather	Dry and Cold

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0 CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



CBR Range Max: >100	Min: 4.4	The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Onitions and
	Max: >100	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.

Deviation(s) from standard procedure	None
Observations and comments	



# APPENDIX H GEOTECHNICAL LABORATORY TEST RESULTS





HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7OL NI: +44 (0)28 276 66640

#### REGIONAL OFFICE Causeway Geotech (IRL) Ltd

Unit 1 Fingal House Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 **ROI**: +353 (0)1 526 7465

Registered in Northern Ireland. Company Number: NI610766

Company Number: 633786

Registered in Ireland.

www.causewaygeotech.com

### SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

19 May 2023

Project Name:	Laurclavagh WF; Ground Investigation
Project No.:	23-0237
Client:	Turnkey Developments
Engineer:	Enerco Energy

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 10/05/2023 and 19/05/2023.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Hopen Wolin

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd













### Project Name: Laurclavagh WF; Ground Investigation

**Report Reference:** Schedule 1

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with\* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL	Moisture Content of Soil	BS 1377-2: 1990: Cl 3.2	20
SOIL	Liquid and Plastic Limits of soil-1 point cone penetrometer method	BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4	20
SOIL	Particle size distribution - wet sieving	BS 1377-2: 1990: Cl 9.2	20
SOIL	Particle size distribution - sedimentation hydrometer method	BS 1377-2: 1990: Cl 9.5	18

### SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183)	pH Value of Soil		15
SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183)	Sulphate Content water extract		15

CAL	JSEW GEOTE	AY			Summary	of Cl	ass	assification Test Results						
Project No.	0237		Project	Name			Lai	ırclava	h					
	0237	Sar	nnle			Dana	Lat		JII Danaina		ы	ы	Dortiolo	
Hole No.	Ref	Тор	Base	Туре	Specimen Description	Dens bulk Mg/m	dry 3	W %	Passing 425µm %	LL %	PL %	РI %	density Mg/m3	Casagrande Classification
ITP01	3	2.00		В	Brown sandy slightly gravelly silty CLAY.			8.7	71	20 -1pt	10	10		CL
ITP02	1	0.60		В	Brown sandy slightly gravelly silty CLAY.			8.3	57	21 -1pt	12	9		CL
ITP06	2	1.20		В	Brown sandy slightly gravelly clayey SILT.			31	94	58 -1pt	33	25		МН
ITP07	2	1.50		В	Brown sandy slightly gravelly silty CLAY.			12	56	24 -1pt	15	9		CL
ITP08	2	1.50		В	Grey gravelly slightly silty fine to ocarse SAND.			8.4	32	24 -1pt	17	7		CL
ITP09	2	1.00		В	Greyish brown sandy slightly gravelly silty CLAY.			8.6	57	20 -1pt	12	8		CL
ITP09	4	3.00		В	Brown sandy gravelly clayey SILT.			11	58	28 -1pt	23	5		ML
ITP10	1	0.70		В	Greyish brown sandy slightly gravelly silty CLAY.			10	65	20 -1pt	14	6		ML/CL
ITP10	3	2.50		В	Greyish brown sandy slightly gravelly silty CLAY.			8.4	55	20 -1pt	11	9		CL
ITP11	2	1.00		В	Greyish brown sandy slightly gravelly silty CLAY.			10	60	22 -1pt	13	9		CL
ITP11	4	2.20		В	Greyish brown slightly gravelly silty fine to coarse SAND.			13	67	20 -1pt	15	5		ML
ITP13	3	2.00		В	Greyish brown sandy slightly gravelly silty CLAY.			9.2	58	20 -1pt	12	8		CL
All tests perfor	med in a	ccordan	ce with E	3S1377:′	1990 unless specified other	wise							LAE	3 01R Version 6
Key Density Linear m wd - wat	test neasuremer er displace	nt unless : ment		Liquid Lim 4pt cone u cas - Casa	it Particl nless : sp - sn ngrande method gj - ga	e density nall pyknom s jar	eter	Date F	Printed	23	Appr	oved	Ву	
wi - imm	nersion in w	ater		1pt - single	e point test						Step	hen	Watson	10122

Summary of Classification Test Results														
Project No. 2	3-0237		Project	Name			Lau	ırclavaç	gh					
		Sar	mple			Dens	ity	w	Passing	LL	PL	ΡI	Particle	Casagrande
Hole No.	Ref	Тор	Base	Туре	Specimen Description	bulk Mg/m	dry 3	%	425µm %	%	%	%	density Mg/m3	Classification
ITP13	4	3.00		В	Greyish brown sandy slightly gravelly silty CLAY.			13	49	21 -1pt	13	8		CL
TP01	4	3.00		В	Greyish brown sandy slightly gravelly clayey SILT.			10	63	20 -1pt	15	5		ML
TP02	2	1.20		В	Greyish brown gravelly slightly slith silth silth silth silth fine to coarse SAND.			11	39	38 -1pt	27	11		МІ
TP03	2	1.30		В	Greyish brown sandy slightly gravelly clayey SILT.			11	57	20 -1pt	15	5		ML
TP06	2	1.50		В	Greyish brown sandy slightly gravelly silty CLAY.			9.3	69	20 -1pt	12	8		CL
TP06	4	3.30		В	Greyish brown sandy slightly gravelly silty CLAY.			7.7	71	20 -1pt	12	8		CL
TP07	1	0.50		В	Greyish brown sandy slightly gravelly clayey SILT.			39	66	51 -1pt	34	17		МН
TP08	2	1.60		В	Greyish brown sandy slightly gravelly silty CLAY.			9.3	61	20 -1pt	13	7		CL
All tests perf	ormed in a	lccordan	ce with E	3S1377:′	1990 unless specified other	wise							LAE	01R Version 6
Key Densi Linea wd - v	ty test • measuremen vater displace	nt unless : ment		Liquid Lim 4pt cone u cas - Casa	it Particl nless : sp - sn ngrande method gj - ga	e density nall pyknom s jar	eter	Date F	Printed Approved By					
wi-ii	nmersion in w	ater		1pt - single	e point test						Step	hen	Watson	10122





Approved

55

49

0.15

0.063





Approved

56

51

0.15

0.063







Approved

45

39

0.15

0.063





Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

57

53

48

41

0.3

0.212

0.15

0.063



Mg/m3

2.65

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

38

35

33

30

25

0.425

0.3 0.212

0.15

0.063



Mg/m3

2.65

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

63

60

56

52

47

0.425

0.3 0.212

0.15

0.063



Stephen Watson

LAB 05R - Version 6

10122





Approved

53

47

0.15

0.063



Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06300	37
90	100	0.04994	34
75	100	0.03599	29
63	100	0.02592	24
50	100	0.01855	21
37.5	100	0.00980	15
28	100	0.00495	11
20	100	0.00289	8
14	99	0.00155	3
10	95		
6.3	92		
5	91		
3.35	88		
2	84		
1.18	80		
0.6	75	Particle density	(assumed)
0.425	72	2.65	Mg/m3
0.3	69		
0.212	66	]	
0.15	60	1	
0.063	37	1	
		••	

Sample Proportions	% dry mass
Cobbles	0.0
Gravel	16.3
Sand	46.4
Silt	32.1
Clay	5.2

Grading Analysis		
D100	mm	
D60	mm	0.149
D30	mm	0.038
D10	mm	0.00396
Uniformity Coefficient		38
Curvature Coefficient		2.4

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved



Mg/m3

2.65

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

60

57

53

48

42

0.425

0.3 0.212

0.15

0.063



/5	100	0.03462	40
63	100	0.02497	35
50	100	0.01788	32
37.5	100	0.00947	25
28	100	0.00484	18
20	100	0.00284	13
14	95	0.00152	8
10	92		
6.3	86		
5	85		
3.35	81		
2	76		
1.18	72		
0.6	67	Particle density	(assumed)
0.425	65	2.65	Mg/m3
0.3	61		
0.212	57		
0.15	52		
0.063	45		

Grading Analysis		
D100	mm	
D60	mm	0.269
D30	mm	0.0152
D10	mm	0.00187
Uniformity Coefficient		140
Curvature Coefficient		0.46

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

Stephen Watson

LAB 05R - Version 6



10122

Approved







Approved

37

0.063





Approved

58

49

0.15

0.063





Approved

59

51

0.15

0.063

Stephen Watson

LAB 05R - Version 6



Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

65

62

57

48

42

32

Particle density

2.65

(assumed)

Mg/m3

0.6

0.425

0.3

0.212

0.15

0.063



Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

69

63

60

57

52

48

40

Particle density

2.65

(assumed)

Mg/m3

1.18

0.6

0.425

0.3

0.15

0.063

# 🔅 eurofins

## Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

Report No.:	23-16004-1		
Initial Date of Issue:	19-May-2023		
Re-Issue Details:			
Client	Causeway Geotech Ltd		
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL		
Contact(s):	Alistair McQuat Carin Cornwall Celine Rooney Colm Hurley Dean McCloskey Gabriella Horan Lucy Newland Matthew Gilbert Matthew Graham Neil Haggan Sean Ross Stephen Franey Stephen Franey Stephen Watson Stuart Abraham Darren O'Mahony Neil Patton Paul Dunlop		
Project	23-0237 Laurclavagh		
Quotation No.:		Date Received:	15-May-2023
Order No.:		Date Instructed:	15-May-2023
No. of Samples:	15		
Turnaround (Wkdays):	5	Results Due:	19-May-2023
Date Approved:	19-May-2023		
Approved By:			

L



# 🔅 eurofins

Chemtest

Eurofins Chemtest Ltd <u>Depot Roa</u>d Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

## <u> Results - Soil</u>

#### Project: 23-0237 Laurclavagh

Client: Causeway Geotech Ltd		Che	mtest J	ob No.:	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004
Quotation No.:	(	Chemtest Sample ID.:			1639216	1639217	1639218	1639219	1639220	1639221	1639222	1639223
Order No.:		Client Sample Ref.:			2	1	1	1	1	1	2	3
	Sample Location:			ITP01	ITP03	ITP06	ITP07	ITP08	ITP09	ITP10	ITP11	
	Sample Type:			SOIL								
		Top Depth (m):			1	0.5	0.4	0.8	0.6	0.3	1.7	1.6
		Date Sampled:		12-May-2023								
Determinand	Accred.	SOP	Units	LOD								
Moisture	N	2030	%	0.020	17	11	24	13	16	24	12	12
рН	U	2010		4.0	8.1	8.2	8.1	8.5	8.7	7.8	8.7	8.5
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.030	0.030	0.017	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
# <u> Results - Soil</u>

#### Project: 23-0237 Laurclavagh

Client: Causeway Geotech Ltd	Chemtest Job No.:		23-16004	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004		
Quotation No.:	Chemtest Sample ID.:		1639224	1639225	1639226	1639227	1639228	1639229	1639230		
Order No.:		Client Sample Ref.:		2	2	1	1	1	3	1	
	Sample Locat		ocation:	ITP13	TP01	TP02	TP03	TP05	TP06	TP08	
	Sample Type:		SOIL								
	Top Depth (m)		oth (m):	1.1	0.9	0.4	0.6	0.5	2.6	0.8	
	Date Sampled:		12-May-2023								
Determinand	Accred.	ed. SOP Units LOD									
Moisture	N	2030 % 0.020		10	14	11	11	14	8.8	9.9	
рН	U	2010		4.0	8.6	8.5	8.3	8.0	8.2	8.4	8.7
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

# Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	рН	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES

## **Report Information**

Кеу	
U	UKAS accredited
Μ	MCERTS and UKAS accredited
Ν	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
Т	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

#### **Sample Deviation Codes**

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

#### Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



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#### REGIONAL OFFICE Causeway Geotech (IRL) Ltd

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Registered in Northern Ireland. Company Number: NI610766

Company Number: 633786

Registered in Ireland.

www.causewaygeotech.com

## SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

2 May 2023

Project Name:	Laurclavagh WF; Ground Investigation
Project No.:	23-0237
Client:	Turnkey Developments
Engineer:	Enerco Energy

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 18/04/2023 and 02/05/2023.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Hopen Wolin

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd













## Project Name: Laurclavagh WF; Ground Investigation

**Report Reference:** Schedule 1

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with\* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
ROCK	Point load index	ISRM Commission on Testing Methods. Suggested Method for Determining Point Load Strength 1985	12
ROCK	Uniaxial Compressive Strength (UCS)*	ISRM Suggested Methods -Rock Characterization Testing and Monitoring, Ed. E T Brown - 1981	4

• 💓 C/	GEO	VA	-			Point Load Strength Index Tests Summary of Results												
Project No.	23-0237			Proje	ect Nam	е				La	urclava	ah						
Porobolo	Sample		Specimen			Test see	Type SRM	(N/X) p		Dime	nsions		Force	nt diameter, De	Point Load Strength Index		Remarks	
No.	Depth	Ref.	Туре	Ref.	Depth	Rock Type	Type (D, A, I, B)	Direction (L, P or U)	Failure Val	Lne	W	Dps	Dps'	k N	B Equivale	Is MPa	Is(5 0) MPa	water content if measured)
BH RC01	6.50	1	с	1	6.50	LIMESTONE	A	U	YES		101.7	67.0	58.0	0.7	86.7	0.1	0.1	
BH RC01	6.80	2	с	1	6.80	LIMESTONE	А	U	YES		101.0	90.0	80.0	10.9	101.4	1.1	1.5	
BH RC01	9.70	3	с	1	9.70	LIMESTONE	A	U	YES		100.3	102.0	91.0	6.8	107.8	0.6	0.8	
BH RC01	10.30	4	с	1	10.30	LIMESTONE	D	U	YES	85.7	101.6	101.6	100.0	9.4	100.8	0.9	1.3	
BH RC04	6.25	1	с	1	6.25	LIMESTONE	D	U	YES	122.4	101.6	101.6	100.0	15.4	100.8	1.5	2.1	
BH RC04	9.30	2	с	1	9.30	LIMESTONE	A	U	NO		101.9	88.0	86.0	23.7	105.6	2.1	3.0	
BH RC06	6.30	2	с	1	6.30	LIMESTONE	D	U	NO	82.0	101.4	101.4	98.0	20.1	99.7	2.0	2.8	
BH RC06	9.60	3	с	1	9.60	LIMESTONE	A	U	YES		101.9	87.0	85.0	15.5	105.0	1.4	2.0	
BH RC07	5.00	1	с	1	5.00	LIMESTONE	А	U	NO		101.6	94.0	91.0	25.8	108.5	2.2	3.1	
BH RC07	8.20	2	с	1	8.20	LIMESTONE	D	U	NO	100.3	101.8	101.8	99.0	35.5	100.4	3.5	4.8	
BH RC09	8.60	2	с	1	8.60	LIMESTONE	D	U	NO	116.2	101.8	101.8	99.0	24.5	100.4	2.4	3.3	
BH RC09	9.20	3	с	1	9.20	LIMESTONE	А	U	YES		101.8	90.0	88.0	14.2	106.8	1.2	1.8	
Test Type D - Diametral, A - Direction L - parallel to plan P - perpendicular U - unknown or ra Dimensions Dps - Distance be Dps' - at failure (s Lne - Length from W - Width of sho	Axial, I - Irre les of weakr to planes of indom etween plate see ISRM no platens to r intest dimen	egular I ness weakr ns ( pla ote 6) nearest sion pe	Lump, ness aten se free e erpendi	B - Blo paratic nd cular to	ck Di	ametral P me	D <sub>ps</sub> ↓	Axial	P	L		Bloc	k		D <sub>ps</sub>	Irregula	ar lump	P Dps
Test performed in Detailed legend fo Size factor, F = (I	accordance or test and d De/50)0.45	e with Is imensi	SRM S ons, ba ests.	uggest ased or	ed Metho	ods : 2007, unless not s shown above. L/	ed othe AB 17	rwise R - V	ersio	n 5	Date F 05/02	Printed 2/2023	00:00	Appro	ved By	y /ateon	hundina	

UNIAXIAL COMPRESSION TEST ON ROCK - SUMMARY O					Y OF R	ESULTS								
Project No.	037	_	Projec	t Nam	9				Laurelay	vanh				
							Specime	'n	Laurcia	l				
		Sar	nple			Dii	mensior	ns2	Bulk	Water Content	Uniaxi	al Compre	ession3	
Hole No.	Ref	Тор	Base	Туре	Rock Type	Dia.	Length	H/D	Density2	1	Condition	Mode of	UCS	Remarks
						mm	mm		Mg/m3	%		landro	MPa	
BH RC04	3	10.50	10.75	с	LIMESTONE	101.8	200.2	2.0	2.68	0.1	as received	MS	63.4	
BH RC06	1	3.10	3.40	с	LIMESTONE	101.4	201.2	2.0	2.68	0.1	as received	F	95.5	
BH RC07	3	9.55	9.90	С	LIMESTONE	101.7	196.5	1.9	2.73	0.1	as received	F	66.3	
BH RC09	1	6.70	7.10	с	LIMESTONE	101.7	197.7	1.9	2.69	0.4	as received	F	52.2	
Notes 1 2 3	ISRM p ISRM p ISRM p	987 test 1, 986 clause 9153 part	water cor e (vii), Cali 1, determi	ntent at 1 iper meti nation o	105 ± 3 oC, specimen a nod used for determina f Uniaxial Compressive	as tested f ation of bu Strength	for UCS Ik volume (UCS) o	and deriv f Rock Ma	ation of bulk	density	Mode of failu S - Single sh AC - Axial cle	re : ear eavage	MS - multiple F - Fragmen	e shear ted
Test Specificati	on		0			The				Date Prin	ited	Approved	Ву	Table
	meth	ods for	Rock C	harac	terization Testing	and M	onitoring	3rivi si g, 2007	iggested	05/02/20	023 00:00			1
												Stepher	Watson	sheet 1



# APPENDIX I SPT HAMMER ENERGY MEASUREMENT REPORT



# **SPT Hammer Energy Test Report**

in accordance with BSEN ISO 22476-3:2005

Southern Testing
Unit 11
<b>Charlwoods Road</b>
East Grinstead
West Sussex
RH19 2HU

#### 0208. SPT Hammer Ref: Test Date: 18/02/2023 20/02/2023 Report Date: File Name: 0208..spt Test Operator: RWS

#### **Instrumented Rod Data**

Diameter d <sub>r</sub> (mm):	54
Wall Thickness t <sub>r</sub> (mm):	6.7
Assumed Modulus E <sub>a</sub> (GPa):	208
Accelerometer No.1:	64786
Accelerometer No.2:	64789

### **SPT Hammer Information**

Hammer Mass	m (kg):	63.5
Falling Height	h (mm):	760
SPT String Len	gth L (m):	10.0

### **Comments / Location**

CAUSEWAY





#### Calculations

Energy Ratio E , (%	52		
Measured Energy E <sub>meas</sub>	(J):	244	
Theoretical Energy E <sub>theor</sub>	(J):	473	
Area of Rod A (mm2):		996	

Energy Ratio E<sub>r</sub> (%):

The recommended calibration interval is 12 months







Signed: **Bob Stewart** Title: Technician