Former Gasworks Dock Road, Limerick

Site Characterisation Factual Report

November 2011

Report No. 1021927/R/02

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For Bord Gais Eireann

Former Gasworks Dock Road, Limerick

Site Characterisation Factual Report



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Former Gasworks
Dock Road, Limerick
Site Characterisation Factual Report



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Mouchel has used reasonable skill, care and diligence in the design and interpretation of the ground investigation, however, the inherent variability of ground conditions allows only definition of the actual conditions at the location and depths of exploratory holes and samples/tests therefrom, while at intermediate locations conditions can only be inferred.

New information, changed practices of new legislation may necessitate revised interpretation of the report after the date of its submission.

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1 Introduction

1.1 Terms of Reference

Mouchel were appointed by Bord Gais Eireann, on 31st March 2009, to provide engineering consultancy services for the assessment and remediation of the former gasworks site, on Dock Road, Limerick, Ireland. Mouchel (formerly known as Parkman) have had an involvement with the site extending over a period of some nine years having previously undertaken ground investigations at the site.

This report supersedes the previous version B dated February 2010 and has been prepared following the drilling of an additional eleven sonic boreholes in two areas of the site; the former AGI and the former horse pound which were inaccessible during the 2009 characterisation site works.

1.2 Objectives and Scope

The Limerick Gasworks site has been dentified for remediation in preparation for potential development. It was considered that undertaking the characterisation of the Limerick former gasworks site prior to remediation would be beneficial to the overall remediation design and tendering process. The advantages for undertaking the works at an early stage in the site remediation design/tender process are detailed below;

- A comprehensive data set would be obtained providing significantly increased certainty in relation to depth to rock head and the physical and chemical nature of the material on site.
- The characterisation information would be used to update the quantitative risk assessment (QRA) for the site, and allow more accurate calculations of material volumes that require treatment/disposal to be made.
- The more accurate QRA and assessment of quantities/contamination distribution would assist in the production of a fully robust remediation strategy and facilitate agreement with the EPA.
- The increased accuracy of the QRA and certainty of material composition and volume across the site would result in a comprehensive set of tender documents for issue to contractors to allow for accurate estimating. This should result in minimal opportunity for significant claims by the contractor during the remediation in relation to changes in material composition and quantities.

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- Site characterisation is usually the first exercise to be undertaken by the remediation contractor, the costs for undertaking this would be included within the tender price submitted by the contractor. If the characterisation has already been undertaken the contractor would be able to start main remediation works immediately and not have to wait for the investigation and testing works to be undertaken.
- Machine excavated trial holes to assess rates of groundwater inflow to indicate any constraints during remediation works.

This report provides the factual data from the site characterisation undertaken in November 2009 and October 2011.

The results from the characterisation are interpreted and discussed in the 2010 Quantitative Risk Assessment, Options Appraisal and Remedial Strategy Report (1021927/R/03) and the subsequent addendum report, reference 1021927/R/018 dated December 2011.

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2 Ground Investigation

2.1 Design Rationale

The Site Characterisation was undertaken to supplement the information gained from the previous investigations undertaken at the site, and was designed to test for a wider range of determinands and provide a more comprehensive dataset of physical and chemical characteristics of the site.

The investigation was designed to provide the data needed to:

- Produce a more accurate conceptual ground model, specifically delineation of the former quarry area and underground structures
- Identify significant pollutant linkages
- Update the quantitative risk assessments to assess risks to identified receptors
- Update remediation target values for soils and groundwater.
- Provide an improved data set for remedial options appraisal.
- Allow for the formulation of a robust remediation strategy.

Sonic drilling was proposed for the majority of the site works as this technique is fast and provides good core recovery which is useful to define strata changes and facilitate reliable sample collection. The sonic drills are able to progress through obstructions such as concrete slabs, which would normally halt other methods. Sonic drilling is also generally a cleaner and safer technique than cable percussion drilling.

Window sampling was proposed for areas that could not be accessed by the sonic rigs (inside buildings and some areas along the site boundary)

The proposed characterisation is detailed overleaf;

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Table 2.1: Proposed Site Characterisation Details

Investigation method	Estimated depth and purpose	Estimated number of holes
100mm diameter Sonic Drill Hole	10m deep (2m into rock) to assess quarry depth and material	57
100mm diameter Sonic Drill Hole	4m deep (1-2m into rock) general site coverage depth to rock	86
Excavator (with breaker) capable of excavating to 5m depth	5m deep trench holes to assess material composition, groundwater and delineate quarry sides	3
50mm diameter Window sample hole (Small Rig including coring through surface concrete)	2-3m deep investigation within structures and areas of difficult access	6
50mm diameter Window sample hole (Hand Held, including coring through concrete floor)	2-3m deep investigation inside former Bord Gais office	3
	Total	155

2.2 Fieldwork

Due to access issues at the former AGI area and the horse pound, the majority of the Characterisation works were undertaken between the 4th and 27th November 2009. The AGI and horse pound areas were investigated between 25th and 27th October 2011. Both phases were conducted by ISGL, who subcontracted Boart Longyear to undertake the sonic drilling. Mouchel were responsible for monitoring the works.

The second phase of investigation was carried out in general accordance with the following standards (it should be noted that the first phase of investigation was carried out in general accordance with the now superseded versions):

- BS5930:1999 (as amended 2010) Code of practice for site investigations;
- BS10175:2011 Code of Practice for the Investigation of Potentially Contaminated Sites;
- Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, 2001 (Environment Agency).

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The details of the characterisation are presented below. The site was divided into 10m x 10m cells, grid referenced alpha-numerically with a borehole proposed for each cell.

The exploratory hole location plan is presented as Drawing 1021927/R02/OD/001B.

Table 2.2: Summary of Site Activities

Activity	Dates Undertaken	Exploratory Hole Reference	Maximum Depth
Sonic drilled	4 th November – 24 th November 2009	132 locations referenced by alpha-numeric grid cell reference (A1, A2)	12m bgl
boreholes	25 th October – 27 th October 2011	11 locations referenced by alpha-numeric grid cell reference	5.5m bgl
Window sample holes	25 th November – 27 th November 2009	13 locations (C12AWS, C12BWS, D12WS, E12WS, F9WS, F10WS, F12WS, L11WS, L12WS, L1WS, M1WS, N1WS, N2WS)	4.0m bgl
Trial pits	9 th November – 10 th November 2009	3 locations (TP1, TP2, TP3)	5.0m bgl
Soak away pits	9 th November 2009 High	1 location ("soakaway")	2.1m bgl

During the first phase of characterisation in 2009, an active gas main was located along the north west section of the site (along row A). In all positions which were expected to be in the vicinity of the gas main a hand dug pit was progressed to at least 1.2m bgl before drilling. It is understood from Bord Gais that this main has now been disconnected and there is no live pipe-work associated with the new AGI infrastructure (located adjacent to the boundary wall in cell A9/A8) present on site.

2.2.1 Sonic drilled boreholes

143 sonic boreholes were drilled to determine the depth to rock head, and to take chemical samples for analysis, drill holes were terminated within the bedrock. Due to the possibility of limestone boulders within the made ground some holes were progressed for up to 2m into bedrock to provide confidence that the bedrock had been encountered. Total depths drilled varied between 2m bgl to 12m bgl.

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24 locations were installed with groundwater monitoring wells, 10 had response zones positioned in the made ground, 14 installations had response zones positioned in the limestone bedrock. The table below shows the installation details at each location.

Table 2.3: Installation Details

Location	Response zone depth (m bgl)	Response zone strata
A1	3.0 – 4.0	rock
A3	3.0 - 4.5	rock
A4	2.5 - 4.5	rock
A9	1.0 – 2.5	made ground
A11	1.9 - 2.9	rock
B8	1.0 - 4.5	made ground
C2	1.0 – 2.5	made ground
C7	6.0 - 7.5	rock
C11	1.0 - 2.5	. natural / possible made ground
D1	6.0 - 7.5	rock
D5	1.0 - 3.0 pure dire	made ground
E8	1.0 - 6.0 ecitor ret	made ground
F11	1.0 - 2.5 6.0 - 7.5 1.0 - 3.0 1.0 - 6.0 changer and a second of the s	rock
G2	10.0 - 1 <i>1</i> °.5	rock
G3	1 0 - 9.0	made ground
G4	ශ්රී.0 - 12.0	rock
G5	1.0 - 9.0	made ground
G8	1.0 - 2.5	rock
H12	3.0 - 4.5	rock
J10	1.0 - 3.0	rock
K1	1.0 - 4.5	made ground
K5	1.0 - 6.0	made ground
L7	2.0 - 3.5	rock
МЗ	5.0 - 6.5	rock

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2.2.2 Window sample holes

Window samples were located in 13 cells which could not be accessed by the sonic rig. The table below outlines the location of the window sample holes and an explanation of why it was not appropriate to use sonic drilling in these areas. Areas where the window sample was used were the Bord Gais offices, No. 5 Stores, Booster house along the south east boundary.

Table 2.4: Window Sample Hole Rationale

Location	Cell numbers	BH numbers	Rationale
Bord Gais Offices	C12 D12 E12 F12	C12AWS, C12BWS D12WS E12WS F12WS	Proposed locations were within the existing office building. Hand held window sampling and hand pits were used to gain information in this area
No. 5 Stores	L01 M01 N01 N02	L1WS M1WS N1WS N2WS purpose of the arry of	one sonic drilled BH was able to be progressed within the main building. However only a window sample rig could access the other proposed locations
Booster house	F9 F10 & G	F9WS F10WS	The sonic was too large to access the proposed locations. A window sample rig was used to obtain information from within the booster house and just outside it.
South east boundary	L11 Cans	L11WS L12WS	The sonic rig was too large to fit into this area. A window sample rig was used to collect samples and locate rock head in these areas.

2.2.3 Trial pits / soak away pits

Three trial pits were excavated within the former quarry area.

- TP1 Cells H05/H06
- TP2 Cells F03/F04
- TP3 Cells G01/H01

Trial pits were positioned to help delineate the edge of the former quarry area and give an idea of digging conditions that may be encountered during the potential remediation works. No samples were obtained from the trial pits.

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One additional soak away pit was excavated within the quarry area.

Soakaway – Cells J04/J05

This was positioned to give an idea of the drainage rate in the quarry. One sample was obtained from the soak away pit.

Engineers logs (produced by IGSL) logging the strata encountered are presented in Appendix A. Photographs (taken by IGSL) of the recovered cores are presented as Appendix B.

2.3 Chemical Laboratory Testing

Soil samples were collected by IGSL, from sonic drill holes and window sample holes at nominal 1m intervals and strata changes. One sample was recovered from the soak away pit, no samples were obtained from the trial pits. In total 611 soil samples (first phase 582 and second phase 29) were recovered. 358 samples were submitted for chemical analysis (first phase 333 and second phase 25).

Groundwater samples have been obtained at quarterly intervals since the 2009 site works were completed and are reported separately. Only samples of the groundwater are recovered (no DNAPL is included within the samples) as this provides a worst case estimate of the concentration of the more mobile contaminants.

All Samples were stored in airtight containers suitable for the analysis to be undertaken. Containers were appropriately labelled, and transported in cool boxes with ice packs under completed chain of custody documentation to ALcontrol laboratories, who are appropriately accredited for the works required and are an approved supplier under the Mouchel Quality Management System.

2.3.1 Soils

A single testing suite (Limerick Suite) was developed to include a wide range of determinands which could be used for most samples to characterise conditions at the site.

Additional samples were also tested (based upon visual and olfactory evidence and historical data) for an asbestos screen, polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs).

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Table 2.5: Summary of Soils Analysis

CON

Suite Reference	Analysis Suite	No. samples scheduled
Limerick Suite	Arsenic, cadmium, chromium, copper, lead, mercury, selenium, zinc, cyanide, sulphate, sulphide, ammonaical nitrogen, speciated phenols, Total Petroleum Hydrocarbons criteria working group split (TPH CWG) (including BTEX and MTBE), Polyaromatic Hydrocarbons (PAHs)	354
Asbestos	Asbestos screen	35
PCBs	US EPA 7 Speciated congeners	79
VOCs	VOCs	175

The testing suite was chosen based upon Mouckel's previous experience from working on former gasworks sites and using guidance provided in DOE industry profile for Gas works, coke works and other coal carbonisation plants.

As well as providing a good site coverage samples suspected of containing asbestos or containing high proportions of demolition rubble were submitted for asbestos screening. Locations positioned near former electrical substations were submitted from PCB analysis. Samples with distinctive odours were submitted for VOC analysis

Soil chemical results are presented in Appendix C and are interpreted in the Mouchel QRA Report (1021927/R/03) and the subsequent addendum report (1021927/R/18) dated December 2011.

For some samples from 2009, ALcontrol were reporting sulphate concentrations in excess of 100%. They conducted an investigation but could not establish the cause of this anomaly. Therefore the sulphate results for the 2009 investigation should be used with extreme caution. A letter detailing the issues regarding the sulphate analysis is included within Appendix C.

2.3.2 Groundwater

Groundwater monitoring has been undertaken on a nominal quarterly basis since the 2009 characterisation site works were completed. All 21 installations, installed during the 2009 site investigation have been dipped with an ATEX Dual phase dipmeter to establish the water depth and presence of Non Aqueous Phase Layers (NAPLs). More recent visits only dipped 19 installations as two have been lost (A4 and B8).

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EPA Export 25-05-2012:04:44:27

Samples are also retrieved from the monitoring wells and submitted to Alcontrol for chemical analysis. The table below summarises the suites of determinands scheduled. All samples are analysed for a limerick suite. VOC analysis is conducted on selected samples to give a spatial coverage of the site and down and up gradient of the suspected groundwater flow direction.

Table 2.6: Summary of Groundwater Analysis

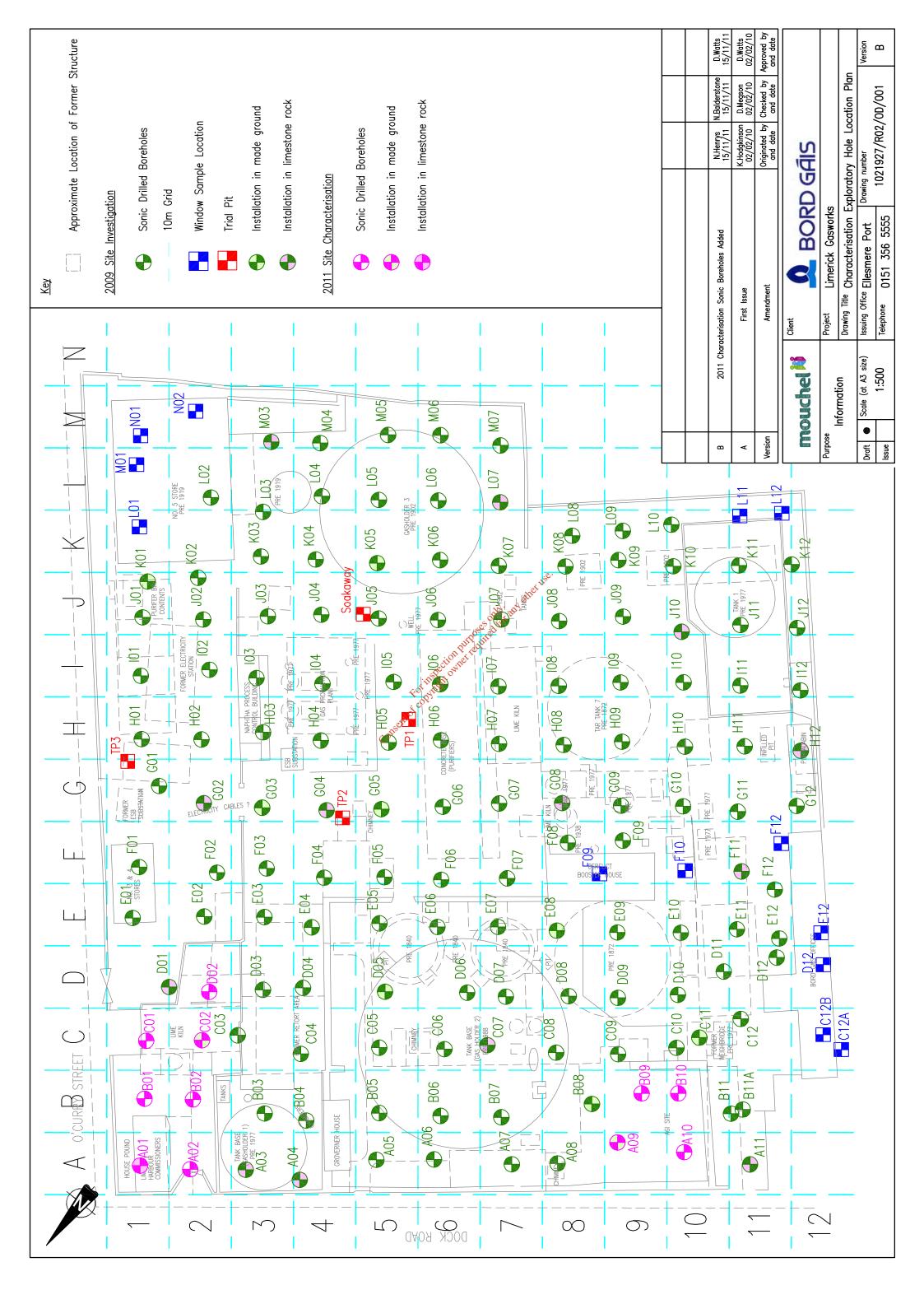
Suite Reference	Analysis Suite						
Limerick Suite	Arsenic, cadmium, chromium, copper, lead, mercury, selenium, zinc, cyanide, sulphate, sulphide, ammonaical nitrogen, speciated phenols, Total Petroleum Hydrocarbons criteria working group split (TPH CWG) (including BTEX and MTBE), Polyaromatic Hydrocarbons (PAHs)						
VOCs	VOCs						

The three monitoring wells installed during 2011 are programmed to be monitored and sampled at the next quarterly visit in January 2012.

The results of the first two monitoring visits (10th-11th December 2009 and 14th – 15th January 2010) are interpreted in the 2010 Mouchel QRA Report 1021927/R/03. The subsequent monitoring visits are interpreted in the Mouchel Quarterly Groundwater Monitoring Reports submitted to Bord Gais. Annual Summary Reports are submitted to Bord Gais at the end of the year.

Chemical tests results for the groundwater monitoring are presented in the relevant quarterly monitoring reports.

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1.0	and con				1.00	6.65 Other use	(Seepage)					
2.0	some su and stee		al red brick For inspection For inspection									
3.0												
4.0												
Grou	un ∃wate r⊺	Cehditiatris 00m		******			1			1		
Stab Mino	ility r pit wall c	ollapse on completion of pit										
	eral Rema tion: Besi											

E P	_	DIAL DIT D		DD					REPORT N	IUMBER	
IGSL	ı	RIAL PIT R	ECO	ΚD					14	463	
CONTRACT	Limerick Gasworks						TRIAL P	IT NO.	TP3	3 et 2 of 2	
LOGGED BY	S. Letch	CO-ORDINATE	S(_)	156,99 156,57	95.88 E 79.10 N		DATE S		10/1	1/2009 1/2009	
CLIENT ENGINEER	Bord Gais Mouchel	GROUND LEVE	EL (m)	7.65			EXCAVA METHO	ATION		Track	
ENGINEER	Woucher							Sample	s		ster
	Geotechnical Description					<u>k</u> e		•		t (KPa)	Hand Penetrometer (KPa)
			Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	and Per Pa)
5.0			Le	5.00	道 2.65	Š	Sa	T	۵	e>	효중
<u> </u>											
6.0					رچو،						
				۸. ۵	otherin						
			GES.	only an	•						
7.0		ison s	pirpedii	۲							
		or inspect out	>								
		For its pection. For its pection.									
8.0	Con	Bent									
9.0											
Groundwater	Conditions										
Stability Minor pit wall of General Rem Location: Bes	collapse on completion of pit										
General Rem	arks										
Location: Besi	de H1.										



REPORT NUMBER

110	ST									'	+403
CON	TRACT L	imerick Gasworks						PROBE SHEET	NO.		A WS t 1 of 1
	ORDINATES	156,877.71 E 156,546.58 N (mOD) 5.40	RIG TYF	PE	Da	ando Ter	rier	DATE DI		27/11	1/2009
CLIE		(mOD) 5.40 Bord Gais Mouchel	HOLE D	IAMETE	ER (mm)			SAMPLI	ED BY	IGS	
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
1.0	(hardcore) MADE GR (probable a	OUND: Dense dark grey, claye. NEC OUND: red brick, concrete and ash). Possible asbestos. OUND: Slate floor. NEC. slightly gravelly CLAY. NEC.	d white clay		0.15 0.35 0.50 0.55	5.25 5.05 4.90 4.85		0.00-1.00	20	0.35-0.50	ENV 001
1.0	Very stiff b odour and Final Deptl	rown CLAY with limestone cob sheen on cobble. n 1.30m	bble. HC		1.20	4.20 4.10 4.10	S.	1.00-1.30	20	1.25-1.30	ENV 002 Only 1 voc glass jar.
2.0		Çơ	ble. HC	Confer to	set of for						
4.0											
5.0											
	eral Remarks d Pit to 1.20r							1			
nsta	llations										



REPORT NUMBER

	ORDINATES 156,877.7 156,546.5 UND LEVEL (mOD)	71 E 58 N 5.40	RIG TY	PE DIAMETE		and Dug		DATE D		Shee 25/11	A WSHP t 1 of 1 //2009 //2009
LIEN	NT Bord Gais NEER Mouchel		liozz z),,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	()			SAMPL LOGGE			SL Thornton
Depth (m)	Geotechnical	Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	Hand dug pit (see WS log)									0.35-0.50	ENV 001
1.0	Final Depth 1.20m				1.20	4.20	.				
2.0			For its que	don piro	ses of or	in,					
3.0		Const	Foody.								
4.0											
5.0											
Sene land	eral Remarks I Pit to 1.20m, 1.00m x 1.50m	n. ENV samples	also on WS	S logs.	Unable to	o proceed	d past 1.2	m due to lim	estone	, Probable	bedrock.
nstal	llations										



REPORT NUMBER

(IC	SL								12	4403
CON	TRACT Limerick Gasworks						PROBE	NO.		B WS
CO-C	DRDINATES 156,881.50 E	RIG TYP	PE	D	ando Ter	rier	SHEET DATE DI	RILLED		t 1 of 1 /2009
GRO	UND LEVEL (mOD) 156,542.58 N 5.39	HOLE D	IAMETE	R (mm)			DATE LO	OGGED	27/11	/2009
CLIE				()			SAMPLI			
ENGI	NEER Mouchel						LOGGE	DBA		Thornton
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	CONCRETE with rebar			0.15	5.24					
	MADE GROUND: Dense grey, clayey grave (possible hardcore). NEC			0.30	5.09					
	MADE GROUND: red brick, concrete and w (probable ash). Possible asbestos.	vhite clay		0.50	4.89				0.50-0.50	ENV 001
	Stiff brown CLAY. NEC.								0.50-0.50	LIV 001
							0.00-1.00	100		
1.0		t					0.00 1.00	100		
	Soft dark grey gravelly CLAY. Strong HC oc	dour.	==	1.20	4.19		1.00-1.25	100	1.20-1.25	ENV 002.
	Final Depth 1.25m	dour.		1.25	4.14	So.			5	Only 1 voc,
					other					giass jai.
				only.	MIN					
			~	ses after						
2.0			Plite	Chil						
		~d	ion her i							
		1115Pe	OM							
		For Will								
		ofcox								
3.0	్లు	nt								
	Corr									
4.0										
. .										
5.0										
	eral Remarks									
Hand	d Pit to 1.20m.									
noto	llations									
nsta	llations									



REPORT NUMBER

BINATES 156,881.50 E 156,542.58 N 5.39 Bord Gais ER Mouchel Geotechnical Description and dug pit (see WS log)	RIG TYF			Elevation and pour	Water Strike	DATE DO DATE LO SAMPLI LOGGE Sun (m) LOGGE	OGGEI ED BY	D 24/11.	/2009
Bord Gais ER Mouchel Geotechnical Description and dug pit (see WS log)	HOLE D			Elevation	Nater Strike	SAMPLI	ED BY D BY	' IGS	SL Thornton
and dug pit (see WS log)		Pregend	Depth (m)	Elevation	Nater Strike	epth of Sample In (m)	covery (%)	urbed Sample h (m)	le Type
					_	ŏď	Re	Distr Dept	Samp
	, , , , , , , , , , , , , , , , , , ,		1.20	4.19	g.			0.30-0.50	ENV 001
Conse	foliage to the foliage of the foliag	doublets of the control of the contr	dited for	By our					
Remarks t to 1.20m, 1.00m x 1.50m. ENV samples	also on WS	S logs.	Unable to	proceed	d past 1.2r	n due to lim	estone	e, Probable	bedrock.
t	Remarks to 1.20m, 1.00m x 1.50m. ENV samples	Remarks ∶to 1.20m, 1.00m x 1.50m. ENV samples also on WS	Remarks to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs.	Remarks to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs. Unable to	Remarks to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs. Unable to proceed	to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs. Unable to proceed past 1.2r	Remarks to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs. Unable to proceed past 1.2m due to lim	Remarks to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs. Unable to proceed past 1.2m due to limestone	Remarks to 1.20m, 1.00m x 1.50m. ENV samples also on WS logs. Unable to proceed past 1.2m due to limestone, Probable



REPORT NUMBER

(I)@	SL								12	4403
CON	TRACT Limerick Gasworks						PROBE SHEET	NO.	D12	
	DRDINATES 156,888.57 E 156,533.84 N UND LEVEL (mOD) 4.83	RIG TYPE		Da	ando Ter	rier	DATE DE		27/11	t 1 of 1 /2009 /2009
CLIE		HOLE DIA	METE	R (mm)			SAMPLE	ED BY	IGS	
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
1.0	MADE GROUND: Dense grey, clayey grave (hardcore). NEC. MADE GROUND: Dense grey sandy CLAY brick and possible ash. Possible contamina Stiff brown CLAY with many limestone cobb odour. Soft brown sandy gravelly CLAY. HC odour Soft light brown CLAY. NEC. Final Depth 1.00m	with red ation.		0.15 0.20 0.25 0.85 0.90 1.00	4.68 4.63 4.58 3.98 3.93 3.83		0.00-0.95 - 0.95-1.00	25 100	0.20-0.25 0.30-0.70 0.30-0.80 0.90-1.00	ENV 001 ENV 002 ENV 003 Only 1 voc, glass jar. ENV 004 Only 1 voc, glass jar.
⁻ 2.0		For inspecto	h Purp	differ of the state of the stat	in differ th	e.				
3.0	Cothese	trofcopy.								
4.0										
5.0										
	eral Remarks d Pit to 0.85m.									
Insta	llations									



REPORT NUMBER

14463

	TRACT L ORDINATES	Limerick Gasworks 156,888.57 E	DIO TO	DE .		and Deep		PROBE SHEET DATE D		Shee	WSHP et 1 of 1 1/2009
	UND LEVEL	156 533 84 N	RIG TY			and Dug		DATE L			1/2009 1/2009
CLIE	NT E	Bord Gais Mouchel	HOLE	JIAIVIE I E	ER (mm)			SAMPL LOGGE			SL Thornton
Depth (m)		Geotechnical Description	on	Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	Hand dug	pit (see WS log)					1			0.20-0.25 0.30-0.70	ENV 001 ENV 002
1.0	Final Dept				0.85	3.98	(Slow)				
- 2.0			For inspect	ion purple re	Gired for	ury other					
- 4.0			Consc								
5.0											
Gene Hole logs.	eral Remarks ended due	s to boulders, possible varial	bly weathered lime	estone b	edrock. I	Hand Pit	to 0.85m,	1.00m x 1.5	 50m. E	NV sample	es also on WS
Insta	llations										



REPORT NUMBER

(1)@	SE									14	+403
CON	TRACT	Limerick Gasworks						PROBE SHEET	NO.	E12	WS t 1 of 1
:O-C	ORDINATE	S 156,892.09 E	RIG TYP	PΕ	D	ando Ter	rier	DATE D	RILLED		/2009
	UND LEVE	156,530.12 N EL (mOD) 5.03	HOLE D	IAMETE	R (mm)			DATE LO	OGGED		/2009
LIE	NT INEER	Bord Gais Mouchel						SAMPL LOGGE			SL Thornton
-1101	IVEEIX	Woderici						LOCOL	J		momon
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	CONCR	ETE ROUND: Dense grey, clayey gra	avel		0.15	4.88					
	\(hardcore	e). NEC.	Avei /	<u>-</u>	0.20	4.83	1 (NR)				
		wn slightly gravelly CLAY. NEC. k slightly gravelly CLAY with occa	asional	<u></u>	0.50	4.53	(NR)			0.50-0.70	ENV 001
	cobbles.	k slightly gravelly CLAY with occa Strong HC odour.						0.40-0.95	100		
1.0	Final De	oth 0.95m			0.95	4.08		0.40-0.95	100		
			for itspect								
						net i	Se .				
					14.	ny otti					
					ces office	di.					
2.0				IIIP	diffed						
				ion brie	S						
			: n=pe0	OWIL							
			Forthell								
			i of cox								
3.0		S	iseni								
		50,	,								
4.0											
5.0											
	eral Remar										
lanc	d Pit to 0.9	5m.									
	Illations										
isia	auvii3										



REPORT NUMBER

CONT	TRACT Limerick Gasworks						PROBE SHEET	NO.		WSHP et 1 of 1
	DRDINATES 156,892.09 E 156,530.12 N UND LEVEL (mOD) 5.03	RIG TYI	PE	На	and Dug		DATE D		2 6/1	1/2009 1/2009
CLIE		HOLE D	DIAMETE	ER (mm)			SAMPL	ED BY	IG	SL Thornton
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	Hand dug pit (see WS log)					(Rapid)			0.50-0.70	ENV 001
1.0	Final Depth 0.95m			0.95	4.08	ę.				
2.0		For iting	ion Purple re	gifted for	gu,					
3.0	Cothset	ntot								
4.0										
5.0										
Gene Hole	eral Remarks ended due to egress of water and odour in co	onfined spa	ce. Har	nd Pit to 0	0.95m, 1.	00m x 1.50	0m. ENV sa	amples	also on W	S logs.
Instal	llations									



REPORT NUMBER

(IC	SL								1	4403
CON	TRACT Limerick Gasworks						PROBE	NO.		WS
CO-C	DRDINATES 156,925.67 E	RIG TY	PE	D	ando Ter	rier	DATE D	RILLED		et 1 of 1 1/2009
GRO	156,545.24 N UND LEVEL (mOD) 8.17		DIAMETE				DATE LO			1/2009
CLIE		HOLL		-14 (111111)			SAMPL			SL Thornton
ENG	NEER Mouchel						LOGGE	זפע		Thornton
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
	MADE GROUND: Stiff sandy clay with frequency brick. NEC. CONCRETE Stiff black/grey very clayey SAND with occasi cobbles. High HC impact and odour. Final Depth 2.00m Concept		A STAN STAN STAN STAN STAN STAN STAN STA	1.70. 1.80.4 2.000	6.47 6.37 6.17	e.	1.00-1.80	100	1.80-2.00	ENV 002. Only 1 voc, 1 glass jar, 1 tub.
Gene	eral Remarks									
Gend	illations									



REPORT NUMBER

10	SL								''	4403
CONT	TRACT Limerick Gasworks						PROBE	NO.	F10	
	ORDINATES 156,915.33 E 156,536.14 N UND LEVEL (mOD) 7.27	RIG TYP			ando Ter	rier	DATE DO		26/11	t 1 of 1 1/2009 1/2009
CLIE		HOLE DI	IAMETE	ER (mm)			SAMPLI			SL Thornton
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	CONCRETE MADE GROUND: Stiff black sandy gravelly frequent red brick. NEC.		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.10	7.17 6.52				0.00-0.75	ENV 001
1.0	Slightly clayey COBBLES. HC. Very soft sandy CLAY and local cobble (2.0	00m). HC.		1.00	6.27	S.	0.00-1.00	100	1.00-2.00	ENV 002. Only 1 voc, glass jar, 1 tu
2.0	Final Depth 1.00m		Joh Purp	ding of the second	5.27		1.00-2.00	100		
3.0	Course	to its get								
4.0										
5.0										
3ene	eral Remarks	<u> </u>								
nstal	llations									



REPORT NUMBER

14463

CON	TRACT Lin	nerick Gasworks						PROBE SHEET	NO.	F12 Shee	WS et 1 of 1
	ORDINATES OUND LEVEL (1	156,906.10 E 156,523.02 N m OD) 5.97	RIG TY			ando Ter	rier	DATE DI		27/1	1/2009 1/2009
CLIE	ENT Bo	ord Gais buchel	HOLE	DIAMETE	ER (mm)			SAMPLI LOGGE			SL Thornton
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
1.0	Stiff dark brocobbles. Bla	UND: Very stiff to hard, dark r (possible hardcore). NEC lightly gravelly CLAY. NEC. own gravelly CLAY with occas ack tar 0.5-1.2m in spots. HC black oily tar. WS ended at 1	sional C odour. 1.1m, Hand		0.10 0.20 0.50	5.87 5.77 5.47	→ I;(NR)	0.00-1.00 1.00-1.10	100	0.50-1.00	ENV 001
2.0		Ç	For its que	ion purdic	sesony, our endergon	and our					
4.0											
Hole	eral Remarks e ended at 1.10	Om due to refusal, no recover	ry 1.00-1.10m.	Hand p	oit to 1.20	m					



REPORT NUMBER

CONT	TRACT	Limerick Gasworks						PROBE SHEET	NO.		WSHP et 1 of 1
	RDINATE	156 523 02 N		RIG TYPE Hand Dug HOLE DIAMETER (mm)					DATE DRILLED DATE LOGGED		1/2009 1/2009
CLIE	NT NEER	Bord Gais Mouchel						SAMPLI LOGGE			SL Thornton
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
1.0		oth 1.20m		- O O O - O - O - O - O - O - O	1.20	4.77	ě.			0.50-1.00	ENV 001
2.0		Conse	For its per	conputer of the control of the contr	Secolid of third of the second	nd office.					
4.0											
5.0											
Gene Hand	eral Remar I Pit to 1.20	ks 0m, 1.00m x 1.50m. ENV samples	also on WS	S logs.							
Instal	llations										



REPORT NUMBER

	TRACT Limerick Gasworks						PROBE SHEET	NO.	L01 Shee	WS et 1 of 1	
	DRDINATES 157,018.22 E 156,548.72 N UND LEVEL (mOD) 7.95		RIG TYPE Dando Terrier HOLE DIAMETER (mm)					DATE DRILLED DATE LOGGED			
CLIE ENGI	NT Bord Gais NEER Mouchel						SAMPLI LOGGE		IGSL G. Thornton		
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type	
0.0	CONCRETE MADE GROUND: Loose clayey gravel with occasional red brick (in 5cm bands brown, dalight grey, brown). Possible ash. Possible contamination	ark grey,		0.20	7.75		0.00-1.00	50	0.20-1.00	ENV 00	
2.0	MADE GROUND: Firm white clay (possible ash/asbestos) with some black ash and cinde 2.0-2.2m. Possible contamination	ers at		gifte good	6.05	ê.	1.00-2.00	70	1.00-1.90 2.00-2.80	ENV 00:	
3.0	MADE GROUND: Medium dense brown san gravel (possible clinker). Possible contaminal MADE GROUND: Dense grey/dark grey@ay gravel (possible ash in gravel). Possible contamination. Final Depth 3.40m	ation.		2.80 3.00 3.40	5.15 4.95 4.55		2.00-3.00	100	2.80-3.00 3.00-3.40	ENV 00/ Only 1 voo glass ja ENV 00/ Only 1 voo glass ja	
4.0											
5.0											
Gene	eral Remarks										
nsta	Illations										



REPORT NUMBER

1©	SL	'	WINDO	W SA	IVIPLE	KEC	טאט			1.	4463
CON	TRACT	Limerick Gasworks						PROBE SHEET	NO.	L11 Shee	WS t 1 of 1
	ORDINAT	ES 156,944.52 E 156,486.41 N /EL (mOD) 6.99		RIG TYPE Dando Terrier HOLE DIAMETER (mm)					DATE DRILLED DATE LOGGED		1/2009 1/2009
CLIE	INEER	Bord Gais Mouchel		1	,		T	SAMPLI		IG: G.	SL Thornton
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	Stiff bro	OIL - soft black sandy gravelly clay. Nown sandy gravelly CLAY. NEC. Iff grey slightly sandy slightly gravelly epth 0.60m	CLAY.	0	0.10 0.40 0.60	6.89 6.59 6.39		0.00-0.60	100	0.10-0.40	ENV 001
		Conset	For its per	Condition of the condit	set only.	diletu	ş.·				
4.0											
5.0											
Gene	eral Rema	arks									
Insta	allations										



REPORT NUMBER

(IG	ST									1	4403
CON	TRACT Lir	nerick Gasworks						PROBE SHEET	NO.		WS et 1 of 1
	ORDINATES	156,939.56 E 156,481.83 N m OD) 7.50	RIG TYPE Dando Terrier				DATE D	DATE DRILLED		1/2009 1/2009	
CLIE		mOD) 7.50 ord Gais ouchel	HOLE	DIAMETE	ER (mm)			SAMPL	ED BY	IG	SL Thornton
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0		andy gravelly CLAY. NEC.			0.30	7.20				0.00-0.30	ENV 001
	Final Depth				0.60	6.90		0.00-0.60	100		
1.0											
			For inspec			otheri	e.				
2.0				5	sesonly.	ATTY					
2.0			æ	ton purp	din						
			Forinsky								
3.0		ÇĢ	insent of C								
4.0											
5.0											
Gene	eral Remarks										
Insta	llations										



REPORT NUMBER

100	SI									'	4403	
CON	TRACT	Limerick Gasworks						PROBE SHEET	NO.		WS t 1 of 1	
	RDINATES	156 541 25 N	RIG TY	RIG TYPE Dando Terrier					DATE DRILLED DATE LOGGED		26/11/2009	
CLIE		L (mOD) 8.07 Bord Gais Mouchel	HOLE [HOLE DIAMETER (mm)				SAMPL LOGGE	ED BY	IGSL G. Thornton		
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type	
0.0	CONCRE	ETE			0.10	7.97	>		IL.		0)	
1.0	gravel (0.	ROUND: Concrete and loose sa 10m recovered). NEC. ROUND: Firm white/grey clay (p stos). Possible contamination.			0.50	7.57		0.00-1.00	50	0.50-1.00	ENV 00	
2.0					sifed for	any other to	ę.	1.00-2.00	70	1.50-2.00	ENV 00	
3.0		S	for its per	KXXXXX				2.00-3.00	100	2.50-3.00	ENV 00	
	Plank CO				3.90	4.17		3.00-4.00	100	3.50-3.90	ENV 00	
4.0	Final Dep	BBLE (NEC). oth 4.00m			4.00	4.07						
5.0												
3ene	eral Remari	ks					l	1	1 1			
nsta	llations											



REPORT NUMBER

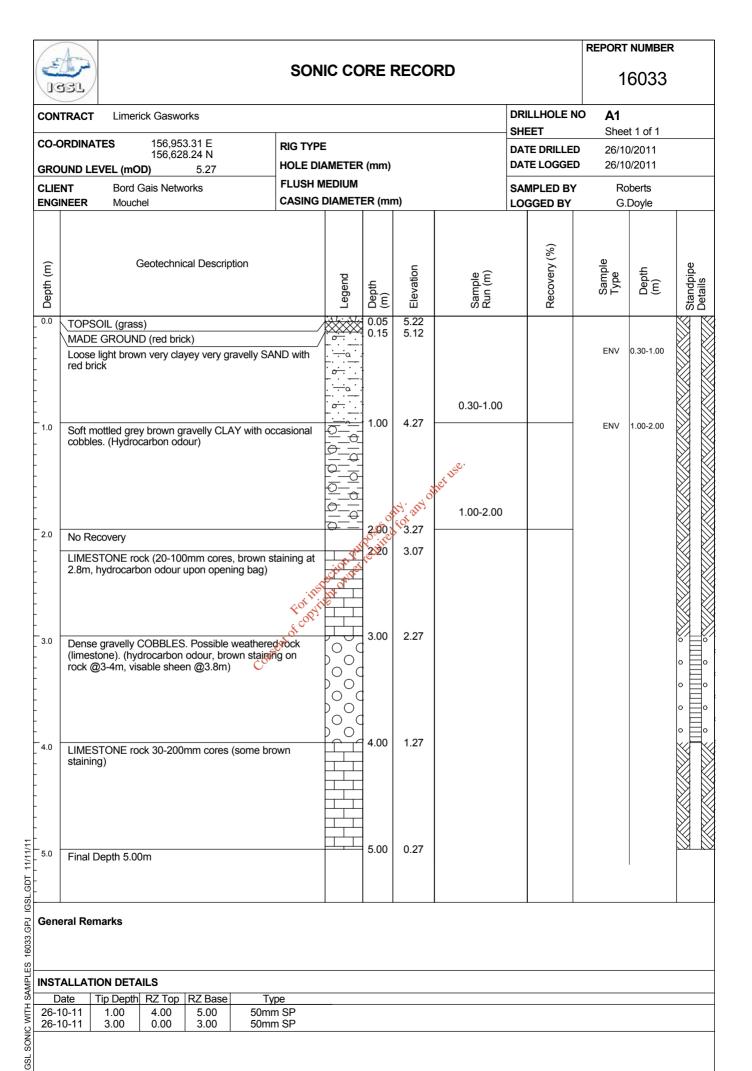
IIG	SE									'	4403	
CON	TRACT	Limerick Gasworks						PROBE SHEET	NO.		WS et 1 of 1	
	ORDINATES	156 537 24 N		RIG TYPE Dando Terrier					DATE DRILLED DATE LOGGED		26/11/2009	
CLIE	NT	Bord Gais Mouchel	HOLE D	DIAMETE	ER (mm)			SAMPL			IGSL G. Thornton	
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type	
0.0	CONCRE No recove	ery ROUND: Grev/white/red very cla	ayey sand		0.10	7.87 7.27				0.70-1.00	ENV 001	
1.0	with red b contamina	orick (possible ash). Possible			23.	differ in the state of the stat	e.	0.00-1.00	40			
2.0	cinders).	ROUND: Stiff red gravelly clay (Possible contamination. ROUND: Loose grey gravelly sa . NEC.			2.00	5.97				1.80-2.00	ENV 002 Only 1 voc, glass jar, 1 t	
3.0	MADE GF Possible o	ROUND: Stiff white clay (possib contamination.	ole ash) of		2.70	5.27		1.00-3.00	50 30	2.70-3.60	ENV 003 Only	
4.0	Dense grebedrock). Final Dep		estone	SXXXX On On	3.60 3.70	4.37 4.27		3.00-3.70	30			
5.0												
3ene	eral Remark	ks										
nsta	illations											



WINDOW SAMPLE RECORD

REPORT NUMBER

In a	996										
CON	ITRACT	Limerick Gasworks						PROBE SHEET	NO.		WS et 1 of 1
	ORDINATI	ES 157,022.95 E 156,528.61 N EL (mOD) 7.95	RIG TY	PE DIAMETE		ando Ter	rier	DATE D		26/1	1/2009 1/2009
CLIE ENG	ENT SINEER	Bord Gais Mouchel	HOLL	DIANILIL	-13 (111111)			SAMPL LOGGE			SL Thornton
Depth (m)		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Disturbed Sample Depth (m)	Sample Type
0.0	layers -	RETE GROUND: Firm sandy gravelly clay dark grey and brown - NEC, white/possible ash/cyanide/heavy metal. In taken in white/green layer.	sliahtlv		0.10	7.85		0.00-1.00	30	0.70-0.90	ENV 001. Only 1 voc, 1 glass jar, 1 tub.
2.0	gravelly	GROUND: Stiff dark grey/light brow clay. NEC.	n sandy		1.40 1.40	6.85 6.55, 1 6.55, 1 6.55, 1	ş.	1.00-2.00	30		ENV 002. Only 1 voc, 1 glass jar.
2.0		ery clayey gravelly SAND.	for itself	TOTO OF	2.60	5.35		2.00-2.60	80	2.00-2.60	ENV 003. Only 1 voc, 1 glass jar, 1 tub.
3.0		Care	gent								
4.0											
5.0											
Gen	eral Rema	nrks									
Insta	allations							45.5			



INATES 156,946.69 E 156,623.59 N D LEVEL (mOD) 5.17 Bord Gais Networks IR Mouchel Geotechnical Description ADE GROUND (concrete) ose brown slightly clayey GRAVEL and cold brick. Off brown very sandy slightly gravelly CLAY ashells. (hydrocarbon odour at 1.9m-2.0m)		AMETER MEDIUM	ER (mi		Sample Run (m)	DRILLHOLE NO SHEET DATE DRILLED DATE LOGGED SAMPLED BY LOGGED BY (%) (in the content of the	Shee 26/10 26/10 Ro G.I	et 1 of 2 0/2011 0/2011 oberts Doyle \$\frac{\mathbb{E}}{\mathbb{Q}}(\mathbb{E})\$	Standpipe
Geotechnical Description ADE GROUND (concrete) ose brown slightly clayey GRAVEL and cold brick.	CASING	DIAMET	Depth (m)	Elevation	Sample Run (m)	LOGGED BY	Sample Type	Doyle (m)	Standpipe
ADE GROUND (concrete) ose brown slightly clayey GRAVEL and col d brick.		 	 		Sample Run (m)	Recovery (%)			Standbibe
ose brown slightly clayey GRAVEL and cold brick.		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	0.10	5.07			ENV	0.00-1.00	+-
)	0	1.00	4.17	0.00-1.00		ENV	1.00-2.00	
ense angular GRAVEL AND COBBLES (po ghly weathered rock) MESTONE rock (fractured cobbles diameter rrel 30-40mm thick)	ossible in the state of core		2.50 2.50 2.50	2.67 2.37	2.00-2.50		ENV	2.00-2.50	
ਿਲੀ ff grey gravelly CLAY (hydrocarbon odour) MESTONE rock (30-100mm cores)			3.80	1.37 1.17	3.80-4.00		ENV	3.80-4.00	
			5.44	-0.27	5.44-5.47		ENV	5.44-5.47	
ATION DETAILS		able Envi	iro 46.						<u> </u>
	nse angular GRAVEL AND COBBLES (poly weathered rock) MESTONE rock (fractured cobbles diametered 30-40mm thick) If grey gravelly CLAY (hydrocarbon odour) MESTONE rock (30-100mm cores) Remarks Opped to oil drilling head @2m. They used	Inse angular GRAVEL AND COBBLES (possible hly weathered rock) MESTONE rock (fractured cobbles diameter of core rel 30-40mm thick) MESTONE rock (fractured cobbles diameter of core rel 30-40mm thick) MESTONE rock (30-100mm cores) MESTONE rock (30-100mm cores)	Inse angular GRAVEL AND COBBLES (possible hly weathered rock) MESTONE rock (fractured cobbles diameter of control of the first of the	Inse angular GRAVEL AND COBBLES (possible hly weathered rock) MESTONE rock (fractured cobbles diameter of core rel 30-40mm thick) MESTONE rock (30-100mm cores) 3.80 4.00 ATION DETAILS	In brown gravelly CLAY Inse angular GRAVEL AND COBBLES (possible hely weathered rock) IN ESTONE rock (fractured cobbles diameter of core and the company of the company o	ft brown gravelly CLAY 2.00-2.50 anse angular GRAVEL AND COBBLES (possible the property of t	fit brown gravelly CLAY Sample Clay C	if brown gravelly CLAY Insee angular GRAVEL AND COBBLES (possible in the standard of the latest of	if brown gravelly CLAY inse angular GRAVEL AND COBBLES (possible in the color of t

NSTALLATI	ON DETAILS
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: '"	INO IALLA	IION DEIA	LO			
ìΣ	Date	Tip Depth	RZ Top	RZ Base	Type	
:[
<u>:</u> -						
3						
1						

(5	Ana											REPORT	NUMBER	
(IC						SON	IIC CC	ORE	RECO	RD		1	6033	
CON	TRACT	Limer	ick Gaswo	orks							DRILLHOLE N		t 2 of 2	
	RDINA		156,94 156,62	3.59 N		RIG TYP		2 (mm)			DATE DRILLED	26/10)/2011)/2011	
CLIE	NT		Gais Netw	5.17 orks		FLUSH N	/IEDIUM				SAMPLED BY	Ro	berts	
ENGI	NEER	Mouch	nel			CASING	DIAMET	ER (mi	m)		LOGGED BY	G.I	Doyle	
Depth (m)		(Geotechni	cal Descrip	tion		Legend	Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe Details
- - - - - - - -	LIMES	rey gravel STONE ro Depth 5.5	ck (30mm	core)				5.47 5.50	-0.30 -0.33					
- - - - 7.0 - - - -								Poses of	tot any o	set use.				
- - - - - - - - -					, off	for ind	ection of the latest t	r ledi						
9.0					C									
- - - 10.0 - - -														
- - -														
Gene Driller	eral Rei	marks ed to oil d	Irilling head	d @2m. Th	ey used b	oiodegrade	able Env	riro 46.			, '			•
		ION DETA		RZ Base	Тур	pe_								
		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			- 71									

00	BSL				OL					NLOO	ΙΊΟ					14463	
СО	NTRAC	T Lir	merick (Gaswo	orks								BOREHO SHEET	OLE NO		A03 Sheet 1 of 1	
СО	-ORDIN	IATES			9.89 E 7.83 N		RIG TYP	E				<u> </u>	DATE D	RILLE		23/11/2009	
GR	OUND	LEVEL (ı	m AOD)	4.16		BOREHO	OLE DIAM	ETER (r	nm) 1	140		DATE LO	OGGE)	24/11/2009	
CLI	ENT	Во	rd Gais	3				OLE DEPT		5	5.00		BORED	BY		Boart Longy	ear
ENG	GINEER	R Mc	uchel				CASING	DEPTH (r	n)		5.00		PROCES	SSED E	BY	G. Thornton	
Œ									<u>_</u>	Ê		_	nples	>	,		e e
Depth (m)				Desc	ription			end	Elevation	Depth (m)	Ref. Number	Sample Type	Ę,	Recovery	Fi	eld Test Results	idbr
Det								Legend	Ele	Deg	Ref	Sar	Depth (m)	Rec			Standpipe Details
0		CRETE							0.00	0.00							XX XX
	MADI block	E GROU s and red	ND: Sa d brick.	andy (NEC	gravelly cla	ay with sto	one		3.96	0.20	1	ENV	0.50-1.00	0			
					-												
1										1.00	2	ENV	1.00-1.50	0			
	MAD! grave	E GROU Ily sand	ND: Me with oc	edium casio	dense, br nal cobble	own/red, s & concr	silty rete.		2.96	1.20							
	NEC.	- 00011	ND. E:		al /la usa / a		/		2.56	1.60	3	ENV	1.80-2.40	0			
2	slight	= GROU ly sandy	clay wi	m, red th occ	d/brown/gr asional co	ey mottle bbles.	nEC.										
	MADE	E GROU	ND: Lo	ose, b	orown, clay	/ev/silty, o	gravelly		1.76	2.40	4	ENV	2.50-3.00	n			
	\cobbl	es. NE	C.		•		/		1.66		, ,		2.00 0.00				
3		= GROU Ily cobbl			olack, clay	ey silty sa	andy /		1.16	3.00	ose.						
	LIME	STONE.	NEC.							other							
									es alfor	3.00 3.00							
4									es only direction								
								1 200	diffe								
								in he	ĺ								
5	End c	f Boreho	ole at 5	.00 m			For its of	TO STATE	-0.84	5.00	1						
							FOLITIE	3									
							of cold.										
6						ූුල්	it c										
						COM											
7																	
8																	
9																	
HA	ARD ST	RATA B	ORING	CHIS	ELLING			1							VATER	STRIKE DET	AILS
ror	m (m)	To (m)	Time (h)	Co	mments			Wate Strik		sing S	Sealed At	Rise To		ime nin)	Comme	ents	
			(11)					Otrik		Брит	Λι.	10	(,	No wa	ater strike	
															INO Wa	ilei siirke	
NIC	TALLA	TION DE	TAUC					Det		Hole	Casing	Dei	oth to			DWATER DE	IAILS
	Date	Tip De		Ton	RZ Base	Ту	ne	Dat	е	Depth	Depth	Ŭ.	oth to ater	Comm	enis		
	-11-09	5.00		.50	5.00	50mr											
RFI	MARKS	<u> </u>								Samn	le Leger	nd					
\ _		•								D - Small	Disturbed (tub Disturbed Bulk Disturb)		U - I Sam		100mm Diameter	
										LB - Large Env - Env	Bulk Disturbeironmental Sa	ed mple (Jar +	Vial + Tub)	P - l	Jndisturbed F	Piston Sample	

00	GSL	-/		OL.	OILOI		L DOI		\LOC					14463	
СО	NTRAC	CT Lim	erick Gasv	vorks								BOREH SHEET	OLE NO	D. A04 Sheet 1 of 1	
		NATES	156,6	31.97 E 13.80 N		RIG TYP						DATE D		11/11/2009	
GR	OUND	LEVEL (m	n AOD)	4.13			DLE DIAME	•	•	140	-	DATE L	OGGE	13/11/2009	
1	IENT		d Gais				DEPTI			4.50		BORED		Boart Longy	ear
EN	GINEEF	₹ Mou	ıchel			CASING	DEPTH (m	1)	· ·	4.50		PROCE	SSEDE	D. O'Shea	
Œ							_	E	Œ		1	·	2	Field Test	ipe
Depth (m)			Des	cription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Results	Standpipe Details
							Le	<u> </u>	۵	Δź			_		Sta
0	MAD much	E GROUN red brick	ND: Brown , concrete	sandy grav and steel. I	elly clay v NEC.	with				2	ENV	0.00-0.5 0.30-0.8			
Ē															
1										3	ENV	1.10-1.5			
Ė	MAD	E GROUN	ID: Soft g	rey/brown m	nottled sa	ndy,		2.93	1.20						
Ē		ily gravelly ible HC.	ciay with	occasionai (coddies.	/		2.63	1.50	4	ENV	1.50-2.0	0		
2	MAD	E GROUN	ID: Soft light	ght brown sa nal cobbles	andy, slig	htly		2.13	2.00						
Ē				sible clay ba		4.10m									
Ē															
- 3										్లం.					
F									net						
Ē								27.	any other						
-4								~S . XU	0						
Ē							110	litell							
Ē	End	of Borehol	e at 4.50 r	n			ion Pirel	-0.37	4.50						
5						-SQE	iden for red								
Ē						cor in d									
Ė						FOOD									
- 6					.eS	ror									
Ē					Const										
Ė															
7															
E															
Ė															
E 8															
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Ė															
E 9															
Ė															
Ē															
H/	ARD ST	RATA BO	RING/CHI	SELLING			10/-1-		-:	011	D:-	· · ·		VATER STRIKE DET	AILS
	m (m)	To (m)	Time (h)	Comments			Wate Strike		sing epth	Sealed At	Rise To	- 1	ime min)	Comments	
														No water strike	
<u> </u>									l lola	Casim		-41-4	C	GROUNDWATER DE	TAILS
INS		ATION DE		1===			Date	e	Hole Depth	Casing Depth	Dej W	oth to ater	Comm	ents	
11	Date -11-09		th RZ Top 2.50	RZ Base 4.50	Tyr 50mn										
8									16						
RE	MARK	S Hand do	ug pit 0.00)-1.20m. Pi	t dry and	stable.			Samp D - Small	ole Leger Disturbed (tub	nd •)			Jndisturbed 100mm Diameter	
INS 111 RE									LB - Bulk I Env - Env	Disturbed le Bulk Disturb vironmental Sa	ed mple (Jar +	· Vial + Tub)	Sam		

00	381	-/		OL	O I LOI		L DOI		ILOC					14463	
COI	NTRA	CT Lim	erick Gas	works								BOREH(OLE NO	D. A05 Sheet 1 of 1	
CO-	-ORDII	NATES	156,9 156,9	924.45 E 603.52 N		RIG TYP	E				-	DATE D	RILLED		
GR	OUND	LEVEL (m		6.47		BOREHO	DLE DIAM	ETER (ı	mm)	140	L	DATE LO	OGGED	10/11/2009	
	ENT		d Gais				DLE DEPT			7.50		BORED		Boart Longy	
ENC	SINEE	R Mou	ichel			CASING	DEPTH (r	n)		7.50		PROCES	SSED B	G. Thornton	
E									<u> </u>			nples			l e
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MAD	E CDOUL	ID. CEE				×××××	i ii		ı ı Z	N F	0.00-0.50	_		# Z
.	plast	ic, red bric	k and wo	grey sandy g od. NEC	ravelly cla	ay witti									
1	Medi	um dense	light brov	vn clayey sa	ndv GRA\	VEL.	°7-°0-	5.47	1.00	+					
	\NEC	•	_		-	/	0.00	5.27	1.20						
	Medi GRA	um dense VEL. NEC	light brov C.	vn very claye	ey sandy		0 0 0			1	ENV	1.50-2.00	0		
2	Stiff	orown san	dy gravel	ly CLAY with	occasion	nal	<u> </u>	4.67	1.80						
	cobb	les. HC o	dour.				<u> </u>								
								1		2	ENV	2.50-3.00	0		
3	Coff	blook/dork	brown ar	avelly CLAY	'with ooo	noional	<u> </u>	3.47	3.00	10°.					
	cobb	les. HC of	il in clay.	avelly CLAT	WILLI OCC	asionai		3.47	3.00 A other	NP.					
								14.	my oth	3	ENV	3.50-3.90	0		
4	LIME	STONE.	NEC.					250°	3.90						
•		D. HC odd						32.17	4.30	4	ENV	4.30-4.50	0		
}				y local HC sł	heen at 5.	.50m.	1 2 2	1.97	4.50	1					
5															
5						for its properties									
						FOY YEL									
					1	rof Co									
6					, Alser	, Company of the Comp									
					Co										
7															
ŀ	End	of Borehol	e at 7.50	m				-1.03	7.50						
8															
9															
HA	RD S	RATA BO	RING/CH Time	ISELLING			Wate		ooina I	Sealed	Rise	·	ime	ATER STRIKE DET	AILS
ron	n (m)	To (m)	(h)	Comments			Strik		epth	At	To		nin)	Comments	
														No water strike	
									Цеје	Casia	. _	, the t-	G	ROUNDWATER DE	TAILS
		ATION DET		1=			Dat	te	Hole Depth	Casing Depth	Del M	oth to ater	Comme	ents	
	Date	Tip Dep	th RZ To	p RZ Base	Ту	pe									
RE	MARK	S Hand du	ug pit 0.0	0-1.20m					Samp D - Small	ole Leger Disturbed (tul	nd •)		IJ-11	ndisturbed 100mm Diameter	
									B - Bulk I LB - Larg Env - Env	Disturbed Je Bulk Disturb vironmental Sa	ed imple (Jar +	· Vial + Tub)	Samp		
													_		

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

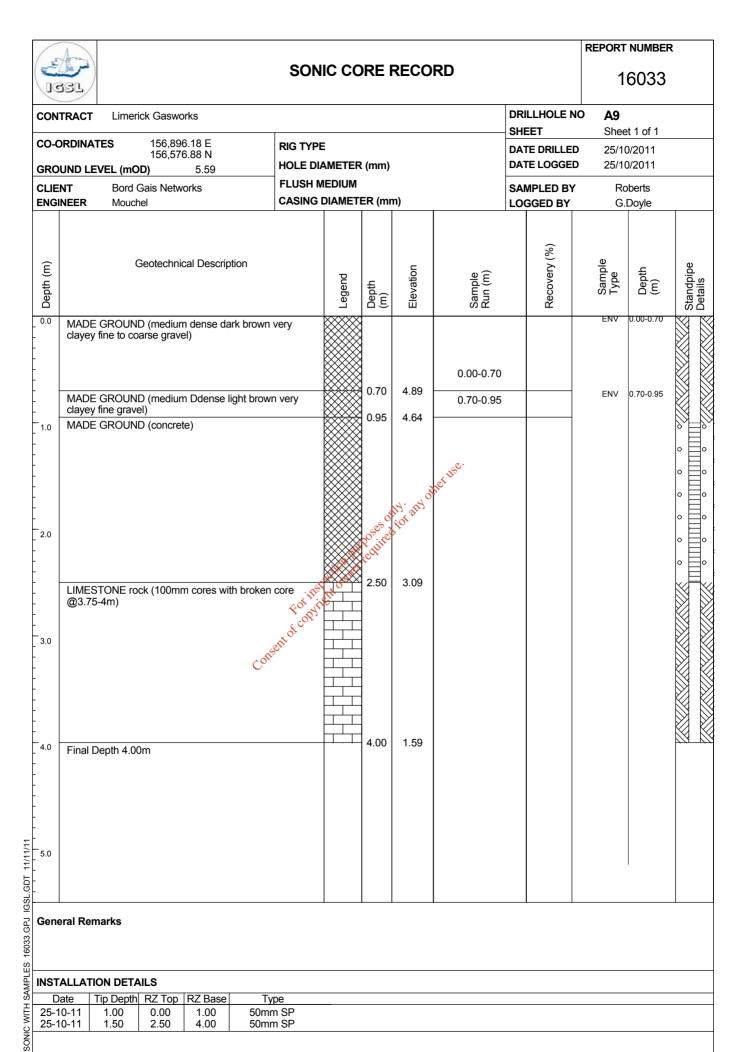
00	BSL	/		-	0.20											14463	
СО	NTRAC	T Lime	rick Gas	works									BOREH SHEET	OLE NO	D.	A06 Sheet 1 of 1	
	-ORDIN	ATES LEVEL (m	156,5	917.31 E 597.62 N 5.02		RIG TYP BOREHO	E DLE DIAM	ETER ((mm)		onic 40		DATE D			10/11/2009 10/11/2009	
	IENT GINEER		Gais chel				DEPTH (r				.00		BORED PROCES		BY.	Boart Longye G. Thornton	ear
					'					_		Sam	ples				
Depth (m)			Des	scription			Legend			Deptil (III)	Ref. Number	Sample Type	Depth (m)		,	Field Test Results	Standpipe Details
1	red ar MADE NEC. Mediu	nd yellow b GROUNI	orick. NED: Soft b	orown sandy EC. orown clay w wn very clay	vith roothair					30 50	3	ENV ENV	0.00-0.3i 0.00-0.5i	0			
2		•	, ,	avelly CLAY		HC.		3.02			4	ENV	2.50-3.0	0			
3	Stiff b	rown sand lack slight	y, gravelly gravell	clayey GRANILY CLAY. NILY CLAY. HO	EC. C odour. elly brown c	ay		2.02 1.77 1.52 01.02	3.3	25	5	ENV	3.50-4.0	0			
5	rock.	f Borehole	at 6.00	m	. msent	For itish		-0.98	6.0	00	6	ENV	5.80-6.0	0			
7 8 8					Cov												
. HA	ARD ST	RATA BOF	RING/CHI	ISELLING											VATE	ER STRIKE DET	AILS
			Time	Comments		Wate		asing Depth	S	ealed At	Rise To		ime nin)		nments		
			(11)			Suiki		, cμιι		AL	10	(1)	No	water strike		
															GROU	JNDWATER DE	TAILS
	Date	TION DETA		p RZ Base	Турє	e	Dat	e	Hole Dept		Casing Depth	Dej W	oth to ater	Comm	ents		
REI	MARKS	Hand du	g pit 0.0	0-1.20m					D - B - LB -	Small D Bulk Dis - Large	e Legen Disturbed (tub sturbed Bulk Disturbe onmental Sar) ed	- Vial + Tub)	Sam	ple	bed 100mm Diameter bed Piston Sample	

100	38L															14463	
СО	NTRAC	T Lim	nerick G	aswor	ks								BOREH	OLE N	Ο.	A07	
CO	-ORDIN	IATES	15	6,907.	13 E		RIG TYP	F			Sonic	t t	SHEET			Sheet 1 of 1	
		LEVEL (n	15	6,590.				L DLE DIAM	ETER	(mm)	140		DATE L			11/11/2009 11/11/2009	
	ENT	-	rd Gais		,,,,,			OLE DEPT		,	6.00	-	BORED	BY		Boart Longye	–––– ≏ar
	GINEER		uchel				CASING	DEPTH (r	n)		6.00		PROCE		BY	G. Thornton	
ج ا										_			nples				υ
Depth (m)			[Descri	ption			Legend	1	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
0			ND: Loc	ose lig	ht brown	, clayey s	andy				1	ENV	0.00-0.5		_		
	grave	I. NEC.									2	ENV	0.50-1.0	00			
1	MADI	- CPOUI	VID: Stif	ff liaht	brown se	andy very			3.91	1.20)						
	grave	lly clay.	NEC.	Ū		, ,	/		3.61	1.50		ENV	1.50-2.0	00			
	MADI HC.	E GROUI	ND: Sof	ft brow	n gravel	ly sand. S	Slight										
2	Soft o	lark brow	n peaty	sandy	gravelly	CLAY. F	Heavy		3.11	2.00)						
	HC.										4	ENV	2.50-3.0	00			
								17 - 17			<u>.</u>						
3								- · - · - · - ·		OITY Ofth	130°						
								<u> </u>		. Wolls	5	ENV	3.50-4.0	00			
								· · · · · ·	only	N MIL							
	clay 5	.90-6.00	m. Pos	sible F	IČ 5.90-6	bbles and 3.00m - no	d grey ot		51.14 51.14	4.00)						
	enou	gh materi	al for sa	ample.				700 6	8,								
5							S	the net									
							For its p										
							the Object										
6	End o	of Boreho	le at 6 (00 m		20	tol		-0.89	6.00)						
	Lila	n Boreno	ic at o.c	,		Conso			0.00								
7																	
8																	
9																	
		RATA BO	DRING/O					Wate	er C	asing	Sealed	Ris	e 1	Time		ER STRIKE DET	AILS
101	m (m)	To (m)	(h)	COII	nments			Strik	е [Depth	At	Тс) (min)	Con	IIIIICIIIS	
															No	water strike	
															_ GR∩	UNDWATER DE	TAII S
NS	TALLA	TION DE	TAILS					Dat	te	Hole	Casing		pth to ater	Comm			
	Date			Top F	RZ Base	Тур	ре			Depth	Depth	· · · · · ·	aici				
	MADICO	\	 	200.1	20==					I G =	nlo l s =						
(E	VIAKKS	Hand d	ug pit (J.UU-1.	.∠um					D - Sm B - Bul	nple Legel lall Disturbed (tu k Disturbed	ib)				rbed 100mm Diameter	
										LB - La	arge Bulk Disturt Environmental S	oed ample (Jar	+ Vial + Tub)	Sai P -	mple Undistu	rbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL			-	0.20.									14463	3
СО	NTRAC	T Lime	rick Gas	sworks								BOREH(OLE NO	D. A08 Sheet 1 of	1
	-ORDIN	IATES LEVEL (m	156,	901.53 E 585.58 N 5.14		RIG TYP	E OLE DIAM	ETER (mm)	Sonic 140		DATE D		11/11/2009	9
CLI	ENT GINEER	Bord	Gais	3.14		BOREH	OLE DEPT DEPTH (r	'H (m)		6.00 6.00		BORED PROCES	BY	Boart Long	gyear
	SINCER	i iviouc	JI I EI			CASING		'' <i>)</i>		0.00		nples	SSED E	A. Marioriy	
Depth (m)			De	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	MADE occas	E GROUNI sional wood	D: Light d and ste		y gravel wi	ith		4.94	0.20	1	ENV	0.00-0.50 0.20-0.50			
2	Stiff d enoug Loose	ark brown gh for sam e, light brov	gravelly ple wn very o	CLAY. Pos Clayey GRANAND. NEC.	sible HC.	Not		3.94 3.69 3.64 3.44	1.20 1.45 1.50 1.70	3	ENV	1.50-2.00	0		
	Firm (grey, mottle black mot	ed black tling.	very gravelly				2.64	2.50	4	ENV	2.50-3.00	0		
3	NEC.	Possible	pulverise	with occasi ed limestone CLAY. Stron	boulder.	es/		2.14 1.84	3.00	5	ENV	3.50-4.00	0		
4	LIMES	STONE. N	IEC.					est yso	4.00						
- - - 5 - - - -						For inspire									
6 - - - - - - - - - - - - - - - - - - -	End o	of Borehole	e at 6.00	m	Consent	Ÿ		-0.86	6.00						
-															
9															
HA	RD ST	RATA BOF		ISELLING		-	147			01- 1	j			VATER STRIKE DI	ETAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Rise To		ime min)	Comments	
														No water strike	
											<u> </u>			GROUNDWATER I	DETAILS
	TALLA Date	Tip Dept		p RZ Base	Тур	е	Dat	te	Hole Depth	Casing Depth	De W	oth to ater	Comme	ents	
REI	MARKS			0-1.20m. Pi					D - Sma	ple Leger	nd			Undisturbed 100mm Diameter	
									LB - Lar	Disturbed ge Bulk Disturb ovironmental Sa	ed mple (Jar +	+ Vial + Tub)	Sam		



IGSL

	1									REPORT	NUMBER	
Je	SSL SSL			SONI	IC CO	RE	RECO	RD		1	6033	
CON	TRACT	Limerick Gasworks							DRILLHOLE NO			
	ORDINAT	TES 156,886.89 E 156,571.31 N VEL (mOD) 5.54		G TYPE	METER	(mm)			SHEET DATE DRILLED DATE LOGGED	25/10	o/2011 0/2011	
CLIE		Bord Gais Networks Mouchel		LUSH M ASING D	EDIUM DIAMETI	ER (mr	m)		SAMPLED BY LOGGED BY		berts Doyle	
Depth (m)		Geotechnical Descrip	otion		Puegend	Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe Details
0.0		GROUND (concrete)				0.50	5.04					
	Firm br	own sandy CLAY				0.70	4.84	0.50-0.70		ENV	0.50-0.70	
1.0		,										
2.0		d brown CLAY	Listo engular	The St			3.24 2.94	2.30-2.60		ENV	2.30-2.60	
3.0	coarse	ered limestone rock, fractured GRAVEL and COBBLES by o	driller.	5.0								
4.0	LIMES	TONE rock				4.00	1.54					
5.0	Final D	epth 5.00m				5.00	0.54					
Gene	eral Rem	arks							1			
INST	ALLATIO	ON DETAILS										
Da	ate T	ip Depth RZ Top RZ Base	Type									

IGSL SONIC WITH SAMPLES 16033.GPJ IGSL.GDT 11/11/11

100	GSL	/												14463	5
СО	NTRAC	T Lime	erick Gas	sworks								BOREHO	OLE NO	D. A11	
	-ORDIN	ATEQ	156	877.44 E			_					SHEET		Sheet 1 of	1
			156,	566.16 N		IG TYPE	E DLE DIAM	ETED (r		Sonic 140		DATE LO			
		_EVEL (m		3.74			LE DEPT			2.90	-				
	IENT GINEER		l Gais chel				DEPTH (r			2.90		BORED PROCES		Boart Long S. Letch	gyear
	I	Wiodi	31101			AOIITO	DE1 111 (1	,				nples	JOLD D	O. Ectori	
Depth (m)			De	scription			þu	ation	Depth (m)	ber	ble .	ج	very	Field Test	Standpipe Details
Dept				·			Legend	Elevation	Dept	Ref. Number	Sample Type	Depth (m)	Recovery	Results	Stan
. 0	\sim	GROUN						3.54	0.20	1	ENV	0.20-0.50			
· -	with re	ed brick, c	oncrete,	n slightly sar steel and bo	oulders. NE	ciay C.		0.01	0.20						
- - - 1															
1	Soft b	rown sliah	ıtly grave	elly CLAY. N	IEC.		<u>~~~~</u>	2.54	1.20						
				gravelly CLA			<u> </u>	2.24	1.50	2	ENV	1.50-1.70			
_	LIMES	STONE. F		slight HC, br		g at		2.04	1.70	1					
2	1.70m	l.				ļ									
						ļ									
						ļ		1							
3	End o	f Borehole	at 2.90					0.74	3.00	se.					
					Consento				other						
								ally.	MIN						
4							ć	esolio							
							Outpo	diff							
							tion Price	ľ							
5						Sele	X OWIT								
					4	iot vitig									
					Ş	,00b,									
- 6					esto),									
					CORSO										
7															
8															
J															
-															
-															
- 9 -															
	ADD OT	DATA DO:	DINO/O	IICEL L INC										VATED OTDUCE T	TA" C
		To (m)	Time	Comments			Wate			Sealed	Ris	- 1	ime	VATER STRIKE DI Comments	LIAILS
	. ()	* ()	(h)				Strik		epth NR	At NS	To NR		nin) NR	Seepage	
														-	
															DETAIL O
INS	STALLA	TION DET	AILS				Dat	e	Hole	Casing		pth to	Comme	SROUNDWATER I	JE I AILS
	Date	Tip Dept	h RZ To	p RZ Base				-	Depth	Depth	W	ater			
23	3-11-09	2.90	1.90	2.90	50mm S	SP									
RE	MARKS			00-1.20m. Wor sheen on			overy		D - Small	le Leger Disturbed (tub	nd	1	11. **	Indicturbed 400mm Diagram	
		1.70-2.9	om - mm	ioi sileeli on	water COIIII	ıy up.			B - Bulk D LB - Large	Disturbed e Bulk Disturb ironmental Sa	ed	+ Vial + Tub)	Sam	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	
										Jimiloniai Od	pic (dai 1	* run * ruu)			

	1											REPORT	NUMBER	
	3SL					SON	IC CC	RE I	RECO	RD		1	6033	
CON	TRAC	r Limer	ick Gaswo	orks							DRILLHOLE NO			
CO-C	ORDIN	ATES	156,95	9.54 E		RIG TYPI					SHEET DATE DRILLED		et 1 of 1 0/2011	
GRO	UND L	.EVEL (mC	156,619 (D)	9.44 N 5.31		HOLE DI	AMETER	R (mm)			DATE LOGGED		0/2011	
CLIE			Gais Netw	orks		FLUSH N		FD /	\		SAMPLED BY		berts	
ENG	NEER	Mouch	nel			CASING	DIAMET	EK (MI	n) 		LOGGED BY	G.	Doyle	
S Depth (m)				cal Descrip	otion		Legend	(m) 0.05	95 Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe Details
- 0.0		SOIL (gras E GROUN		ck)		/		0.05	5.26 5.11			ENV	0.20-1.00	
		E GROUN			ravelly clay	with red				0.20-1.00			0.2000	
- - - - - -								Š	3.01	set lise.				
2.0								Poscife d	, ,	2.10-2.30		ENV	2.10-2.30	
3.0	LIME	STONE ro	ck		Couse	for inst		2.30	3.01					
4.0	LIME	grey slightly STONE ro Depth 4.00	ck	CLAY				3.90 3.95 4.00	1.41 1.36 1.31	3.90-3.95		ENV	3.90-3.95	
5.0														
Gend		emarks	AILS					1		1				
	ate	Tip Depth		RZ Base	Тур	е								
Gend Gend Gend Gend Gend Gend Gend Gend														

	1								REPORT	NUMBER	
	BSL		SON	IC CO	RE	RECO	RD		1	6033	
CON	TRACT	Limerick Gasworks						DRILLHOLE NO			
	ORDINATI	156,953.44 E 156,614.62 N EL (mOD) 5.33	RIG TYPE		(mm)			DATE DRILLED DATE LOGGED	27/10	t 1 of 1 0/2011 0/2011	
CLIE		Bord Gais Networks Mouchel	FLUSH N	IEDIUM				SAMPLED BY LOGGED BY	Ro	berts Dovle	
LING	INCLIN	Wodere	071010					LOGGED BY	<u> </u>	Doyle	
Depth (m)	Topoo	Geotechnical Description	n	Legend	SO Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe Details
. 0.0	MADE (L (grass) GROUND (concrete)		****	0.08	5.25			ENV	0.20-0.80	
1.0	MADE C	GROUND (Very soft brown very brick) GROUND (Firm light brown slight the occasional cobbles and smalbbles 50mm.)(Slight Hydrocart	ntly gravelly		0.80	4.53	0.20-0.80		ENV	0.80-1.30	
2.0	(Hydroc very stro	t grey slightly sandy SILT with s arbon odour gets stronger as yo ng @2m)	u go deeper,	×××× × ·× · × ·× · × ·× · × ·× ·	1.30 2.90	4.03	1.30-2.00		ENV	1.30-2.00	
	No Reco	ivery	Consent of copyri	ction put	reduite.						
3.0	LIMEST	ONE rock	Consent		3.00	2.33					
4.0	Final De	pth 4.30m			4.30	1.03					
5.0											
Gene	eral Rema	ırks									
		N DETAILS Depth RZ Top RZ Base	Туре								

IGSL SONIC WITH SAMPLES 16033.GPJ IGSL.GDT 11/11/11

Color of the same	
IGSL	

00	BSL	-/		OL.	O I LOI I		L BOIN		INE OC					1446	3
СО	NTRAC	CT Lim	erick Gas	sworks								BOREH SHEET	OLE NO	D. B03 Sheet 1 c	of 1
СО	-ORDI	NATES	156,9 156 (943.08 E 609.08 N		RIG TYP	E		;	Sonic		DATE D	RILLED		
GR	OUND	LEVEL (m		4.62	I	BOREHO	LE DIAM	ETER (ı	mm)	140		DATE L	OGGED	13/11/20	09
CLI	ENT	Boro	d Gais				LE DEPT		•	4.50		BORED	BY	Boart Lor	ngyear
EN	GINEEF	R Mou	chel			CASING	DEPTH (r	n)		4.50		PROCE	SSED E	G. Thorn	ton
Œ								_	Ε			nples			e e
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	l #s	Recovery	Field Test Results	Standpipe Details
Dep							Leg	Ele	Deg	Ref	Sar	Depth (m)	Rec		Star
- 0	$\overline{}$	SOIL. NE					<u> </u>	4.52	0.10	1	ENV	0.10-0.4	0		
	Firm occas	brown slig sional cob	htly sand bles. NE	y, gravelly C C.	LAY with										
- - 1 -							- <u>-</u>								
	Davas	- Ii-ulud luus		· CORDI EC	NEC			3.12	1.50						
				y COBBLES			-								
2		dark grey (STONE. I		CLAY. HC im	npact - oil ir	n clay.		2.72 2.62	1.90 2.00	2	ENV	1.90-2.0	0		
	LIIVIE	STONE.	NEG.						2.00						
3										ve.					
									ather						
								914.	any other						
4								esonly.	·						
								diffee							
	End o	of Borehol	e at 4.50	m			tion Price	0.12	4.50						
- 5					Consent	. ASP	St Oplit								
-						FOT IT!									
						Lob,									
6					ent	O,									
					Cours										
-															
- - - 7															
-															
- - - 8															
-															
- - 9															
-															
-															
H/	ARD ST	RATA BO	RING/CH	ISELLING										VATER STRIKE I	DETAILS
		To (m)	Time	Comments			Wate Strik		asing septh	Sealed At	Ris To		ime min)	Comments	
			(11)				Strik		Срит	Λι	10	(1	11111)	No water strike	
														NO Water Strike	
														GROUNDWATER	DETAILS
INS	TALL4	ATION DET	AILS				Dat	te	Hole	Casing		pth to ater	Comme		DEIAILO
	Date			p RZ Base	Туре	e		-	Depth	Depth	W	ater	20111111		
					7,5-3										
RE	MARKS	 S							Samo	l le Leger	nd				
									D - Small B - Bulk I	Disturbed (tub Disturbed e Bulk Disturb	o) ed		Sam	Undisturbed 100mm Diamete	er
									Env - Env	e Bulk Disturb vironmental Sa	imple (Jar +	+ Vial + Tub)	P-L	Indisturbed Piston Sample	

1	681	/													14463	
CO	NTRAC	CT Lir	nerick	Gaswo	orks								BOREH	OLE N	O. B04	
CO	-ORDII	IATES	1	156 03	7.18 E		DIO 77/0	_			o :		SHEET		Sheet 1 of 1	
		LEVEL (1	156,60	5.75 N 6.41		RIG TYP	E DLE DIAMI	FTFR (r		Sonic 140		DATE D			
		-			0.41			LE DEPT	•	-	6.00	H				
	IENT GINEEF		ord Gai: ouchel	S				DEPTH (n			6.00		BORED PROCE		Boart Longye G. Thornton	eai
												San	nples			
Depth (m)				Desc	ription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 1	MAD NEC	E GROU	IND: D)ense l	black sligh	r gravelly controlly clayey gravely clayey gravely	gravel.		5.66 5.36	0.75	2	ENV	1.00-1.5			
2	clav v	with red to Possibl	orick ar	nd whit	te sandv z	ones (poss	sible									
3		grey/blac STONE.			impact in	black with	odour.		3.61 3.41	other	3	ENV	2.80-3.0	0		
5		grey CLA STONE.			ock). NEC		COT ITSP	1 10 re	2.01 1.91	4.40	4	ENV	4.40-4.4	5		
6	End (of Boreho	ole at 6	6.00 m		Consent	of copy		0.41	6.00						
8																
9																
		RATA B	ORING Time	a				Wate	r Ca	sing	Sealed	Rise	е т	ime V	WATER STRIKE DET	AILS
- 1	m (m)	To (m)	(h)		mments			Strike		epth	At	To		min)	Comments	
GD1 23/12/L															No water strike	
2 1815	TALL 4	TION D		 •				Det		Hole	Casing	I Dei	pth to	_	GROUNDWATER DE	TAILS
INS	Date Date	Tip De			RZ Base	Тур	е	Date	e	Depth	Depth	W	ater	Comm	ents	
GSL BH LOG 14463.6PJ GSL.GD 23/12/09	MARK	<u> </u> S								D - Smal B - Bulk I LB - Larg	DIE Leger I Disturbed (tub. Disturbed e Bulk Disturber vironmental Sa	o) ed	+ Vial + Tuh\	San	Undisturbed 100mm Diameter nple Undisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

BSL	/			.				1200					14463	
NTRAC	T Lime	rick Gasv	vorks									OLE NO		
		156,5					ETER (r							
													Boart Longye G. Thornton	ear
										Sam	ples			4
		Des	cription			Legend	Elevation	Depth (m	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
NEC. MADI	E GROUNI	D: Loose			/		4.28	0.20	1	ENV	0.20-0.70			
		D: Soft g	rey very gra	velly clay.	NEC.		2.68 2.48	1.80 2.00						
		D: Stiff gi	rey sandy g	ravelly cla	y. HC		1.98	2.50	3	ENV	2.50-3.00)		
MADE	E GROUNI	D: Stiff bl les. HC,	ack gravell free phase	y clay with oil preser	nt in		1.48	5	e· 4	ENV	3.00-3.50			
pulve	rised rock.	NEC.	e grey grave	el. Possibl	le		0.98 0.48 0.48	4.00						
End c	of Borehole	at 6.00 r	m	conserv	for its of		-1.53	6.00						
				C										
ARD ST			SELLING										VATER STRIKE DET	AILS
m (m)	To (m)	Time (h)	Comments						Sealed At	Rise To			Comments	
													No water strike	
												G	ROUNDWATER DE	TAILS
			RZ Base	Тур	oe	Dat	е	Hole Depth	Casing Depth	Der W	oth to ater	Comme	ents	
MARKS	<u> </u> 							D - Small B - Bulk D LB - Large	Disturbed (tub isturbed Bulk Disturbe) ed	· Vial + Tub)	Samp		
	MADE NEC. MADE SAND STALLA Date	MADE GROUND SANDE GROUND CONCRETE MADE GROU	NTRACT Limerick Gask PORDINATES 156,9 156,5 COUND LEVEL (m AOD) IENT Bord Gais GINEER Mouchel MADE GROUND: Soft b NEC. MADE GROUND: Loose sandy gravel. NEC. MADE GROUND: Stiff godour. MADE GROUND: Stiff godour. MADE GROUND: Dense pulverised rock. NEC. LIMESTONE. NEC. End of Borehole at 6.00 r STALLATION DETAILS Date Tip Depth RZ Top STALLATION DETAILS Date Tip Depth RZ Top	OUND LEVEL (m AOD) 4.48 IENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft brown sandy NEC. MADE GROUND: Loose light brown sandy gravel. NEC. MADE GROUND: Stiff grey sandy g odour. MADE GROUND: Stiff black gravell occasional cobbles. HC, free phase small amounts. MADE GROUND: Dense grey grave pulverised rock. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m ARD STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base	NTRACT Limerick Gasworks -ORDINATES 156,928.84 E 156,597.40 N OUND LEVEL (m AOD) 4.48 IENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft brown sandy gravelly of NEC. MADE GROUND: Loose light brown very clay sandy gravel. NEC. MADE GROUND: Stiff grey sandy gravelly clay concrete MADE GROUND: Stiff black gravelly clay with occasional cobbles. HC, free phase oil preser small amounts. MADE GROUND: Dense grey gravel. Possib pulverised rock. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m Concrete ARD STRATA BORING/CHISELLING Image: Concrete the concrete t	NTRACT Limerick Gasworks -ORDINATES 156,928.84 E 156,597.40 N OUND LEVEL (m AOD) 4.48 BOREHG GINEER Mouchel Description MADE GROUND: Soft brown sandy gravelly clay. NEC. MADE GROUND: Loose light brown very clayey sandy gravel. NEC. MADE GROUND: Stiff grey sandy gravelly clay. NEC. CONCRETE MADE GROUND: Stiff black gravelly clay with occasional cobbles. HC, free phase oil present in small amounts. MADE GROUND: Dense grey gravel. Possible pulverised rock. NEC. LIMESTONE. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type	NTRACT Limerick Gasworks -ORDINATES 156.928.84 E 156.597.40 N OUND LEVEL (m AOD) 4.48 EINT Bord Gais GINEER Mouchel Description Description Description Description MADE GROUND: Soft brown sandy gravelly clay. NEC. MADE GROUND: Soft grey very gravelly clay. NEC. MADE GROUND: Stiff grey sandy gravelly clay. NEC. CONCRETE MADE GROUND: Stiff grey sandy gravelly clay with occasional cobbles. HC, free phase oil present in small amounts. MADE GROUND: Dense grey gravel. Possible pulverised rock. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m Comments ARD STRATA BORING/CHISELLING m (m) To (m) Time Comments Date Tip Depth RZ Top RZ Base Type	NTRACT Limerick Gasworks -ORDINATES 156,928,84 E 156,597.40 N OUND LEVEL (m AOD) 4.48 BOREHOLE DIAMETER (r BOREHOLE DEPTH (m) CASING DEPTH (m)	ARDE GROUND: Soft prown sandy gravelly clay. MADE GROUND: Soft grey very gravelly clay. NEC. CONCRETE MADE GROUND: Soft grey very gravelly clay. NEC. MADE GROUND: Soft grey sandy gravelly clay. NEC. MADE GROUND: Soft grey sandy gravelly clay. NEC. LIMESTONE: NEC. MADE GROUND: Dense grey gravel. Possible pulverised rock. NEC. LIMESTONE: NEC. ARD STRATA BORING/CHISELLING m (m) To (m) Time Comments Marks Date Hole Depth MARKS	ARDE GROUND: Soft grey very gravelly clay. MADE GROUND: Soft grey sandy gravelly clay. MADE GROUND: Soft grey sandy gravelly clay. MADE GROUND: Soft grey sandy gravelly clay. MADE GROUND: Dense grey gravel. Possible pulverised rock. NEC. LIMESTONE: NEC. ARD STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments MARC GROUND: Depth RZ Top RZ Base Type MARKS STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type MARKS	ARD STRATA BORING/CHISELLING Immark Info (b) To (m) Time Comments ARD STRATA BORING/CHISELLING Immark Info (b) To (m) To (m) Time Comments To Comments Rig Type BOREHOLE DIAMETER (mm) 140 BOREHOLE DIAMETER (mm) 140 BOREHOLE DEPTH (m) 6.00 Sam Casing Depth (m) 6.00 Casing Depth	NTRACT Limerick Gasworks LORDINATES 156,928,84 E 156,597,40 N 156,597	NTRACT Limerick Gasworks ORDINATES 166.928.84 E 166.957.40 N SHEET OUND LEVEL (m AOD) 4.48 BOREHOLE DIAMETER (mm) 140 DATE LOGGER BOREHOLE DIAMETER (mm) 140 DATE LOGGER BOREHOLE DIAMETER (mm) 140 DATE LOGGER BOREHOLE DEPTH (m) 6.00 BORED BY PROCESSED BOREHOLE DEPTH (m) 6.00 BORED BY PROCESSED BY PROCE	NTRACT Limerick Gasworks

GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL			-	0.20.									14463	
СО	NTRAC	T Lime	erick Gas	works								BOREH	OLE NO		
СО	-ORDIN	IATES		920.92 E 591.04 N		RIG TYP	E		;	Sonic	H	SHEET DATE D	RILLED	Sheet 1 of 1 18/11/2009	
GR	OUND	LEVEL (m		5.45			OLE DIAMI		nm)	140		DATE L	OGGE	19/11/2009	
	IENT GINEER		d Gais chel				DEPTH (n			6.00 6.00		BORED PROCE		Boart Longye A. Mahony	ear
			0.101					-,				nples		7.1.111.011.19	
Depth (m)				scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	$\overline{}$			ete. NEC. pale brown	verv siltv s	sandv		5.25	0.20	1	ENV	0.20-0.5	0		
F	grave	I. NEC.	2. 20000	pa.0 0.011.											
- 1 - 1	MADI NEC.		D: Loose	, brown silty	sandy gra	ivel.		4.65	0.80	2	ENV	1.00-1.5	0		
2															
										3	ENV	2.50-3.0	0		
-3	MADI 2.80-	E GROUN 3.00m, ve	D: Loose ry light 3.0	grey silty g 00-3.50m.	ravel. HC			2.65	2.80	ve.					
	MADI sand	E GROUN	D: Firm, o	dark brown/l	black mottl	led,		1.95 0117 e1.45	3.50	4	ENV	3.50-4.0	0		
4		STONE. I		9				e 1.45°	4.00						
Ē							70.5	diffe							
5						S	Charles 1								
- 3					Consent	ेंग्रें गुड़िर्									
Ē						* COBY									
6	End o	of Borehol	e at 6.00	m	asent	,		-0.55	6.00						
E					Corr										
7															
Ē'															
E															
F 8															
Ē															
Ē,															
- 9															
Ė															
H/	ARD ST	RATA BO	RING/CH	ISELLING									V	VATER STRIKE DET	AILS
- 1	m (m)	To (m)	Time (h)	Comments			Wate Strike		sing : epth	Sealed At	Ris To		ime min)	Comments	
CSL BH LOG 144663.6PJ CSL.GD Z3/12/09														No water strike	
SE.GE														GROUNDWATER DE	TAILS
INS	STALLA	TION DET	AILS				Date	e	Hole Depth	Casing Depth	De W	oth to ater	Commo		
14463.	Date	Tip Dep	th RZ To	p RZ Base	Тур	е			20001	Sopul					
ۆ RE I	MARKS	3							Samp	le Leger Disturbed (tub	nd				
IGSL E									B - Bulk I LB - Larg	Disturbed (tut Disturbed e Bulk Disturb vironmental Sa	ed	<u>· Vial + T</u> ub)	Sam	Undisturbed 100mm Diameter nple Undisturbed Piston Sample	

IGSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-	0.20.									14463	3
СО	NTRAC	T Lime	erick Gas	sworks								BOREH SHEET	OLE NO	D. B07 Sheet 1 of	f 1
	-ORDIN OUND L	ATES LEVEL (m	156,	913.21 E 585.54 N 5.49		RIG TYP	PE OLE DIAM	ETER (ı		Sonic 140		DATE D		18/11/200	9
CLI	ENT GINEER	Bord	Gais			BOREHO	OLE DEPT	H (m)		5.00 5.00		BORED PROCE		Boart Long	
					'						San	nples			
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	MADE			rete. NEC. e light brown	silty sand	у		5.29	0.20	1	ENV	0.50-1.0	0		
2	MADE gravel	e Grouni I. Nec.	D: Loose	e, grey/browr	n/pale brov	wn, silty		3.99	1.50						
3	sandy 3.00-3	gravelly o 3.20m)	lay with	dark brown/gred brick. Ho	Č (very str	tly ong		2.49 1.99	3.50	2	ENV	3.00-3.5	0		
4	i dive	niscu Elivie	OTONE	Oligint 110				esoni?							
- 5 	End o	f Borehole	e at 5.00	m	î Akseni	For inspire	XI.O.	0.49	5.00						
7					C										
8															
. · · · · · · · · · · · · · · · · · · ·															
HA	ARD STI	RATA BOF		ISELLING			10/04-	r C	neina	Sociad	Die	<u> </u>		WATER STRIKE D	ETAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Ris To		ime min)	Comments	
														No water strike	
														GROUNDWATER	DETAILS
	TALLA Date	Tion DET		p RZ Base	Тур	oe	Dat	re	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
REI	MARKS								D - Smal	DIE Leger I Disturbed (tub Disturbed ge Bulk Disturb	o)		Sam	Undisturbed 100mm Diameter	т
									Env - En	vironmental Sa	mple (Jar -	+ Vial + Tub)	P - U	Undisturbed Piston Sample	

IGSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

ha	220	/														14400	
CO	NTRAC	CT Lii	meri	ck Gasv	vorks								BOREH SHEET	OLE NO		308 Sheet 1 of 1	
		NATES LEVEL (m A	156,5	03.27 E 74.69 N 5.49		RIG TYP	PE OLE DIAM	ETER (ı	mm)	Sonic 140		DATE D) 1	8/11/2009 8/11/2009	
	ENT SINEE!		ord C					OLE DEPT DEPTH (r			5.00 5.00		BORED PROCES			Boart Longy	ear
												San	nples				4
Depth (m)				Des	cription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Fie Re	ld Test esults	Standpipe Details
- 1	grave	E GROU el with ro 1.80m.	JND: otha	: Loose airs. NE	yellow bro C 0.00-1.5	wn silty sa Om & sligl	andy ht HC				1 2	ENV	0.50-1.00				
2	grave	el with ro	otha	irs. He	o soft mottl	ed brown	-		3.69 2.49	3.00	3	ENV ENV	2.80-3.00 3.00-3.40				
	MAD	E GROL	JND:	Soft d	k. Heavy lark brown/b ery heavy	olack san	dy very		2.09	3.40	5	ENV	3.50-4.0	0			
4	MAD slight	E GROL	JND:	: Firm to	o locally so y with frequently after 4	ft, grey/br			only only only only only only only only	4.00		ENV	4.00-4.50	0			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
5		STONE.			n		For its of	MO ST	0.49	5.00							
- 6 7						Course	nt. O										
- 8																	
- - - - - - - 9																	
-																	
				ime	SELLING			Wate	er Ca	asing	Sealed	Ris	е Г	ime		TRIKE DET	AILS
⊢ror ——	m (m)	To (m)		(h)	Comments			Strik		epth	At	To		min)	No wat	nts er strike	
															NO Wat	ei suike	
												1		(GROUND	WATER DE	TAILS
INS	TALL	ATION DI	ETA	ILS				Dat	te	Hole	Casing		pth to ater	Comm			
	Date -11-09	Tip De	epth	RZ Top 1.00	4.50	Ty 50mi	/pe m SP			Depth	Depth	V	alei				
REI	WARK:	S								D - Sma B - Bulk LB - La	ple Leger all Disturbed (tul Disturbed rge Bulk Disturb	b) ned		Sam	nple	0mm Diameter	
										Env - E	nvironmental Sa	ample (Jar	+ Vial + Tub)	P-l	Undisturbed Pis	sion Sample	

]@	A SEL	SON	IIC CC	RE	RECO	RD			NUMBER	
CO-C	DRDINATES 156,898.15 E 156,568.32 N DUND LEVEL (mOD) 5.46 ENT Bord Gais Networks INEER Mouchel	FLUSH	IAMETER				DRILLHOLE NO SHEET DATE DRILLED DATE LOGGED SAMPLED BY LOGGED BY	25/10 25/10 Ro	et 1 of 1 0/2011 0/2011 oberts Doyle	
Depth (m)	Geotechnical Description		Legend	Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe
1.0	MADE GROUND (loose grey course gravel (MADE GROUND (stiff dark brown sandy slig gravelly CLAY with red and yellow brick)		* * * * * * * * * * * * * * * * * * *	0.20	5.26	0.30-0.50		ENV	0.30-0.50	
2.0	MADE GROUND (concrete) MADE GROUND consisting of stiff brown sa slightly gravelly CLAY MADE GROUND (concrete) Very stiff light brown slightly sandy slightly ground codour) LIMESTONE rock (fractures every 100-200r	avelly recarbons		1.85 2.90 2.50 2.50	3.61 3.46 3.26 2.96	2.00-2.20			2.00-2.20 2.50-2.80	
4.0										
5.0	Final Depth 5.00m			5.00	0.46					
Gene	eral Remarks		1		I					
	ALLATION DETAILS									
D	Date Tip Depth RZ Top RZ Base 1	уре								

ſ												REPORT	NUMBER	
	ال ال	BSL				SON	IIC CC	RE	RECO	RD		1	6033	
	CON	TRACT	Limerick Gas	sworks							DRILLHOLE N			
		ORDINATES	156	893.58 E 564.60 N 5.5	ı	RIG TYPI HOLE DI		R (mm)			SHEET DATE DRILLED DATE LOGGED	25/10	ot 1 of 1 0/2011 0/2011	
	CLIE	NT	Bord Gais N	etworks		FLUSH N		ED (m)	m)		SAMPLED BY		berts	
ŀ	ENGI	NEER	Mouchel			CASING	DIAMET				LOGGED BY	G.	Doyle	
	Depth (m)		Geotec	hnical De	scription		Legend	Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe Details
-	0.0	Very stiff of sweet odd	dark brown g our)	ey grave	lly sandy (CLAY (damp				0.00-0.40		ENV	0.00-0.40	
		MADE GF	ROUND (con	crete)				0.40	5.16	0.00-0.40				
	1.0		ht grey clayey		ND	/		0.99 1.00	4.57 4.56					
	2.0	MADE G	ROUND (con	crete)		a ins		oses of poses	id id	etuse.				
	3.0	Highly we odour, vis	athered fract able sheen, c	ured ROC	CK (strong luct)	hydgocarbon Con		3.00	2.56					
		ROCK (fra	actures 100m	ım apart)				3.50	2.06					
	4.0													
L.GDI 11/11/	5.0	Final Dep	th 5.00m					5.00	0.56					
IGSL SONIC WITH SAMPLES 16033.GPJ IGSL.GDT 11/11/11	Gene	eral Remar	ks				1	I	1	1				I
AMPLE		ALLATION		I 5		_								
N H H	D	ate Tip	Depth RZ To	op RZB	ase	Type								
IGSL SONIC /														

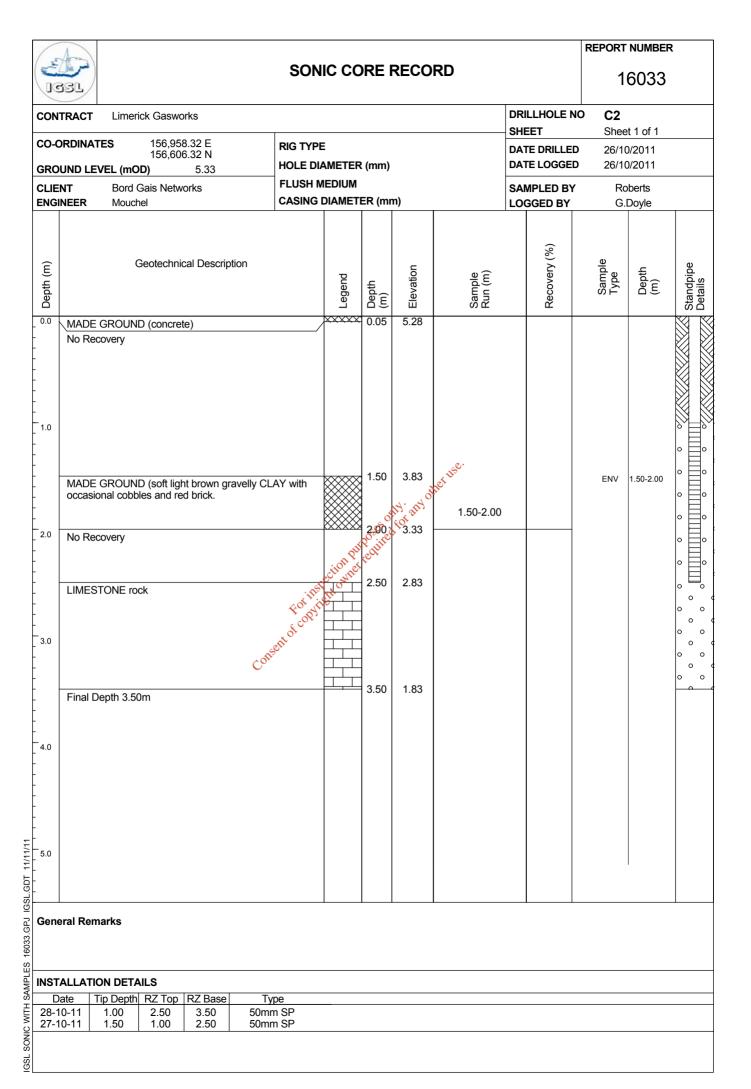
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IGSL

00	GSL			GE	OTECHNIC	JAI	LBUR	ING	RECC	טאט				14463	
СО	NTRAC	T Lim	erick Ga	sworks								BOREH SHEET	OLE NO	D. B11 Sheet 1 of 1	
	-ORDIN	IATES LEVEL (m	156	,883.91 E ,560.06 N 4.75	RIG T		E LE DIAMI	ETER (ı	mm)	140		DATE D	RILLED	10/11/2009	
CLI	IENT GINEER	Bor	d Gais				LE DEPT DEPTH (n			0.95 2.20		BORED	BY SSED E	Boart Longy S. Letch	ear
LIV	GINLLIN	ı ıvıoc	JULIEI		CASI		DEF III (II	''	<u> </u>	2.20		ples	JOLD L	3. Letti	
<u>E</u>								5	Ē		1	1,000			be
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	MADE	E GROUN	ND: Tarr	macadam				4.60	0.15						
-	MADE clay w	E GROUN vith freque	ND: Firm ent redb	n black sandy rick, concrete	slightly gravelly and steel. NEC	С.									
- - 1	MADE	E GROUN	ND: Firm	n brown sandy dbrick. NEC.	y slightly gravell	y 🏻	******	3.95 3.80	0.80	_					
•		of Borehol				-/		3.00	0.95						
-															
-															
2															
-															
3										ve.					
									ather						
					God Consent of Cons			99.	MY						
- - - 4								es of for							
							1170	iiied							
-							ON PUTE	×							
- - - 5						رور	ticyper								
5						11:0	it o								
Ē					For	Shire									
Ē					de	,									
6					sent										
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7															
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<u> </u>															
- 8															
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Ė															
9															
Ē															
H/	ARD ST	RATA BC		HISELLING			100			0				 VATER STRIKE DET	AILS
Froi	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Rise To		Time min)	Comments	
			. /											No water strike	
													0	ROUNDWATER DE	TAILS
INS	STALLA	TION DE					Dat	e	Hole Depth	Casing Depth		oth to ater	Comme	ents	
	Date	Tip Dep	oth RZT	op RZ Base	Туре				_ p= =						
RE	MARKS	Hand d	ug pit 0.	00-0.95m. P	t dry and stable	e. Lo	cation mo	oved	Samp	le Leger	nd				
INS		due to (gas pipe	0.95m blg.					B - Bulk I LB - Larg	e Bulk Disturb	ed		Sam	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	
									Env - En	vironmental Sa	mple (Jar +	· Vial + Tub)	r-L		

Color of the same
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00	BSL			OL.	O I LOI II VIC	<i>'</i> /\L	DOI		\LUU					14463	
	NTRAC		rick Gasv		Т							BOREH(OLE NO	D. B11A Sheet 1 of 1	
CO	-ORDIN	IATES		84.96 E 61.79 N	RIG T					Sonic		DATE D			
GR	OUND	LEVEL (m		4.77			E DIAMI			140		DATE L	OGGED	17/11/2009	
	ENT		Gais				E DEPT			2.20		BORED		Boart Longy	
ENG	GINEEF	R Moud	chel		CASII	NG DI	EPTH (n	n)		1.20		PROCES	SSED E	G. Thornton	
Ē								Ē	Ξ			ples	>		be
Depth (m)			Des	scription			end	Elevation	Depth (m)	Ref. Number	nple	£	over	Field Test Results	idbr sils
<u> </u>							Legend	Ele	Dep	Ref	Sample Type	Depth (m)	Recovery	1.555	Standpipe Details
0	MAD	E GROUN	D: Tarma	acadam				4.67	0.10				<u> </u>		
		E GROUN				-/ X		4.62	0.15	1	ENV	0.40-0.5	5		
	MAD	E GROUN sional cobb	D: Very s les and v	stiff brown gi vire. NEC.	ravelly clay with			4.42 4.37	0.35	1					
1	MAD				wn gravelly clay	-/ &	>>>>	4.22	0.40	_					
	NEC.	E ODOLINI	D. Hand	-1		_ &		3.57	1.20	1					
	degra	e GROUN	c or black	ciayey biack k ash cinder	gravel (possible s). Possible			3.27	1.50						
	conta	mination.			,	川 Þ									
2				rown clay. I		IJþ		2.57	2.20	_					
		STONE. C		ved by drille	er	/			1						
		of Borehole		m		-/									
3										e.					
					Gonsent of conf				her						
								٠4.	24 off						
								20111,	Mr.						
4							çõ	S. Sol							
							Dilly								
						, is	oneite								
5						SPL	22/1								
					rot?	Tielle									
					, COS										
6					ator										
۱					* Meet										
					C										
7															
8															
9															
НΔ	ARD ST	RATA BOR	RING/CHI	SELLING										 VATER STRIKE DE1	ΓΔΙΙ S
		To (m)	Time	Comments			Wate			Sealed	Rise	- 1	ïme	Comments	ALO
	()		(h)				Strike	e De	epth	At	То	(r	min)		
														No water strike	
													G	GROUNDWATER DE	TAILS
NS	TALLA	TION DET	AILS				Date	е	Hole	Casing	Dej	oth to ater	Comme	ents	
	Date	Tip Dept	h RZ Top	RZ Base	Туре				Depth	Depth	V V	aidi			
ξΕι	MARKO	Hand du	a nit 0 00]_1 20m Pi	t dry and stable.				Samo	 le Leger	nd nd				
ات		, manu uu	9 pit 0.00	v 1.∠UIII. FI	i ary ana siable.				D - Small	Disturbed (tub	2)			Jndisturbed 100mm Diameter	
									LB - Larg	Disturbed e Bulk Disturb vironmental Sa	ed mple (Jar +	· Vial + Tub)	Sam P - U	ple Indisturbed Piston Sample	

	1											REPORT	NUMBER	
OG OG	SSL					SON	IIC CC	RE I	RECO	RD		1	6033	
CON	TRAC	Γ Limer	rick Gaswo	orks							DRILLHOLE NO		et 1 of 1	
	ORDIN	ATES .EVEL (mC	156,969 156,612	5.22 E 2.05 N 5.37		RIG TYPI		R (mm)			DATE DRILLED DATE LOGGED	26/10	0/2011	
CLIE			Gais Netw			FLUSH N		ER (mr	m)		SAMPLED BY LOGGED BY		berts Doyle	
Depth (m)				cal Descrip	otion		Legend	Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe Details
0.0 - - - - -	Dens	E GROUN se grey ang um dense	jular COBE	BLES				ł.	5.34 5.17	0.20-1.00		ENV	0.20-1.00	
1.0	No F	ecovery					0 0	1.00	4.37					
2.0					ydrocarbon	For ins	ction pu	2.80	2.57 2.37	2.80-3.00			2.80-3.00 3.00-3.50	
3.0		grey slightly le veins of		CLAY (hyd	rocarbon o	dour,		3.50	1.87	3.00-3.50		ENV	3.00-3.30	
5.0	Final	Depth 4.7	0m					4.70	0.67					
Gene		emarks									,			1
INST	ALLA ate	Tip Depth	AILS RZ Top	RZ Base	Тур	е								
Gene														



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REPORT NUMBER

00	BSL	/		-	0.120.										14463	
СО	NTRAC	T Lime	erick Gas	sworks								BOREH		Ο.	C03	
СО	-ORDIN	ATES		954.37 E		RIG TYPI	E			Sonic	 	SHEET DATE [n	Sheet 1 of 1 11/11/2009	
GR	OUND L	.EVEL (m		602.09 N 4.20		BOREHO	LE DIAM	ETER (mm)	140		DATE L			13/11/2009	
CLI	IENT	Boro	l Gais			BOREHO	LE DEPT	H (m)		4.00		BORED	BY		Boart Longye	ear
EN	GINEER	Mou	chel			CASING	DEPTH (n	n)		4.00		PROCE	SSED	BY	D. O'Shea	
Œ								<u></u>	E E			nples	>	<u></u>		be
Depth (m)			De	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth	Recovery		Field Test Results	Standpipe Details
0 1 1 2 3 9	LIMESTONE. NEC. Gravel layer 3.00-3.30m. End of Borehole at 4.00 m Consent of contract o							2.70	1.50 Left of the 4.00	17 ₈₀ .	ENV	0.00-0.8				
	NDD STI	DATA BOI	בואכירם	ISELLING										MATE	R STRIKE DETA	AII C
		To (m)	Time	Comments			Wate		asing	Sealed	Ris To		Time		ments	HILƏ
		. ,	(11)				SUIK	e D	epth	At	10		min)		water strike	
_									Hole	Casino	י ר	nth to			INDWATER DE	TAILS
INS	TALLA Date	TION DET		p RZ Base	Тур	е	Dat	e	Depth	Casing Depth		pth to ater	Comm	nents		
REI	MARKS								Sam	ple Leger	nd					
INS									D - Sma B - Bull LB - La	all Disturbed (tul Disturbed rge Bulk Disturb nvironmental Sa	b) ed	+ Vial + Tub)	Sar	mple	ned 100mm Diameter ned Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	GSL	/		-	0.20	07 (14463	
СО	NTRAC	T Lime	rick Gas	works								BOREH SHEET	OLE NO	D. C04 Sheet 1 of 1	
	ORDIN	ATES LEVEL (m	156,5	944.63 E 97.99 N 7.10		TYPE	E DIAM	ETER (r		Sonic 140		DATE D		12/11/2009	
CLI	IENT GINEER	Bord	Gais	7.10	BOR	REHOL	E DEPT	H (m)		4.00 4.00	f	BORED PROCES	BY	Boart Longy	/ear
												nples		1 2.00.00	
Depth (m)			Des	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
1	gravel MADE clay w HC. Firm b	with occa GROUNI with occasion	sional co D: Soft donal cobb y CLAY.	obbles. NEO ark brown soles and rec	andy gravelly I brick. Possibl C.	le Z	0-1-0	6.80 6.30 6.20	0.30 0.80 0.90	1 2	ENV	0.30-0.86			
2	Loose NEC. Soft g	brown/grerey/brown	ey clayey		NEC. ular GRAVEL. Y with occasion	/ <u> </u>	<u>a s a s</u>	5.60 5.40 5.10	1.50 1.70 2.00	3	ENV	1.70-2.0	0		
3		es. NEC. STONE. N	IEC.			/			any other	De.					
- - - - - - - - - - -	End o	f Borehole	e at 4.00 i	m			nt Po	rited of	4.00						
5					Consent of Co	insport	ton Pres tex								
6					Consent of C										
- 7 - - - - - - - -															
- 8 - - - - - - -															
9															
H/	ARD ST	RATA BOF		SELLING			Wate	vr C-	neina	Sealed	Rise	<u> </u>		VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Strike		asing epth	At	To		ime min)	Comments	
														No water strike	
													C	GROUNDWATER DI	ETAILS
	STALLA Date	Tion DET		RZ Base	Туре		Dat	е	Hole Depth	Casing Depth	I De W	pth to ater	Comme	ents	
RE	MARKS								D - Smal B - Bulk	DIE Leger I Disturbed (tub Disturbed	p)		Sam	Undisturbed 100mm Diameter	
									Env - En	ge Bulk Disturb vironmental Sa	ed mple (Jar +	+ Vial + Tub)	P - L	Jndisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

ha	381	/													14403	
CO	NTRAC	T Lir	nerio	ck Gasw	orks								BOREH	OLE N		
CO.	-ORDII	NATES		156,93	35.48 E	RIG TY	PF				Sonic		SHEET	D	Sheet 1 of	
GR	OUND	LEVEL (m A	156,58 OD)	39.26 N 7.37		· – IOLE DIAI	METER	R (mr		140		DATE D DATE LO			
CLI	ENT	Вс	ord G	Sais		BORE	OLE DEP	TH (m	1)	4	1.50		BORED	BY	Boart Long	ıyear
ENC	GINEEF	R Mo	ouche	el		CASIN	G DEPTH	(m)		4	1.50		PROCES	SSED E	BY G. Thornto	n
(E)									ڃ	Ξ.			nples			be
Depth (m)				Des	cription		Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
٥							Le		ı≝		άź	s -	85	Š.		Sta
	MAD	rete with E GROU	IND:	Stiff lig	ht brown s	andy gravelly clay		7.2	22	0.15	1	ENV	0.15-0.6	5		
	with v	vood at (0.80r	m. NEČ).											
- - 1	MAD	E GROU	IND:	Soft bla	ack gravell	y clay, very		6.3	37	1.00	2	ENV	1.00-1.50	0		
	impa	cted with	oil.		_			<u> </u>	_	4.50						
	MAD		IND:	Loose	sandy grav	el. Slight HC		5.8	37	1.50						
2								Š			3	ENV	2.00-2.50	0		
-	LIME	STONE.	NE	C.				¥ _ 4.8	37	2.50						
-											<i>Q</i> .*					
3										weit?	350					
								\exists	4. K	ny other						
4								oses of	for	,						
						Consent of copy	THE STATE OF THE S	dite								
	End	of Boreho	ole a	ıt 4.50 m	1		tion Vi	2.8	37	4.50						
5						·10°	S On,									
Εl						For	S.									
						x of co.										
6						Onseite										
-						C										
7																
Ė																
8																
9																
шл	יס חם	DATA R	OPI	NG/CHIS	SELLING										NATER STRIKE DE	TAII C
		To (m)	Ti	me C	omments		Wa		Casi		Sealed	Rise		ime	Comments	IAILS
l		. ,	(h)			Stri	ке	Dep	otri	At	To	1) (1	nin)		
															No water strike	
																ETAU O
INS	TAI I 4	TION DE	ΕΤΔΙ	LS			D	ate	_	lole	Casing	De	oth to ater	Comm	GROUNDWATER D	I AILS
	Date				RZ Base	Туре			D	epth	Depth	W	ater	JO:11111		
INS																
REI	MARK	5			1		I		1	Samp D - Small	le Leger Disturbed (tub	nd			Lindisturbed 400 St.	
REI										B - Bulk D LB - Large	bisturbed e Bulk Disturbe ironmental Sa	ed	· Vial + Tub)	San	Undisturbed 100mm Diameter mple Undisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/												14463	
CO	NTRAC	T Lime	erick Ga	sworks								BOREHO SHEET	OLE NO	D. C06 Sheet 1 of 2	1
	-ORDIN OUND I	IATES LEVEL (m	156	,927.21 E ,582.82 N 5.85		RIG TYP	E OLE DIAM	ETER (Sonic 140		DATE DI		16/11/2009	
CLI	ENT GINEER	Boro	d Gais	0.00		BOREHO	OLE DEPT DEPTH (r	'H (m)		3.50 3.50		BORED	BY	Boart Longy	year
							<u> </u>	, 				nples			
Depth (m)			De	escription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	Concr		D. 1	- Palet Issues				5.65	0.20						
:		= GROUN I. NEC.	D: L009	se light browr	n, very clay	⁄ey		0.00	0.20						
:	MADE	GROUN	D: Stiff	dark brown/l	ight brown,	, sandy		5.15	0.70	1	ENV	0.70-0.90			
. 1 -				ick. NEC. se very claye	v gravel wi	/ th		4.95	0.90	2	ENV	1.00-1.50)		
	occas	ional cobl	oles and	red brick. N	IEC.			4.35	1.50	3	ENV	1.50-3.00	,		
:				black/red ve cm recovere		clay.		4.55	1.50						
2			(=-		,										
3				se black very				2.85	3.00	e· 4	ENV	3.00-6.00)		
	with o		cobbles	s. HC-free pr	nase oil. 0	.50m			ather						
	16000	ereu.						33.	my or						
4								esolito							
								ited							
								×							
: - - 5						S									
						insk									
						to by									
:					***	For inst				5	ENV	6.00-6.50			
. 6	MADE	E GROUN	D: Very	soft black cl	ay. HC.en			-0.15	6.00		LINV	0.00-0.30	'		
	LIMES	STONE. S	Slight H	C sheen, pos				-0.65	6.50						
		mination f													
7															
]							
:															
8]							
									2.50						
:	End o	of Borehole	e at 8.50) m				-2.65	8.50						
- - 9															
:															
-															
шл	PD ST	PATA RO	DING/C	HISELLING			1						١٨	VATER STRIKE DE	TAILS
		To (m)	Time	Comments			Wate			Sealed	Ris		me	Comments	IAILS
	- ()	()	(h)				Strik	e D	epth	At	То) (n	nin)		
														No water strike	
														2001 NBW 277 -	ETA!! O
	TA: : ::	TION	· A II . C						Hole	Casing	I De	pth to		ROUNDWATER DI	EIAILS
		TION DET		n D7 D	- -		Dat	e	Depth	Depth	, jů	pth to ater	Comme	ents	
	Date	TIP Dept	ın KZ 10	op RZ Base	Тур	e									
DC:	MARKS	<u> </u>							Com-	lo Logar					
KE	VIAKKS	•							D - Small	le Leger Disturbed (tub Disturbed	0)			Indisturbed 100mm Diameter	
									LB - Larg Env - Env	Disturbed e Bulk Disturb vironmental Sa	ed mple (Jar +	+ Vial + Tub)	Samp P - U	ple Indisturbed Piston Sample	

100	BSL	/												14403)
CO	NTRAC	T Lim	nerick Ga	asworks								BOREHO	OLE NO	D. C07	
	-ORDIN	ATEQ	156	5,922.26 E		DIO T/DI	_					SHEET		Sheet 1 of	1
		LEVEL (n	156	5,577.97 N 5.55		RIG TYPE		FTFR (1		Sonic 140		DATE D			
		•		5.55		BOREHO		•	•	3.50	-				
	ENT GINEER		rd Gais uchel			CASING		` ,		3.50		BORED PROCES		Boart Long G. Thornto	
												nples			
Depth (m)			г	escription			p	.i.	Depth (m)	e	<u>e</u>	_	ery	Field Test	Standpipe Details
eptr			L	escription			Legend	Elevation	epth	Ref. Number	Sample Type	Depth (m)	Recovery	Results	and
0							~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	□		٣z	S F	ے ا	<u>~</u>		200
١	Concr		ND: Loc	se light brow	n verv clav	ev ev		5.35	0.20						
		I. NEC.		g	., , ,	-,				1	ENV	0.50-1.00)		
1															
				t black, grave	elly clay with	ı red		4.45	1.10						
		HC 1.20		y soft black,	verv gravelly	v clav		4.05	1.50	2	ENV	1.50-2.00			
	with o	ccasiona	al cobble	s. Tar from1	.5m. HC	,,	$\times\!\!\times\!\!\times$								
2	∠.00-2	2.70m.								3	ENV	2.00-2.50	'		
							$\times\!\!\times\!\!\times$								
	MADE	GROUI	ND: Loc	se grey claye	ey gravelly s	sand		2.85	2.70	1					
3	<u> </u>			oulder). NEC dium dense,		clavev		2.55	3.00	\$€· 4	ENV	3.00-3.50)		
	grave	I. HC im	pact - fre	ee phase oil.	, roiy (XXXX		3.00						
								ally.	KIN						
4								es 9 to		5	ENV	4.00-4.50)		
						k		diffe		6	ENV	4.50-6.00	,		
												1.00 0.00			
5						, Sege									
						For insta									
						Folls,									
3	MADE	E GROUI	ND: No	recovery.	all	0,		-0.45	6.00						
					Consent										
				C sheen, pos	ssible	-		-0.95	6.50						
,	Contai	mination	iioiii uii	illig.											
						-									
								-							
,								-							
	End o	f Boreho	le at 8.5	0 m				-2.95	8.50						
,															
	DD 65	DATA	DIVIC :-											WATER 2==::====	
		To (m)	Time	Comments			Wate	- 1		Sealed	Ris		ime	VATER STRIKE DE Comments	TAILS
	11 (111)	10 (111)	(h)	Comments			Strik	e D	epth	At	То	(n	nin)		
														No water strike	
									Hela	C==!=	. -	- 41- 1	Ċ	GROUNDWATER D	DETAILS
		TION DE					Dat	e	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
	Date -11-09	Tip Dep	oth RZ 1 7.0	op RZ Base 0 8.50	Typ 50mm										
EI	MARKS			g - Health and over delay du					D - Small	le Leger Disturbed (tub	nd)		,,,	Jndisturbed 100mm Diameter	
				ontaminated	ac to decom	wiiiiialiii	y ny neco	aud e	B - Bulk D LB - Large	Disturbed e Bulk Disturb ironmental Sa	ed	+ Vial + Tub)	Sam		
									LIIV - ENV	" Ountenigi og	יייוףוכ (טמו ז	· viui † (UU)			



REPORT NUMBER

1	P P	/													14400	
	NTRAC		nerick (Gaswor	ks								BOREHO SHEET	OLE NO.	C08 Sheet 1 of 1	
	ORDIN	IATES LEVEL (r	1	56,912. 56,571.) 5			RIG TYP BOREHO	E DLE DIAMI	ETER (r		Sonic 140		DATE D		18/11/2009 18/11/2009	
	IENT GINEER		rd Gais uchel	3				DEPTH (m	` ,		5.00 5.00		BORED PROCES		Boart Longye A. Mahony	ear
Depth (m)				Descrip	otion			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
1 2 3 3 5 5 6 6 7 7	MADE GROUND: Loose pale to dark brown (with depth), silty sandy gravel and occasional cobbles. HC - increasing with depth. Peaty texture at base of run. MADE GROUND: Black silty sandy gravel with occasional cobbles. Heavy HC. MADE GROUND: Black silty cobbly gravel. Heavy HC. MADE GROUND: Black/grey, very clayey gravel with frequent cobbles. Very heavy free phase oil. MADE GROUND: Black slightly silty gravel and cobbles. Free phase oil Limestone GRAVEL and COBBLES. HC. Possible variably weathered rock. LIMESTONE. NEC. Slight HC at top of rock. End of Borehole at 5.00 m							1 0 2	5.28 4.68 4.18 3.18 2.68 2.38 1.18 0.68	3,30	3 4 5 5	ENV ENV ENV	0.40-1.00 1.00-1.50 2.00-2.50 2.50-3.00 3.00-3.30			
Fro	m (m)	TION DE	Time (h)	Con	LLING nments	Тура	e	Wate	e De	sing Septh Hole Depth	Sealed At Casing Depth	Rise To	(n	ime nin)	ATER STRIKE DET Comments No water strike ROUNDWATER DE	
RE	MARKS	<u> </u> ;								D - Small B - Bulk D LB - Large	le Leger Disturbed (tub disturbed e Bulk Disturbe ironmental Sa	o) ed	+ Vial + Tub)	Sample	disturbed 100mm Diameter e disturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/														14463	
СО	NTRAC	T Lin	nerick	Gaswo	orks								BOREH	OLE N	Ю.	C09	
	CO.OPDINATES 156 005 07 E							_					SHEET			Sheet 1 of 1	
	CO-ORDINATES 156,905.07 E 156,565.82 N								Sonic		DATE DRILLED DATE LOGGED						
GR	OUND I	LEVEL (r	n AOD	D)	5.96			LE DIAM	•	nm)	140		DATE L	OGGE	:D	17/11/2009	
	CLIENT Bord Gais BOREHO								5.50		BORED BY			Boart Longyear			
ENG	SINEER	. Mo	uchel			CA	SING	DEPTH (n	n) ⊢		5.50		PROCE	SSED	BY	G. Thornton	l
Ē									_	Ε		_	nples				e e
Depth (m)				Desc	ription			pue	Elevation	Depth (m)	l pel	nple e	듩	3	ב א	Field Test Results	lidbi
Dep								Legend	<u> </u>	Dep	Ref. Number	Sample Type	Depth (m)		recovery	results	Standpipe Details
0	MADE	E GROU	ND: S	Stiff bro	wn gravel	ly clay. NEC.		×××××									
	MADE	GROU	ND: L	oose b	lack clave	ev gravel			5.81	0.15	1	ENV	0.25-0.7	5			
					e contami				- O4	0.75							
1	MADE	= GROUI	ND: L	oose b	lack claye	ey gravel. NE	:C.	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	5.21	0.75	'						
	MADE	E GROU	ND: S	Small B	oulder				4.76	1.20	1						
	MADE	GROU	ND: V	ery so	ft very gra	velly clay. H	С		4.46	1.50	2	ENV	1.50-2.0	10			
		ree phas						$\times\!\!\times\!\!\times$									
2	MADE HC.	E GROUI	ND: F	irm bro	own slightl	ly gravelly cla	y.		3.96	2.00	3	ENV	2.00-2.5	0			
	110.							>>>>>									
3	Very s	stiff brow	n CLA	Y with	frequent	cobbles. NE	С.		2.96	3.00	ve. 4	ENV	3.00-3.5	10			
								<u> </u>		athe	5						
									23.	MY							
4									esolitor		1 1 1 E · 4						
								<u>~_</u>	iiied								
								- De Co	×		5	ENV	4.50-5.0	10			
-5	1 18 45	OTONE	0		4-1-1		S		0.06	F 00							
3	LIME	STONE.	Some	e browr	n staining,	possible HC	ं गड़िर् अंग्रेडि	X .	0.96	5.00	'						
	End o	f Boreho	le at 5	5.50 m		Consent of	200 July	<u> </u>	0.46	5.50	,						
_						, d'	00.										
6						U Selli											
						Cor											
7																	
8																	
·																	
9																	
-																	
HΑ	RD ST	RATA BO	DRING	CHISI	ELLING										WA	TER STRIKE DET	AILS
ror	n (m) To (m) Time Comments						Wate Strike		asing epth	Sealed At	Ris To		ime min)	Со	mments		
			(11)					Otrik		СРШ	Λι	10			١.,		
															N	lo water strike	
															GRO	OUNDWATER DE	TAILS
INSTALLATION DETAILS						Dat	e	Hole	Casing	De	pth to ater	Comn	nent	s			
	Date Tip Depth RZ Top RZ Base Type						-+	Depth	Depth		aici						
RF	MARKS	Fnd ho	le at 5	5 50m -	. water rec	uired to drill	throug	h rock bir	nh riek	Sam	 ple Leger	nd					
		of cont				1411 CO LO UIIII	oug	100K, 11K	911 11 3 N	D - Sm B - Bull	all Disturbed (tulk K Disturbed	0)				turbed 100mm Diameter	
										LB - La	rge Bulk Disturb nvironmental Sa	ed Imple (Jar -	+ Vial + Tub)	P	mple - Undist	turbed Piston Sample	

00	BSL				OL.	OILOI	ШОД	L DOI		112	J OI						14463	
СО	NTRAC	T Lir	nerick (Gasworl	ks									BOREH SHEET		NO.	C10 Sheet 1 of 1	
CO-ORDINATES 156,898.43 E 156,559.10 N RIG TYPE														DATE DRILLED		17/11/2009		
GROUND LEVEL (m AOD) 4.89 BOREHO										mm)		40		DATE LOGGED			17/11/2009	
	CLIENT Bord Gais BOREHO ENGINEER Mouchel CASING I								DEPTH (m) 3.20						BY	DV	Boart Longyear	
EN	JINEER	K IVIC	ucriei				CASING	DEPIR (I	 		3	.20		PROCE	SSED	ы	G. Thornton	
(E)									5	5 8		ū				<u></u>	Field Test	Standpipe Details
Depth (m)				Descrip	otion			Legend	Flevation	Depth (m)	<u></u>	Ref. Number	Sample Type	Depth (m)	, }	Recovery	Results	andp stails
								Ē.	ü	ב ב	<u>ځ</u>	άź	ığ <u>←</u>	ے ق	Ċ	Ř		Str
0		E GROU I. NEC.	ND: Lo	oose da	rk brown	very clay	/ey											
	3																	
	Soft t	o firm lilg	ght brov	wn sligh	tly grave	lly CLAY.	NEC.	0	4.14	0.1	75	1	ENV	0.75-1.0	00			
1																		
	Stiff	ırev sliah	ıtly grav	velly Cl	AY with	occasiona	al		3.39	1.5	50	2	ENV	1.50-2.0	00			
	cobbl	es. Loca	al HC s	spots in	clay.	0000010110		<u> </u>										
2																		
								<u> </u>]			3	ENV	2.50-2.9	95			
3		STONE.							1.94	2.9	95	e.						
	End o	of Boreho	ole at 3	3.20 m					1.69	3.2	201							
								tion outpo	EL	3.3 3.13								
4									es 3 fo	50								
								1770	ited									
								On Pitres	8									
5							S	thenie										
5							insk	M.C										
							to Blir											
							Soficial											
6						nseri	X.											
						Corr												
7																		
8																		
.																		
9																		
HA	ARD ST	RATA B			LLING			147.					5.			WA	TER STRIKE DET	AILS
ror	m (m)	To (m)	Time (h)	Con	nments			Wate Strik		asing epth	5	ealed At	Rise To	- 1	Γime min)	Со	mments	
																N	lo water strike	
																'	o mater earne	
										Hole	<u>, </u>	Casing	Da	nth to			OUNDWATER DE	TAILS
INSTALLATION DETAILS						Dat	e	Dept		Depth	W	oth to ater	Comr	nent	S			
	Date	Tip De	ptn RZ	Z Top R	k∠ Base	Тур	pe											
RFI	MARKS	End ho	ole at 3	3.20m - v	vater rec	uired to o	drill throug	h rock, hi	ah risk	Sa	ample	e Leaen	nd					
				tion spre		, 50 10 0		,	J	D - 1	Small E Bulk Dis	e Legen Disturbed (tub sturbed Bulk Disturbe)) 			- Undistample	sturbed 100mm Diameter	
										LB - Env	- Large - Envir	Bulk Disturbe onmental Sa	ea mple (Jar +	· Vial + Tub)	D	- Undist	turbed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	681	-/		0_									14463	
СО	NTRA	CT Lin	merick Ga	asworks							BOREHO SHEET	OLE NO	. C11 Sheet 1 of 1	1
		NATES	156	6,896.62 E 6,555.51 N	RIG TY		ETED (>	Sonic		DATE D		23/11/2009	
	OUND	Bo	m AOD) ord Gais	4.36		IOLE DIAM		mm)	140 3.00		BORED	BY	Boart Longy	year
EN	GINEE	R Mo	ouchel		CASING	G DEPTH (r	n)		3.00		PROCES	SSED B	Y G. Thornton	1
<u></u>							_	. =		_	nples			ų e
Depth (m)			C	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0 -	TAR		ND: Stiff	f dark grey gra	ivel. NEC.		4.26 4.16	0.10	// 1	ENV	0.25-0.70)		
		E GROU			wn gravelly clay.		4.11 3.66	0.25						
- - - 1			ND: Ver	y stiff dark bro	wn gravelly clay.		3.36	1.00						
:	₩ —	ible HC.	ND: Har	d black grave	(nossible		3.16	1.20						
:	\\tarm	ac). NEC	;		(possible		2.86	1.50	2	ENV	1.50-2.00)		
- - - 2				AY. NEC.	۸ \				3	ENV	2.00-2.50			
		les. HC i		hlack	AY with frequent		7							
				gravelly CLA	Y. HC odour.		1.86	2.50						
- - - 3		STONE.		0			1 26	2.00	e.					
- "	Ena	of Boreho	ole at 3.0	u m			1.30	3.00	5192					
							.41.	24 Oth						
- - - 4					Y. HC odour.		COUNTY	Mir.						
- 4 - -						, OC	itedit							
						an Plint	70.							
-						ection net								
- 5 -					, ithe	STO								
					Forty	X 0								
					y of cost									
- 6					n sent									
_					Cor									
-														
7														
Ē I														
8														
_														
-														
9														
Ē														
Ē														
: 	ARD S	ΓΡΔΤΔ Β	ORING/C	HISELLING								w	ATER STRIKE DE	TAII S
	m (m)	To (m)	Time	Comments		Wate		asing	Sealed	Ris		ime (Comments	IAILO
		- ()	(h)			Strik 0.25		epth NR	At NS	To NF		nin) ` NR	Seepage	
													3.	
														ETAII 6
INIC	TALL	ATION DE	P IIAT		Da	te	Hole			Donth to		ROUNDWATER DI	LIAILO	
	Date	Tip De	pth RZ T	op RZ Base	Туре	Da		Depth	Depth	W	ater	Comme	1110	
23	-11-09	2.50	1.0	0 2.50	50mm SP									
RE	MARK	S Hand o	dug pit 0.	00-1.20m. W	ater seeping in at End hole at 3.00m	0.25m, wat	ter has	D - Sma	ple Leger	nd o)		U - He	ndisturbed 100mm Diameter	
INS 23 RE		to drill	through	rock, high risk	of contamination	spread	-, u u	LB - La	Disturbed rge Bulk Disturb nvironmental Sa	ed imple (Jar -	+ Vial + Tub)	Samp		

E P
IGSL

REPORT NUMBER

0	GSL	/		<u> </u>	0.20	.								14463	
СО	NTRAC	T Lim	erick Ga	sworks								BOREHO	DLE NO.		
CO	-ORDIN	IATES	156	,893.36 E	PIG	TYPI	=			Sonic		SHEET		Sheet 1 of 1	
		LEVEL (n	156	,548.99 N 4.53			LE DIAME	ETER (r		140		DATE DI		18/11/2009 18/11/2009	
	IENT		d Gais				LE DEPTI	•	•	2.50	-	BORED		Boart Longye	ear
1	GINEER		ıchel		CAS	SING	DEPTH (m	n)		2.50		PROCES			
<u></u>								_	<u> </u>		_	nples			Φ
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	TARN	ЛАС													
E		CRETE	ID. D. d	#				4.23 3.98	0.30	1	ENV	0.55-1.00	,		
				soπ gravelly on other side	clay on one sid	зе		3.90	0.55			0.00 1.00			
E 1	MADI		ID: Mot	aabblaa IIC	`ahaan an wat			3.33	1.20						
Ē				CLAY. HC oc	sheen on wate	er	<u> </u>	3.03	1.50	2	ENV	1.50-2.00	,		
Ē	Very	suii giey	gravery C	JLAT. 110 00	ioui.			0.00	1.00						
2		•		CLAY. HC -				2.53	2.00	3	ENV	2.00-2.30)		
	LIME	STONE v	ith local	clay bands.				2.23 2.03	2.30						
	_ -	of Boreho	e at 2.50) m	Consent of Co	/		2.00	2.50						
- 3										ne.					
									other						
-								only.	KITE						
4							-0	es dio							
							DITP	dille							
Ė							tion reite								
5						11150	ot own								
E					For	Site									
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6					asente										
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- 8															
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9															
Ė															
H/	ARD ST	RATA BO	RING/CI	HISELLING		ı							W	ATER STRIKE DET	AILS
Fro	m (m)	To (m)	Time (h)	Comments			Wate Strike		sing :	Sealed At	Ris To		ime nin)	Comments	
							1.00		NR	NS	NR		NR	Rapid	
														DOLING:44.	TA !! C
12:0	TALLA	TION SE	TAUC				Date		Hole	Casing	I De	oth to		ROUNDWATER DE	TAILS
	NSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							e	Depth	Depth	W	oth to ater	Comme	nts	
	1,70														
RF	MARKS	Hand d	ua pit 0 ()-1.2m					Samr	le Leger	nd				
INS	11 11 10	idila u	-9 pit 0.0				Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed						U - Undisturbed 100mm Diameter Sample		
									LB - Larg	e Bulk Disturb	ed mple (Jar -	U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample			

ICSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL	/												14	463	
COI	NTRAC	T Lime	rick Gasv	works								BOREH	OLE NO		et 1 of 1	
	-ORDIN OUND L	ATES .EVEL (m /	156,6	67.83 E 03.03 N 7.06		RIG TYPI	E DLE DIAM	ETER (mm)	Sonic 140		DATE D		23/1	1/2009 1/2009	
CLI	ENT SINEER	Bord Mouc	Gais		E	BOREHO	DEPTH (r	'H (m)	,	7.50 7.50		BORED PROCE	BY	Boar	t Longye ahony	ear
								ĺ			San	nples				
Depth (m)			Des	scription			Legend	Flevetion	Depth (m)	Ref. Number		1		Field T Resul		Standpipe Details
2	gravel NEC. MADE gravel hairs.	Iy silt/clay GROUNE Iy clay with NEC. GROUNE with occasi	with occa D: Soft, b n occasion D: Loose onal cob	asional cob rown/grey r nnal cobbles , brown clay bles. NEC		hairs. Idy & root		4.06	3.000 3.000 4.000 4.000	3	ENV ENV ENV	1.00-1.5 2.50-3.0 3.50-4.0 4.00-4.5	0			
- 5	sandy gravelly silt. HC MADE GROUND: Loose black very clayey sandy cobbly gravel. Strong HC.							2.56	4.50	6	ENV	5.00-5.5				
- 6 - 7	LIMES	STONE. H	C.		Consent	groop,		1.56	5.50							
8	End o	f Borehole	at 7.50 r	m				-0.44	7.50							<u>A</u> □ A
НА	RD ST	RATA BOR	ING/CHI	SELLING									V	VATER STRI	KE DET	AILS
Fron	m (m)	Го (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		ime min)	Comments		
									•	-			,	No water s	trike	
														ROUNDWA	TER DE	TAILS
INS	TALLA	TION DETA	AILS				Dat	e l	Hole	Casing	g De	pth to ater	Comme			
I	Date Tip Depth RZ Top RZ Base Type 23-11-09 5.50 1.00 5.50 50mm SP								Depth	Depth	ı VV	aler				
REM	WARKS							D - Sm B - Bul LB - La	nple Legel all Disturbed (tu k Disturbed irge Bulk Disturt invironmental Si	b) ped	+ Vial + Tub)	Sam	Indisturbed 100mm I ple Indisturbed Piston Sa			

5	And											REPORT	NUMBER	
J.C	SSL/					SON	NIC CC)RE	RECO	RD		1	6033	
CON	TRACT	Lime	rick Gaswo	orks							DRILLHOLE NO		et 1 of 1	
	RDINA	TES EVEL (m	156,59	62.34 E 19.57 N 5.44		RIG TYP	PE IAMETER	R (mm)			DATE DRILLED DATE LOGGED	26/10	0/2011	
CLIE	NT		Gais Netw			FLUSH					SAMPLED BY	Ro	berts	
NGI	NEER	Moud	chel			CASING	DIAMET	ER (mi	n)		LOGGED BY	G.	Doyle	
Depth (m)			Geotechni	ical Descrip	otion		Legend	Depth (m)	Elevation	Sample Run (m)	Recovery (%)	Sample Type	Depth (m)	Standpipe
0.0			ND (concre		slightly grav	/ellv	XXXX	0.05	5.39					
	CLAY	with red	brick)(Slig	ht hydroca	slightly grav rbon Odou	r)						ENV	0.50-1.00	
								1.00	4.44	0.50-1.00		END/	4 00 4 50	
1.0	MADE some	E GROUN red brick	ND (soft lig)(Slight hyd	ht brown g drocarbon	ravelly CL/ odour)	AY with		1.00	4.44	1.00-1.50		ENV	1.00-1.50	
	Loose	black ve	ry clayey C	GRAVEL w	ith occasio	nal	\$ ° Q	1.50	3.94	net use.				
	hydro	ar cobble: carbon oc	s. (Visable dour)	sheen and	strong			. 6	ld. and o					
2.0								20tites	, te			ENV	2.00-2.50	
	LIMES	STONE re	ock (300m	m core len	ghts with s	sheen.		2.40	3.04	2.00-2.50				
	IVIOST	likely con	tamination	from 1.5 to		Foring								
3.0					ړو	For copy		-						
					Coll									
	Final	Depth 3.5	50m					3.50	1.94					
4.0														
5.0														
Gene	eral Re	marke												
J 6116	iai ite	ma Ko												
		ION DET		ID2.5										
Di	ate	i ip Depth	n RZ Top	RZ Base	Тур	pe								
			1		1									

GEOTECHNICAL BORING RECORD

REPORT NUMBER

BSL	/												14463	
NTRAC	T Lime	rick Gas	works									OLE NO		
		156,5	593.85 N				ETER (mm)	Sonic 140		DATE D		11/11/2009	'
ENT	Bord	Gais							6.00 6.00				Boart Longy A. Mahony	ear ear
										San	nples			
		De	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
mottle	ed, very cla	iyey sand	dy gravel wit	je/brown/bla th local red	ack and		5.92	0.40	1 2	ENV				
			orown black	very gravel	lly		4.32	2.00						
cobbl	y gravel (lir						3.82		3	ENV	2.50-3.00	0		
MADI	E GROUNI	D: Grey	black heavil	ly clay smea	ared,		2,62	3.70	4	ENV	3.70-4.00	0		
MADI	E GROUNI				ible		iire	4.00						
varyir	ng lithologie	es and s	lar gravel ar ome fill mate	erial. NEC.	471.6		1.32 0.92							
End o	of Borehole	at 6.00	m	Consent			0.32	6.00						
ARD ST	RATA BOE	RING/CH	ISFLLING										VATER STRIKE DE	ΓΔΙΙ S
		Time	_						Sealed At			ime	Comments	.,
		\/				Suite		5001		10	\(\frac{1}{2}\)	,	No water strike	
												0	ROUNDWATER DE	ETAILS
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							te	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
<u> </u>	THE DEPT	1\2 10												
MARKS	3	1	,	•		'		D - Sma B - Bulk LB - Lai	Ill Disturbed (tub Disturbed	o) ed	+ Vial + Tuh\	Sam		
	MADI COBBI	NTRACT Lime -ORDINATES OUND LEVEL (m ENT Bord GINEER Moud Concrete MADE GROUNI mottled, very cla yellow brick. Lo MADE GROUNI cobbly clay. He. MADE GROUNI cobbly gravel (lii depth. MADE GROUNI boulder. MADE GROUNI varying lithologie LIMESTONE. N End of Borehole STALLATION DETA STALLATION DETA	NTRACT Limerick Gas -ORDINATES 156,5 OUND LEVEL (m AOD) ENT Bord Gais GINEER Mouchel Concrete MADE GROUND: Soft to cobbly clay. Heavy HC. MADE GROUND: Brown cobbly gravel (limestone depth. MADE GROUND: Grey angular limestone gravel MADE GROUND: limes boulder. MADE GROUND: Anguvarying lithologies and stold builder. MADE GROUND: Anguvarying lithologies and stold builder. End of Borehole at 6.00 ARD STRATA BORING/CH (h) To (m) To (m) Time (h) To (m) Time (h)	ORDINATES 156,955.84 E 156,593.85 N OUND LEVEL (m AOD) 6.32 ENT Bord Gais GINEER Mouchel Description Concrete MADE GROUND: Soft to firm orang mottled, very clayey sandy gravel will yellow brick. Local slight HC. MADE GROUND: Brown/black, very cobbly gravel (limestone). HC impart depth. MADE GROUND: Grey black heavil angular limestone gravel and cobble MADE GROUND: limestone. Slight boulder. MADE GROUND: Angular gravel are varying lithologies and some fill mater LIMESTONE. NEC. End of Borehole at 6.00 m ARD STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base	NTRACT Limerick Gasworks -ORDINATES 156,955.84 E 156,593.85 N OUND LEVEL (m AOD) 6.32 IENT Bord Gais GINEER Mouchel Description Concrete MADE GROUND: Soft to firm orange/brown/bimottled, very clayey sandy gravel with local red yellow brick. Local slight HC. MADE GROUND: Brown/black, very clayey, ar cobbly gravel (limestone). HC impact increasin depth. MADE GROUND: Grey black heavily clay smeangular limestone gravel and cobbles. HC. MADE GROUND: Ilmestone. Slight HC. Poss boulder. MADE GROUND: Angular gravel and few cobt varying lithologies and some fill material. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m Concrete ARD STRATA BORING/CHISELLING Imm (m) To (m) Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type	NTRACT Limerick Gasworks -ORDINATES 156,955.84 E 156,593.85 N OUND LEVEL (m AOD) 6.32 ENT Bord Gais GINEER Mouchel Description Concrete MADE GROUND: Soft to firm orange/brown/black mottled, very clayey sandy gravel with local red and yellow brick. Local slight HC. MADE GROUND: Brown/black, very clayey, angular cobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Grey black heavily clay smeared, angular limestone gravel and cobbles. HC. MADE GROUND: Imestone. Slight HC. Possible boulder. MADE GROUND: Angular gravel and few cobbles of the company of the com	NTRACT Limerick Gasworks ORDINATES 156,955.84 E 156,593.85 N OUND LEVEL (m AOD) 6.32 ENT Bord Gais GINEER Mouchel Description Descr	ARD STRATA BORING/CHISELLING MADE GROUND: Soft brown black very clayey, angular cobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Soft brown black very clayey, angular cobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Soft brown black very clayey, angular cobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Brown/black, very clayey, angular cobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Brown/black, very clayey, angular cobbly gravel (limestone). HC. made increasing with depth. MADE GROUND: Angular gravel and few cobbles of warying lithologies and some fill material. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m ARD STRATA BORING/CHISELLING In (m) To (m) Time Comments MADE GROUND End of RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type	ARDE GROUND: Soft brown black very gravelly cobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Grey black heavily clay smeared, angular limestone gravel and cobbles. HC. MADE GROUND: Imestone. Slight HC. Possible MADE GROUND: Magular gravel and few cobbles of varying lithologies and some fill material. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m RIG TYPE BOREHOLE DIAMETER (mm) BOREHOLE DEPTH (m) CASING DEPTH (m) CASING DEPTH (m) CASING DEPTH (m) For gravel and cobbles of the compact of the	ARDE GROUND: Soft brown black very gravelly cobbly clay. Heavy HC. MADE GROUND: Weaver (limestone). HC impact increasing with depth. MADE GROUND: Angular gravel and few cobbles of Name (limestone) and some fill material. NEC. Limerick Gasworks RIG TYPE BOREHOLE DIAMETER (mm) 140 BOREHOLE DEPTH (m) 6.00 CASING DEPTH (m) 6.00 ASSING DEPTH	ANDE GROUND: Soft to firm orange/brown/black motified, very clayey, angular clobbly gravel (limestone). HC impact increasing with depth. MADE GROUND: Gray black heavily clay smeared, angular limestone gravel and cobbles. HC. MADE GROUND: Imestone. Slight HC. Possible bounder. MADE GROUND: Angular gravel and few cobbles of warping lithologies and some fill material. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m ANDE GROUND: Angular gravel and few cobbles of warping lithologies and some fill material. NEC. LIMESTONE. NEC. End of Borehole at 6.00 m Sample Legend 1. Sample Legend 2. Sample Legend 2. Sample Legend 2. Sample Legend 3. Sam	NTRACT Limerick Gasworks ORDINATES 156,955,36 E 156,959,38 N	NTRACT Limerick Gasworks SOREHOLE N. SHEET	SOUR SOUR

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REPORT NUMBER

100	BSL	/			0 0.											14463	
СО	NTRAC	T Lime	rick Gas	works									BOREH SHEET	OLE N	Ο.	D04 Sheet 1 of 1	
	-ORDIN OUND L	ATES .EVEL (m /	156,5	951.05 E 589.55 N 6.37		RIG TYP	E DLE DIAM	ETER ((mm)		onic 40		DATE D			12/11/2009 13/11/2009	
CLI	ENT GINEER	Bord	Gais			BOREHO	DEPTH (r	H (m)			.00		BORED PROCE		BY	Boart Longye D. O'Shea	ear
							,	ĺ					ples				
Depth (m)			De	scription			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	(1)	Field Test Results	Standpipe Details
. 1	gravel	ly sand. N	IEC.	um dense re				4.87		50	1	ENV	1.00-1.5	0			
2	LIME	STONE. N	EC. Gr	avel layer 3.	.00-3.50m												
3	End o	f Borehole	at 4 00	m				odly	5 20 Y	iner i	S.						
5					Consent	For inspire	stion diffe	gine									
7					Cours												
9																	
НА	RD STI	RATA BOR		ISELLING						,	1				WA	TER STRIKE DET	AILS
Fror	m (m)	Го (m)	Time (h)	Comments			Wate Strike		asing Depth	s	ealed At	Rise To		ime min)	Со	mments	
															N	o water strike	
						11-1		Coolin		-41- 4:			DUNDWATER DE	TAILS			
	Date Tip Depth RZ Top RZ Base Type							te	Hole Dept		Casing Depth	De W	oth to ater	Comm	nents	S	
REI	MARKS								D - B - LB	Small Di Bulk Di - Large	e Legen Disturbed (tub sturbed Bulk Disturbe conmental Sal	ed	· Vial + Tub)	Sar	mple	turbed 100mm Diameter turbed Piston Sample	

Color of the color
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REPORT NUMBER

100	BSL	/		<u> </u>						-						14463	
СО	NTRAC [*]	r Lime	rick Gas	sworks									BOREH SHEET		IO.	D05 Sheet 1 of 1	
	-ORDIN	ATES .EVEL (m	156,	940.44 E 581.70 N 6.80		RIG TYP	E DLE DIAM	ETER	(mm)		Sonic 40		DATE D	RILLE		09/11/2009 11/11/2009	
CLI	ENT GINEER		Gais	0.00		BOREHO	DEPTH (r	H (m)	()	5	5.00		BORED	BY		Boart Longye G. Thornton	ear
	JINLLIN	IVIOUC	JI ICI			CASING	DEF III (II	, 			.00		nples	JJLD	<u> </u>	G. Momon	
Depth (m)			De	scription			Legend	i ī	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	1 Second y	Field Test Results	Standpipe Details
1 2 2 3 6 6 7 7	MADE	ete with recommend of GROUNI and sheet	D: Loosin.	m		. HC	· 20 / 10	3.80 5.00 5.00 1.80	3	.00 .00	1	ENV	0.15-3.0				
HΑ	RD STE	RATA BOF	RING/CH	ISELLING							1				WA	TER STRIKE DET	AILS
Fror	m (m)	Го (m)	Time (h)	Comments			Wate Strike		Casing Depth		Sealed At	Rise To		Γime min)	Со	mments	
															N	o water strike	
1															GRO	OUNDWATER DET	TAILS
INS	TALLA	TION DET	AILS				Dat	e	Hol		Casing	De	oth to ater	Comm			
	Date -11-09	Tip Depti 5.00		p RZ Base 3.00	Typ 50mm				Dep	ru I	Depth	VV	aici				
REI	MARKS								D B	- Small [- Bulk Di 3 - Large	e Legen Disturbed (tub isturbed Bulk Disturber ronmental Sal	o) ed	+ Vial + Tub)	Sa	mple	turbed 100mm Diameter turbed Piston Sample	

Color of the same
IGSL

REPORT NUMBER

00	BSL	/			-00.											14463	
СО	NTRAC	T Lim	erick Ga	asworks									BOREH SHEET		NO.	D06 Sheet 1 of 1	
	-ORDIN OUND I	ATES _EVEL (m	156	5,930.11 E 5,573.47 N 5.75		RIG TYP	E DLE DIAM	ETER ((mm)		onic 12		DATE I	DRILL		06/11/2009 06/11/2009	
	ENT GINEER		d Gais				DEPTH (n				.50 .50		BOREI PROCE		D BY	Boart Longye G. Thornton	ear
						•				_		San	nples				4
o Depth (m)			C	escription			Legend	ocito, old	Denth (m)	nebili (III	Ref. Number	Sample Type	Depth	(1111)	Recovery	Field Test Results	Standpipe Details
-1 -2 -3 -4 -5 -6	LIMES		HC she	en to 4.00m.		rial For inspec	iton de la contraction de la c	~~ X	2.t	50							
НА	ARD ST	RATA BO	RING/C	HISELLING											WΔ	TER STRIKE DETA	All S
		To (m)	Time	Comments	·		Wate		asing	S	ealed	Ris		Time		omments	
	()	. • (111)	(h)				Strik	e [Depth		At	To		(min)		No water strike	
															GR	OUNDWATER DE	TAILS
		TION DET	/ 00	Dat	:e	Hole Depti		Casing Depth	De W	pth to ater	Com	ment	ts				
	Date	тір Бер	ui KZ I	Top RZ Base	= Iy	/pe											
REI	MARKS	No reco	very - n	o samples.					D - S B - E LB -	Small E Bulk Di: - Large	e Legen Disturbed (tub sturbed Bulk Disturber conmental Sar) ed	+ Vial + Tub		Sample	sturbed 100mm Diameter sturbed Piston Sample	

100	38L	/												14	1403	
CO	NTRAC	T Lim	erick Ga	sworks								BOREH	OLE NO			
0	-ORDIN	IATES		,924.88 E	RIG .	TYPE				Sonic		SHEET DATE D	DILLE		eet 1 of 1 11/2009	
R	OUND I	LEVEL (m		,570.05 N 6.30	BOR	EHOL	E DIAM	ETER (r	nm) 1	112		DATE L				
	ENT	`	d Gais		BOR	EHOL	E DEPT	H (m)	- 7	7.50		BORED	BY	Boa	art Longye	ear
	GINEER				CAS	ING D	EPTH (n	n)	- 7	7.50		PROCE			Thornton	
ے									<u></u>		San	nples				υ
Deptil (III)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Res		Standpipe Details
)	Conci	rete				A S a										
İ		GROUN NEC.	D: Loo	se, light brow	n clayey gravell	y 🏅		5.50	0.80	1	ENV	1.00-1.5	0			
		E GROUN HC odoui		n black slightly	y sandy gravelly	/		4.60	1.70	2	ENV	1.70-2.0				
	MADE sand.	GROUN NEC. (p	D: Loos	pulverised by	ly clayey gravell sonic drilling).	* /🌣		4.30 4.00	2.00	3 4	ENV	2.30-2.7				
3	odour			grey sandy of gr	gravelly clay. H	c X		3.60	2.70	\$0.						
	WADI	_ GROUN	וט. בוווופ	ะอเบา ษ มับนเนิย	5 1	×			other	5	ENV	3.50-4.0	0			
,	odour	(tarry).			ick sandy gravelly clay. HC			2,50 2,30	3.80	6	ENV	4.00-4.5	0			
	√yellov	E GROUN v, grey, sa STONE.	ndy clay	, multi-layere /. HC odour (d dark brown, possible ash).			1.80	4.50							
5	LIIVIL	STOINE.	VLO.		ž.	गाः वृ	04									
					Consent of co	BALLE										
6					Consente											
7																
′				/EL. HC.				-1.10	7.40	7	ENV	7.40-7.5	0			
8		rey CLAY of Borehol) m		_/		-1.11 -1.20	7.41]						
9																
ΗA	RD ST	RATA BO		HISELLING			Wate	r C-	eina l	Sociod	Ris	· · ·		VATER ST	RIKE DET	AILS
ror	m (m)	To (m)	Time (h)	Comments			Strike		sing S epth	Sealed At	To		ime min)	Comments	3	
														No water	strike	
														GROUNDW	ATER DE	TAILS
NS	TALLA	TION DE	AILS				Dat	е	Hole Depth	Casing Depth		pth to ater	Comm	ents		
Date Tip Depth RZ Top RZ Base Type									<i>c</i>							
REI	MARKS	<u> </u> 							D - Small	le Leger Disturbed (tub	nd o)		11.1	Undisturbed 100mi	m Diameter	
									B - Bulk D LB - Large	isturbed Bulk Disturbe ironmental Sa	ed	+ Vial + Tub)	Sam			

ICSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100		/																14403	
COI	NTRAC	T Lir	meri	ick Gas	sworks										BOREH	OLE N	NO.	D08	
CO-	-ORDIN	IATES		156.	917.11	E		RIG TYP	·F				Sonic	F	SHEET			Sheet 1 of 1	
		LEVEL (m A	156,	563.60 6.2	N			LE DIAM	ETER	(mn		40		DATE D			18/11/2009 18/11/2009	
	ENT			 Gais				BOREHO	OLE DEPT	H (m)		3	.00		BORED	BY		Boart Longye	ear
ENG	SINEER	R Mo	ouch	nel				CASING	DEPTH (r	n)		3	.00		PROCE	SSED	BY	A. Mahony	
<u></u>											_	_		_	nples				Φ
Depth (m)				De	escription	on			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Kecovery	Field Test Results	Standpipe Details
0	MADI	E GROU	JND:	: Soft I	brown	to bla	ck (with de eavy with o	epth)					1	ENV	0.00-0.3	0			
	Saria	, graven	y Cic	. 110	- Sligit	it to ric	cavy with c	асрит.					2	ENV	0.60-1.1	0			
·																			
1	MADI	E GROU	IND	: Soft I	brown,	slight	ly gravelly	clay.		5.12	2	1.10	3	ENV	1.10-1.4	0			
		heavy at E GROU					cobbly gra	ivel.		4.72	2	1.50	4	ENV	1.50-2.0	0			
2	Heav	-	NIF							4.00	,	2.00							
	LIME	STONE.	NE	<u>-</u> C.						4.22	_	2.00							
3	Fad a	of Boreho	-1-	-+ 2 00						3.22	,	3.00	·6.						
	Ena	n boren	oie a	at 3.00	Ш					3.22	_	3.00 x	\$5						
											۸. ا	yotti							
4							Consen			SOLL	Ot 10	, ·							
									170	itied									
									Of Direct	80									
5								O	Cities Inc.										
:								or inst	N. C										
								to day.											
- - - 6							Š	rot											
:							Conser												
7																			
:																			
8																			
-																			
- - 9																			
.																			
-																			
HA	RD ST	RATA B	ORI	NG/CH	IISELL	ING											WΔ	TER STRIKE DETA	All S
		To (m)	Т	imo	Comm				Wate Strik	er (Casi Dep	ng S	Sealed At	Ris To		ime min)		omments	
				(11)					Ottik		Бер	uı	Λι		'	11111)	 	No water strike	
																	'	10 Water Strike	
																	GR	OUNDWATER DE	TAILS
INS	TALLA	TION DE	ETA	ILS					Dat	te		ole	Casing		pth to ater	Comr			
	Date			RZ To	p RZ	Base	Тур	ре			De	epth	Depth	V	alei				
REM	MARKS	Stoppe	ed d	Irilling '	1m into	rock	as driller b	oringing u	ip contami	inants	i.	D - Small	e Leger Disturbed (tub	nd)		11	- Undis	sturbed 100mm Diameter	
												B - Bulk D LB - Large Env - Envi	isturbed Bulk Disturb ronmental Sa	ed mple (Jar -	+ Vial + Tub)	S	ample	sturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	GSL	/		<u> </u>										14463	3
СО	NTRAC	T Lim	erick Ga	asworks								BOREH SHEET	OLE NO	D. D09 Sheet 1 of	
	-ORDIN	ATES LEVEL (m	156	3,910.80 E 3,558.82 N		RIG TYP	E DLE DIAM	ETER (1		Sonic 140		DATE D		17/11/2009	9
CLI	IENT	Bor	d Gais	6.15		BOREHO	DLE DEPT DEPTH (r	H (m)	(6.50		BORED PROCES	BY	Boart Long	gyear
EN	GINEER	IVIOL	ıchel			CASING		ii) 	1	6.50		nples	39ED E	G. Momic)
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0 - - - - - - - 1	MADE NEC.	E GROUN	ND: Stiff	dark brown v	ery grave	lly clay.				1	ENV	0.00-1.50	0		
	MADE (poss	GROUN	ND: Loo ers). HC	se black clay	ey gravel			4.65	1.50	2	ENV	1.50-2.00	0		
- 2 - -	MADE HC oc		ND: Soft	dark grey/bla	ack sandy	clay.		4.15	2.00	3	ENV	2.00-2.50	0		
3	MADE sand. free p	HC - cor	ND: Loo ncentrate	se dark grey ed sheen on	clayey gra water - po	velly ssible		3.45	thei	\$°. 4	ENV	3.00-3.50	0		
- 4 - 4 	MADE (black	E GROUN	ND: Ver	y soft grey/bla	ack sandy	clay		esonly hited for 1.65	4.50	5	ENV	4.50-5.00	0		
5				grey clay. N		COLUMBATION TO THE PARTY OF THE		1.15 0.65	5.00	6	ENV	5.50-6.00	0		
- 6	red br	ick. NEC) .	cept slight sp	ots of HG	, of Ca		0.15	6.00						
	6.00-6	6.10m) f Borehol			Course			-0.36	6.50						
7															
- 8															
9															
H/	ARD ST	RATA BO	RING/C	HISELLING									v	VATER STRIKE DI	ETAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strik		asing S epth	Sealed At	Ris To		ime min)	Comments	
														No water strike	
														GROUNDWATER I	DETAILS
		TION DE		op RZ Base	Tva	ne	Dat	te	Hole Depth	Casing Depth		pth to ater	Comme	ents	
	Date	тір Бер	our KZ I	ob IKZ Base	Туј	µ e									
REI	MARKS	i	·					'	D - Small B - Bulk D LB - Larg	e Bulk Disturb	o) ed	+ Vial + 7	Sam	Jndisturbed 100mm Diameter pple Jndisturbed Piston Sample	
									j £nv - Env	ironmental Sa	mpie (Jar -	+ vial + fub)			

Color of the same
IGSL

REPORT NUMBER

00	BSL			0_	• · - • · · · · ·								14463	
CO	NTRAC	T Lim	erick Ga	asworks							BOREHO SHEET	OLE NO	D. D10 Sheet 1 of 1	
	-ORDIN OUND I	IATES LEVEL (n	156	5,903.63 E 5,552.36 N 6.09	RIG T	YPE HOLE DIAN	METER (Sonic 140		DATE D		17/11/2009	
CLI	ENT GINEER	Bor	d Gais			HOLE DEP IG DEPTH (2.50 2.50		BORED PROCES		Boart Longy G. Thornton	
					'		1			San	nples			
Depth (m)				escription		Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0				CLAY. NEC.		- 	5.99	0.10	1	ENV	0.10-0.50)		
-				clayey GRAVI		0-402	┙	0.50						
	Very	stiff light b	prown C	LAY with man	y cobbles. NEC.	2-0-	5.59	0.50						
1	Stiff li	ght browr	n, slightl	y sandy CLAY	. NEC.	<u> </u>	5.09	1.00						
	Soft b		itly grav	elly CLAY. Po	ssible HC		4.59	1.50	2	ENV	1.50-2.00	0		
2	LIME		ith som	e black clay -			4.09	2.00						
	End c	f Borehol	e at 2.5	0 m	Consent of cons		3.59	2.50						
3								ther	13°C.					
							only.	My ot						
4							262 J. Co.							
						OUTP	diff							
						ion Pri	מאל							
- 5						De Chille								
					or in	ight								
					FO S									
					i of co									
6					aseni									
					Corr									
7														
8														
9														
HA	ARD ST	RATA BO	RING/C	HISELLING									VATER STRIKE DET	AILS
ror	m (m)	To (m)	Time (h)	Comments		Wat Stril		asing epth	Sealed At	Ris To		ime	Comments	
													No water strike	
													BROUNDWATER DE	TAII C
INIC	TALLA	TION DE	TAILC				ıto	Hole	Casing) De	pth to			IAILO
	Date	Tion DE		op RZ Base	Туре	Da	ile	Depth	Depth		pth to ater	Comme	ะเมธ	
D	MAD!C	N Frank 12 1	2 2 2 2 2	0m ,=4====	unional to alcount	uab rest: 1	iab ====	0.5	nlo !					
KE	WAKKS			0m - water red n spread	uired to drill thro	ugn rock, h	ign risk	D - Smal	ole Leger I Disturbed (tub Disturbed	o)			Indisturbed 100mm Diameter	
								LB - Larg	Disturbed ge Bulk Disturb vironmental Sa	ed imple (Jar	+ Vial + Tub)	Sam P - U	ple Indisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	381	-/																14403	
COI	NTRA	СТ	Lime	rick Ga	aswor	ks									BOREH	OLE N	Ο.	D11	
CO-	-ORDII	NATES	;			28 E		RIG TYP	E			S	onic		SHEET DATE D	DII I E		Sheet 1 of 1 23/11/2009	
GR	OUND	LEVE	L (m /			81 N 5.40		BOREHO	OLE DIAM	ETER	(mm)	1	40		DATE L			23/11/2009	
CLI	ENT SINEEI		Bord Mouc	Gais					OLE DEPT DEPTH (r				.70 .70		BORED PROCES		RV	Boart Longye	ear
	JINEEI		IVIOUC	IIEI				CASING	DEF IN (I	'' <i>'</i>			.70		nples	SSED		G. Momiton	
Depth (m)				D	escri	ption			Legend	i	Elevation	Deptil (III)	Ref. Number	Sample Type	-	Recovery	(i)	Field Test Results	Standpipe Details
0	Stiff	light br dark gi	ey/br	own g	ravell	AY. NEO	NEC.		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5.30 5.20 5.00 4.70	0.2	40	1	ENV	0.40-0.70	0			
1	Firm	brown	CLA'	Y. NE	C.	ssible F	ght HC i	mpact.		4.20	0.		2	ENV	1.00-1.5	0			
2										5			3	ENV	2.00-2.4	0			
3	for H	STON C impa of Bore	act in	clay b	ands	clack cla	ay. NEC	except		3.00 2.70	2.	70	Ø.						
										only	or any of	thei							
4									n Purpo	dited	Or								
5								For ite S	at Owner										
6							ć	ent of copy											
							Con	ý											
7																			
8																			
9																			
		TATA		Time	T -				Wate	er (Casing	S	ealed	Ris	е Т	ime		ER STRIKE DET	AILS
-ron	n (m)	To (m)	(h)	Cor	nments			Strik		<u>Depth</u>		At	To		min)		o water strike	
																	GRO	UNDWATER DE	TAILS
INS	TALL	ATION	DET/	AILS					Dat	te	Hole Deptl		Casing Depth	De W	pth to ater	Comm	ents		
I	Date	Tip	Depth	RZT	op F	RZ Base	1	Гуре			1- 3-		1, 2, 2						
REI	MARK	wate wate	er has er req	visibl	e she	en and	hc odou	eping appro r. End hole iigh risk of c	at 2.60m	-	D - : B - I LB -	Small E Bulk Dis - Large	e Legen Disturbed (tub sturbed Bulk Disturbe) ed	I Viel / Tab	Sar	nple	rbed 100mm Diameter	
		spre						-			Env	- Envir	onmental Sa	mple (Jar -	+ Vial + Tub)		Juiotul	otom Gample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

ha	32	/												14400	
	NTRAC		erick Ga									BOREHO SHEET	DLE NO.	D12 Sheet 1 of 1	
	ORDIN	IATES LEVEL (n	156	,895.10 E ,537.68 N 5.03		RIG TYPE BOREHO		ETER (i		Sonic 140		DATE DE		18/11/2009 18/11/2009	
	ENT GINEER		d Gais uchel			BOREHO CASING I				4.00 4.00		BORED PROCES		Boart Longye G. Thornton	ear
Depth (m)			D	escription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0 - - - - - - - - 1			-	CLAY with ro		- - -	<u></u>	4.53	0.50	1	ENV	0.00-0.50			
- 1 - - - - - 2		orown slig STONE.		velly CLAY. N	NEC.	-		3.83 3.53	1.20		ENV	1.20-1.50			
- 3		orown/gre STONE.		band in limes		1		2.23 2.03	2.80 3.00 3.00	3	ENV	2.80-3.00)		
5 		f Boreho		HISELLING	Consen	For its of	iton Purpo Komper res	direction of the second	4.00				W	ATER STRIKE DET	Ails
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		ime nin)	comments	
			/				0.40		NR	NS	NR		NR	Rapid	
													GF	ROUNDWATER DE	TAILS
	TALLA Date	TION DE		op RZ Base	Тур	oe	Dat	е	Hole Depth	Casing Depth	De W	pth to ater	Commer	nts	
INS	MARKS	Hand d	ug pit 0.)-1.2m.					D - Sma B - Bulk LB - Lar	ple Leger III Disturbed (tub Disturbed ge Bulk Disturbed nvironmental Sa	o) ed	+ Vial + Tub)	Sample	disturbed 100mm Diameter s disturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/			.				•	•						14463	
СО	NTRAC	T Lime	erick Gas	works									BOREH SHEET	OLE N	Ο.	E01 Sheet 1 of 1	
	-ORDIN OUND I	IATES LEVEL (m	156,5	979.37 E 598.12 N 7.42		RIG TYP	E DLE DIAM	ETER (mm)	Sc 14	onic 10		DATE D			20/11/2009 20/11/2009	
CLI	ENT GINEER	Bord	l Gais		E	BOREHO	DLE DEPT DEPTH (r	'H (m)		8.0 8.0			BORED PROCE		BY	Boart Longye	ear
												Sam	ples				
Depth (m)			Des	scription			Legend	coito, col	Depth (m)	-	Ref. Number	Sample Type	Depth (m)	Recovery	(10.000)	Field Test Results	Standpipe Details
0	MADE	GROUN	D: Firm, ı	ete. NEC. red/white/ye brick. HC	llow/black, 9 0.40-0.60m	sandy , slight		7.32	0.1	0	1 2	ENV	0.40-0.6				
- - 1 - - - -				rm, light bro	wn/dark bro	own,		5.82	1.6	0	-		0.00 1.1				
2	sandy	slightly gr	ravelly cla	ay. NEC.							3	ENV	2.30-2.8	0			
3	MADE silt wit	E GROUN th occasio	D: Soft, c	dark grey ve les. Slight	ry sandy gra HC	avelly		4.42	3.0	0 net ne	[©] .	ENV	3.80-4.3	0			
- 4 - - - - - - - - - - - - - - - - - -						of		es of fo	5								
-					,	For inst					5	ENV	5.20-5.5				
6	MADE cobbly LIMES	E GROUN y sand. H STONE. N	D: Loose HC NEC.	, black, silty	consent			1.72 1.42			6	ENV	5.70-6.0	0			
- - - 7																	
8	End o	f Borehole	e at 8.00	m				-0.58	8.0	0							
9																	
-																	
HΔ	RD STI	RATA BOI		ISELLING			Wate	or I C	acina	0-	ealed	Rise	_ T	ime \	WAT	ER STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Comments			Strik		asing Depth		At	To		min)	Cor	mments	
															No	o water strike	
											0- :	1 -			GRC	OUNDWATER DE	TAILS
	TALLA Date	TION DET		p RZ Base	Турє	9	Dat	te	Hole Depth		Casing Depth	Dej W	oth to ater	Comm	ents	S	
REI	MARKS	<u> </u>							D-S	mall Dis	Legen)				urbed 100mm Diameter	
INS									LB - I Env -	Large B Enviro	turbed Bulk Disturbe nmental Sar	ed mple (Jar +	· Vial + Tub)	San P -	nple Undistu	urbed Piston Sample	

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GEOTECHNICAL BORING RECORD

00	BSL			,	GE	JIECI	HNICA	L BUK	ING	RECU	עאע					14463	
СО	NTRAC	T Lim	nerick Ga	asworks			I						BOREH SHEET	OLE NO). O.	E02 Sheet 1 of 1	
CO	-ORDIN	IATES	156 156	6,970.59 I 6,590.68 I	N		RIG TYP				Sonic		DATE D			20/11/2009	
GR	OUND I	LEVEL (n	n AOD)	7.38	3			DLE DIAM			140		DATE L	OGGE)	20/11/2009	
	ENT		rd Gais					DEDTIL (*			8.00		BORED		.	Boart Longy	ear
ENG	GINEER	IVIOI	uchel				CASING	DEPTH (r	n)	1	8.00		PROCES	SSEDE	SY 	A. Mahony	
(E)									٤	E			100	2	,	Field Test	ipe
Depth (m)			D	escriptio	n			Legend	Flevetion	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	'	Results	Standpipe Details
								Le	<u> </u>		ďź						Ste
. 0	MADE	E GROUN	ND: Soft	t, dark bro	own/b	olack, san & red bric	ndy k				1	ENV	0.00-0.5	0			
:	NEC (0.00-2.70	m, HC 2	2.70-3.00	m.	2100 5110											
- 1 -											2	ENV	1.00-1.5	0			
2											3	ENV	2.00-2.5	0			
3	MADE	E GROUI	ND: Soft	brown sa	andy s	silt. NEC	-		4.38	3.00	ve.						
										3.00	4	ENV	3.50-4.0	,			
									Sould	KITY			0.00 1.00				
4									es only	>							
									diffe								
	MADE	CDOUN	VID. Loos	a dark h	2501100	/blook oil	lton.		2.58	4.80							
- - 5	sandy	gravel.	HC incr	easing w	ith de	/black, silepth.			2.56	4.00	5	ENV	5.00-5.5	0			
-				_			For inst										
	MADE	- GROUI	ND: Loos	se black	siltv	sandy gra	-05		1.68	5.70							
- - 6	cobble	es. HC.		, 2.00,	· · · · · ·		<u> </u>		1.38	6.00							
	LIMES	STONE.	NEC.			Course											
- - 7																	
- - 8	End o	f Boreho	la at 8 Ni	0 m					-0.62	8.00							
=	Liiu o	ii Dolello	ie at 0.00	U III					-0.02	0.00							
-																	
- - - 9																	
-																	
-																	
														Ш.			
		To (m)	Time	Comme				Wate	er C	asing	Sealed	Rise	e T	ime	Comm	STRIKE DET	AILS
FIOI	m (m)	10 (111)	(h)	Comme	=1115			Strik	e D	epth	At	То	<u>(r</u>	nin)	Comm		
															No w	ater strike	
															GROUN	NDWATER DE	TAILS
INS	TALLA	TION DE	TAILS					Dat	te	Hole Depth	Casing Depth	Dej W	pth to ater	Comm	ents		
	Date	Tip Dep	oth RZ T	op RZ E	Base	Тур	ре			> p- +++							
REI	MARKS	3								Samp	ole Leger	nd			1-20 1 1	1400 2:	
										B - Bulk I LB - Larg	Disturbed ge Bulk Disturb	ed	+ Vial + Tub	San	nple	d 100mm Diameter d Piston Sample	
										Env - En	vironmental Sa	ımpie (Jar +	r viai + Tub)				

GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL	/		-	.									14463	
СО	NTRAC	T Lime	rick Gas	works								BOREHO SHEET	DLE NO	D. E03 Sheet 1 of 1	
	-ordin Ound I	ATES LEVEL (m .	156,5	963.03 E 584.64 N 6.87		RIG TYP BOREHO	E DLE DIAM	ETER (I		Sonic 140		DATE DI			
CLI	ENT SINEER	Bord	Gais		E	BOREHO	DEPTH (r	'H (m)		7.50 7.50		BORED PROCES		Boart Longy G. Thornton	
											San	nples			
Depth (m)			Des	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE clay.		D: Firm	dark brown s	sandy grave	elly		6.77 6.57	0.10						
		GROUNI ete. NEC.	D: Light	brown claye	y sand with	some		6.37 6.17	0.50	1	ENV	0.70-1.00	,		
1	MADE			brown slight	ly gravelly o	lay		0.17	0.70	2	ENV	1.00-1.50	,		
	MADE			brown slight	ly gravelly c	lay.		5.37	1.50						
	MEC.	GROUNI	D: Stiff d	lark grey/bro	own sandy	/		3.37	1.50						
2	1.30-1	1.50m.		ellow brick.	_					3	ENV	2.00-2.70)		
				olack gravell				4 4 7	0.70						
3	clayey	sandy gra	D: Loose avel (pos	e red to white sibly layers	e/grey to gr of ash). Po	ey ossible _/		4.17 3.87	3.00	e. 4	ENV	3.00-3.50	,		
		E GROUNI	D: Soft g	grey slightly	gravelly cla	y.			oiher						
	HC.	E GROUNI	D: Mediu	um dense ye	ellow/grey/b	lack		332	\$6.75						
4		layey GRA		h occasiona				es dio itedio		5	ENV	4.00-4.50			
	2.00														
5						Se									
3						for inst				6	ENV	5.30-5.80	,		
						For yill		4.07	5.00						
6				l). HC odou .10m, HC sh	een on rocl	J		1.07 0.87	5.80						
	7.10-7	7.50m.			Contr										
7															
7								1							
İ	End o	f Borehole	at 7.50	m				-0.63	7.50						
8															
9															
HA	RD ST	RATA BOF	RING/CH	ISELLING									·	 ATER STRIKE DET	TAILS
			Time	Comments			Wate Strik		asing epth	Sealed At	Ris To		me	Comments	
			(,						Op a. .	,		(No water strike	
													G	ROUNDWATER DE	TAILS
		TION DETA		- 1075	_		Dat	e	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
	Date	Tip Depth	n RZ To	p RZ Base	Турє)									
REI	MARKS	<u> </u> 							Samr	l le Leger	nd				
									D - Smal B - Bulk I LB - Larg	I Disturbed (tub Disturbed Je Bulk Disturb	o) ed		Samp	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	
									Env - En	vironmental Sa	mple (Jar +	+ Vial + Tub)	P - UI	nuisturbeu diston sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-	0.201				- \-							14463	
COI	NTRAC	T Lime	rick Gas	sworks									BOREH SHEET		Ο.	E04 Sheet 1 of 1	
	-ORDIN OUND L	ATES LEVEL (m	156,	956.11 E 581.12 N 6.28		RIG TYPI BOREHO	E DLE DIAM	ETER	(mm		Sonic 40		DATE L	RILLE		12/11/2009 13/11/2009	
	ENT SINEER		Gais				DEPTH (r				3.80 3.80		BORED PROCE		вү	Boart Longye A. Mahony	ar
\Box										$\widehat{}$		San	nples				4.
Depth (m)			De	escription			Legend	: ī	Elevation	Depth (m)	Ref. Number	Sample Type	Depth		(10,000)	Field Test Results	Standpipe Details
- 1 - 2 - 3 - 4 - 5 - 6	MADE gravel LIMES	ly clay witl	D: Grey n yellow Slight HC	, slightly brov brick and ro at top of roo	othairs. HC		ition the feet to	4.68 4.48	3	1.60 1.80 3.80	2	ENV	1.60-1.8				
HA	RD STI			ISELLING		•	100								WAT	ER STRIKE DET	AILS
Fron	n (m)	Го (m)	Time (h)	Comments			Wate Strik		Casin Deptl		Sealed At	Rise To		Γime min)	Coı	mments	
															N	o water strike	
															GRC	DUNDWATER DET	TAILS
	TALLA [·] Date	Tip Dept		p RZ Base	Туре)	Dat	te	Ho De		Casing Depth	De W	pth to ater	Comm	ents	5	
REI	MARKS								E	D - Small I B - Bulk D LB - Large	le Legen Disturbed (tub isturbed Bulk Disturbe Fronmental Sal	o) ed	+ Vi <u>al +</u> Tub)	Sai	mple	urbed 100mm Diameter urbed Piston Sample	

ICSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

0	GSL	/		-	.									14463	
СО	NTRAC	T Lime	rick Gas	works								BOREH SHEET	OLE NO	D. E05 Sheet 1 of 1	
	-ORDIN	ATES LEVEL (m	156,5	948.07 E 573.75 N 6.12		RIG TYP BOREHO	E DLE DIAM	ETER (ı		Sonic 140		DATE D		10/11/2009	
	IENT GINEER		Gais				DEPTH (r			5.50 5.50		BORED PROCES		Boart Longy G. Thornton	
$\overline{}$					•						San	nples			
Depth (m)				scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0 - -	MADE	GROUNI		n sandy grav ım dense cl				6.02 5.87	0.10						
-		I. NEC. E GROUNI	D: Firm b	orown sandy	y gravelly cl	ay.		5.62	0.50	1	ENV	0.50-1.00	0		
- 1 - -	MADE	GROUNI	D: Mediu	ım dense cl	ayey sandy	/		5.02	1.10	2	ENV	1.10-1.50	0		
	\HC oc	dour.		rown sandy		/		4.32	1.80	3	ENV	2.00-2.50	0		
_ 2 - - -	cobble	es. HC in	D: Dense clay.	e black very	clayey grav	velly					EINV	2.00-2.30	0		
- - - - 3	LIME	STONE. N	IEC					3.12	3.00	. e.					
	LIIVIL	STONE. IN	LO.					0.12	other	No.					
. 4								aired for	MA						
- - -							000	hited							
- - - - 5						a spe	ito ne								
-	End o	f Borehole	e at 5.50	m		For illigi		0.62	5.50						
- - - 6					Consent	of C									
- - - -					Contr										
- - - 7															
-															
- - 8 -															
- - -															
- - 9 -															
-															
		RATA BOF	Time				Wate	er Ca	asing :	Sealed	Rise	 _	ime	VATER STRIKE DET	AILS
Fro	m (m)	To (m)	(h)	Comments			Strik		epth	At	To		min)	Comments	
														No water strike	
									Hole	Casing	l Da	nth to		GROUNDWATER DE	TAILS
	Date	Tip Dept		o RZ Base	Туре	Э	Dat	e	Depth	Depth	W	oth to ater	Comme	ents	
₽E	MARKS								Samn	le Leger	nd				
									D - Small B - Bulk I LB - Larg	Disturbed (tub Disturbed e Bulk Disturber Pironmental Sa	o) ed	⊦ Vial + Tub)	Sam	Undisturbed 100mm Diameter iple Undisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-	0.20.									14463	
СО	NTRAC	T Lime	rick Gas	sworks								BOREH SHEET	OLE NO	D. E06 Sheet 1 of	1
	-ordin Ound I	ATES LEVEL (m	156,	940.48 E 568.32 N 6.33		RIG TYP	E DLE DIAM	ETER (ı	mm)	Sonic 140		DATE D		10/11/2009	١
CLI	ENT GINEER	Bord	Gais			BOREHO	DLE DEPT DEPTH (r	H (m)		7.50 7.50		BORED PROCES		Boart Long G. Thornton	-
								ĺ			San	nples			
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Field Test Results	Standpipe Details
1				orown grave Om. (0.50m						1	ENV	0.00-0.50			
2	MADE occas	GROUNI	D: Soft I les. Fre	black gravell ee phase oil.	y clay with	l		4.83	1.50	2 3	ENV	1.50-2.00 2.50-3.00			
3										e· 4	ENV	3.00-3.5			
4	clay. MADE	HC impact	t in grey D: Very	stiff grey/cre				3.13 2.83 2.83	3.20 3.50	5	ENV	4.00-4.5	0		
5	LIMES	STONE. N	IEC.			For inspec		1.83	4.50						
- 6 - - - - - - - 7	LIMES	STONE wit	th very th	nin band of c				-0.67	7.00						
: - -	End o	f Borehole	at 7.50	m				-1.17	7.50						
- 8															
HΔ	RD ST	RATA BOF		ISELLING				1						VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Ris To		ime min)	Comments	
														No water strike	
_														GROUNDWATER D	ETAILS
	TALLA Date	TION DETA		p RZ Base	Тур	oe .	Dat	te	Hole Depth	Casing Depth		pth to ater	Comme		
REI	MARKS								D - Sma B - Bulk	ple Leger	b)		Sam	Jndisturbed 100mm Diameter	
									Env - Er	ge Bulk Disturb vironmental Sa	eu ample (Jar -	+ Vial + Tub)	P - L	Jndisturbed Piston Sample	

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00	BSL				OL.	OILOI	IIIIOA	L DON			<i>,</i>	\ D					14463	
СО	NTRAC	T Lin	nerick	Gaswo	orks									BOREH SHEET	OLE N	О.	E07 Sheet 1 of 1	
СО	-ORDIN	IATES	1	56,932 56,562	2.94 E 2.16 N		RIG TYP	E			S	onic		DATE D	RILLE	D	10/11/2009	
GR	OUND	LEVEL (I			5.92			DLE DIAM		mm)		40		DATE L	.OGGE	D	10/11/2009	
	IENT		rd Gais	6				DLE DEPT				.00		BORED			Boart Longye	ear
EN	GINEER	R Mc	uchel				CASING	DEPTH (n	n) 		9.	.00		PROCE	SSED	BY	G. Thornton	
ш Ш									٥	<u> </u>	`			ples	>	<u></u>		be
Depth (m)				Descr	ription			Legend	Flevation	Denth (m)		Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
- 0	MADE	GROU	ND: S	tiff brov	wn slightly	/ sandy, s	lightly		5.72	0.2	20							
-	MADE	lly clay. E GROU I. NEC.		ledium	dense, sl	ightly clay	/ey		5.72	0.2	20	1	ENV	0.50-1.0	00			
- 1 - 1 												2	ENV	1.50-2.0	00			
												3	ENV	2.50-3.0	00			
3									esonly lifed for	i any of	net v	4	ENV	3.50-4.0	00			
- - - - - - - 5	MADE clay w	E GROU vith occa	ND: S sional	tiff brov	wn/grey s s. Strong	LIC ada	0`		1.12	4.8		5	ENV	4.80-5.0	00			
6	LIME: NEC)	STONE (with so HC she	ft grey en on	clay band rock.	(8.90mg	For instead		-0.08	6.0	00	6	ENV	5.50-6.0	00			
7																		
- 8												7	END/	8.90-9.0	00			
9	End o	of Boreho	ole at 9	.00 m					-3.08	9.0	00	7	ENV	6.90-9.0	00			
- H/	ARD ST	RATA B	ORING	/CHISE	ELLING											WAT	ER STRIKE DET	AILS
		To (m)	Time (h)		mments			Wate Strike		asing epth	S	ealed At	Rise To		Time min)		mments	
		. ,	(11)					Suiki		reput		Λl	10			No	o water strike	
										Hal-		Cosin		-41- /		GRO	OUNDWATER DE	TAILS
	STALLA Date	TION DE			RZ Base	Тур	oe	Dat	e	Hole Depth		Casing Depth	Der W	oth to ater	Comm	nents	3	
RE	MARKS	<u> </u> 								Sa D-S B-E	mple Small Dis	e Legen disturbed (tub disturbed Bulk Disturbe	d)		Sai	mple	urbed 100mm Diameter	
										LB - Env	Large E	Bulk Disturbe onmental Sar	ed mple (Jar +	Vial + Tub)	P -	Undist	urbed Piston Sample	

100	BSL	/													14463	
СО	NTRAC	T Lime	rick Gas	sworks								BOREH	OLE N	0.	E08	
	-ORDIN	ATFS	156	925.23 E		RIG TYP					-	SHEET			Sheet 1 of 1	
		EVEL (m	156,	556.66 N 5.84			E DLE DIAM	FTFR (Sonic 140		DATE LO			18/11/2009 18/11/2009	
	IENT	•	Gais	5.04			OLE DEPT	•	•	7.00	H	BORED				
	GINEER						DEPTH (n	` ,		7.00		PROCES		BY	Boart Longy G. Thornton	
$\widehat{}$											San	nples				
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	F	Field Test Results	Standpipe Details
0	MADE clay.		D: Firm	dark brown,	very grave	elly		5.74	0.10							
			D: Loos	e light brown	clayey gra	avel.		5.44	0.40	1	ENV	0.40-0.80)			
1	MADE	GROUN	D: Loos	e grey clayey	y gravelly s	and /		5.04	0.80							
				bbles). NEC light brown, s		velly						4.50.00				
	∖clay.	NEC.		soft light bro		/		4.34	1.50	2	ENV	1.50-2.00)			
2	within	clay. Slig	ht HC s	heen on outs	side of clay											
										3	ENV	2.50-3.00				
3	MADE	GROUN	D: Very	soft light bro	wn clay. N	IEC		2.84	3.00	%° 4	ENV	3.00-3.50	0			
	3.00-0).00III. TIC	Ououi	3.00-0.00111.					other							
								es a for	3.00 diler	_						
4								es of the		5	ENV	4.00-4.50)			
								MI.								
_						~										
5						of it's										
						For inst				6	ENV	5.50-6.00	ו			
6	LIME	STONE L	JC bloc	ck tar 6.00-6.	20m ha 🕅	diam.		-0.16	6.00							
•		6.50m. NE			2011, 11081 CONS	ieen		-0.10	0.00							
7	End o	f Borehole	at 7.00	m				-1.16	7.00							
8																
9																
			RING/CH Time	IISELLING			Wate	er Ca	asing	Sealed	Ris	e T	ime \		STRIKE DET	TAILS
roi	m (m) -	To (m)	(h)	Comments			Strik		epth	At	То	- 1	nin)	Comm	ents	
														No w	ater strike	
														CDOIIL	IDWATER OF	TAILS
N.S	STALI A	TION DET	AILS				Dat	e	Hole	Casing	J De	pth to	Comm		IDWATER DE	TAIL
	Date			p RZ Base	Тур	е	Dat		Depth	Depth	W	ater	JJ	50		
	-11-09	6.00	1.00		50mm											
₹E	MARKS			m - water red				gh risk	Samp	le Leger	nd					
		of contar	mination	spread, HC	coming up	with wat	ter.		B - Bulk E LB - Larg	e Bulk Disturb	ed		San	nple	1 100mm Diameter I Piston Sample	
									Env - Env	rironmental Sa	mple (Jar -	+ Vial + Tub)	F - 1		s.o Jumpic	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-												14463	
СО	NTRAC	T Lime	rick Gas	sworks									BOREH SHEET	OLE N	Ο.	E09 Sheet 1 of 1	
	-ORDIN	ATES LEVEL (m	156,	917.51 E 550.74 N 5.42		RIG TYP	E DLE DIAM	ETER (mm)		Sonic 40		DATE D			17/11/2009 17/11/2009	
CLI	ENT GINEER	Bord	Gais	0.42		BOREHO	DLE DEPT DEPTH (r	H (m)	,,	6	.00		BORED PROCE	BY		Boart Longye	ear
	OIIVEER	Would	, ici			OAOIIIO		, 			.00		nples	OOLD !	<u> </u>	A. Marioriy	
Depth (m)			De	escription			Legend	Flovotion	Cievation (m)	Depui (III)	Ref. Number	Sample Type	Depth (m)	Recovery	fi	Field Test Results	Standpipe Details
3 3 5 6 6	MADE gravel Soft d free p Firm b HC co	ark grey to hase oil.	o black s grey Cl e (black ulverised	brown, loca clay with red black, silty c eavy HC with silty CLAY. F LAY (high plack) (not fully p d). Very clay	, gravelly countries of the second of the se	black, C. / sandy se oil.		4.42 3.92 0.42 0.12 -0.08 -0.58	5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5	00	1 2 2 3 4 5 6	ENV ENV	0.80-0.9 1.00-1.5 2.90-3.1 4.70-5.0 5.00-5.2 5.30-5.5	0			
			RING/CH Time	HISELLING			Wate	ar I C	asing	0	Sealed	Ris	_ T	ime \		TER STRIKE DET	AILS
Fron	m (m) -	To (m)	(h)	Comments			Strik		epth	\perp	At	To		min)	Co	mments	
															N	o water strike	
														(GRO	DUNDWATER DE	TAILS
INS	TALLA	TION DET	AILS				Dat	te	Hole Dept		Casing Depth	De W	oth to ater	Comm			
	Date	Tip Dept	h RZ To	p RZ Base	Тур	е					- 1001						
RE	MARKS								D - I B - I LB -	Small [Bulk Di - Large	e Legen Disturbed (tub sturbed Bulk Disturber ronmental Sal	o) ed	+ Vial + Tub)	Sar	nple	turbed 100mm Diameter turbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		0_	0 1 2 0 1 11											14463	
СО	NTRAC	T Lime	erick Ga	sworks	1								BOREH SHEET	OLE N	O.	E10 Sheet 1 of 1	
	-ORDIN	IATES LEVEL (m	156	909.57 E 544.34 N 5.58		IG TYPE	E DLE DIAM	ETER (mm)	_	onic 40		DATE D			04/11/2009 04/11/2009	
	IENT GINEER		d Gais				DEPTH (r				00 00		BORED PROCE:		BY	Boart Longye G. Thornton	ear
								ĺ				San	nples				
Depth (m)			De	escription			Legend	Flevetion	Denth (m)	Depuii (III)	Ref. Number	Sample Type	Depth (m)	Recovery	, ccovciy	Field Test Results	Standpipe Details
0	Tarma MADE clay.	GROUN	D consi	sting of very	stiff, grey gra	avelly		5.53 5.28	0.0		1	ENV	0.30-0.6	5			
1	MADE	GROUN	D consistof red a	sting of brown	n gravelly cla	ay ·	××××× 	4.93 4.73	0.0	85	2	ENV	1.10-1.5	0			
		stiff. black	gravelly	CLAY. NEC	<u>.</u>	//[4.48	1.	10	-						
2	Very s	stiff, light black grave	orown C	LAY. NEC. Y with cobble		d		4.08	1.5	50							
		carbon in STONE. I															
3	End o	of Borehol	e at 3.00) m	Consento	-		2.58	3.0	00 💉	^چ و.						
								4	. S	herv	•						
- ,								Sould	Y MIL.								
4							00	ited to									
							on Plitte	No.									
						æ	tion net										
. 5						रंगडी	ito										
					<	for Dir.	,										
					, o	, ou ,											
6					TISEN!												
					Cor												
7																	
.																	
8																	
9																	
		To (m)	RING/CH Time	ISELLING Comments		1	Wate		asing	S	ealed	Rise	e T	ime		TER STRIKE DET	AILS
101	11 (111)	10 (111)	(h)	Oomments			Strik	e D	epth	+	At	To	1) (1	min)		THINCING	
															N	o water strike	
															GRO	DUNDWATER DE	TAILS
INS	TALLA	TION DET	AILS				Dat	te	Hole		Casing	De	pth to ater	Comm			
	Date			op RZ Base	Туре				Depti	11	Depth	VV	alci				
RFI	MARKS	1.25 hrs	standin	g - Health an	d Safety due	e to verv	contamii	nated	Sa	ample	e Legen	l nd					
		soils.	J.G. 10111	ouiai uii		o.y	Jonaniii		D-5	Small Di	isturbed (tub turbed Bulk Disturbe)		Sa	mple	turbed 100mm Diameter	
									LB - Env	- Large E - Enviro	Bulk Disturbe onmental Sa	ed mple (Jar +	+ Vial + Tub)	P -	Undist	turbed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL	/		0_	0 0									14463	
СО	NTRAC	T Lime	erick Gas	sworks								BOREH(OLE NO	D. E11 Sheet 1 of 1	
	-ORDIN	IATES LEVEL (m	156,	902.93 E 538.21 N 5.49		IG TYPI OREHO	E DLE DIAM	ETER (ı	mm)	Sonic 140		DATE D		23/11/2009	
	IENT GINEER		d Gais				DEPTH (n			3.00 3.00		BORED PROCES		Boart Longy G. Thornton	
											San	nples			
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
1	MEC. MADE grave MADE grave MADE red br	E GROUN I with red E GROUN I (possible E GROUN rick. NEC	D: Medi brick. N D: Medi e cinders D: Stiff	ium dense da). Possible d light brown g	ght brown cla ark brown cla contaminatio ravelly clay v	ayey n.		5.24 5.14 4.99 4.29	0.25 0.35 0.50		ENV	0.35-0.50			
2	grave	l.		elly CLAY. H	•	n)	<u> </u>	3.49	2.00	3	ENV	2.00-2.50	0		
	LIME	STONE w	ith local	very thin clay	<u> </u>	•		2.99	2.50						
- - 3		f Borehol		m				2.49	3.00	. VSC.					
5 6 8					Consento	in Skaring Con View	ction Dipo	es only.	3.00						
H/	ARD ST	RATA BO		IISELLING										 VATER STRIKE DET	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		ime min)	Comments	
														No water strike	
														ROUNDWATER DE	TAILS
	TALLA Date	TION DET		op RZ Base	Туре		Dat	е	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
			e at 3.00	m - water red		throug	h rock, hiç	gh risk	D - Sma B - Bulk LB - Lai	ple Leger all Disturbed (tub Disturbed ge Bulk Disturben pvironmental Sa	o) ed	+ Vial + Tub)	Sam	Jndisturbed 100mm Diameter ple Indisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL													14463	
СО	NTRAC	T Lim	erick Ga	asworks								BOREH	OLE NO	 _	
СО	-ORDIN	IATES	156 156	5,896.73 E 5,535.05 N		RIG TYP				Sonic		SHEET DATE D			
		LEVEL (n	n AOD)	4.83		4	OLE DIAM OLE DEPT		,	140 5.00	-	DATE LO			
	IENT GINEER		d Gais uchel				DEPTH (r			5.00		BORED PROCES		Boart Longye Y G. Thornton	ear
E E								<u></u>	Ê			nples			be
Depth (m)				escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0				/ sandy CLA gravelly CLA		rasional		4.53	0.30	1	ENV	0.30-0.70	0		
- - - - 1	cobbl	es. NEC	ongriuy	gravelly OL	vi will ooc	adional			0.00						
Ē	Very	stiff light l	orown sa	andy slightly	gravelly Cl	LAY.	<u></u>	3.33	1.50	2	ENV	1.50-2.00			
2	NEČ.									3	ENV	2.00-2.40			
Ė	LIME	STONE.	NEC.				- <u>-</u>	2.43	2.40						
Ē								-							
3									net	B.					
								93.	any other						
4								esonly.							
<u> </u>								dill							
- - 5	Fnd c	of Boreho	e at 5.0	0 m		ష	10 10 10 1 1 1 1 1 1 1	-0.17	5.00						
Ė	Liid	, Borono	o at 0.0	· · · ·		For its of									
E						of col.									
6					COUSE	At .									
Ē															
7															
-															
- 8															
Ē															
9															
H/	ARD ST	RATA BO		HISELLING										ATER STRIKE DET	AILS
	m (m)	To (m)	Time (h)	Comments	;		Wate Strik		epth	Sealed At	Ris To		ime nin)	Comments	
														No water strike	
									Hole	Casing	Do	nth to		ROUNDWATER DE	TAILS
INS	Date	Tip Dep		op RZ Bas	е Ту	/pe	Dat	te	Depth	Depth	W Ne	pth to ater	Comme	ents	
RE	MARKS	Hand d	ug pit 0.	00-1.20m.					Samp D - Small B - Bulk D	le Leger Disturbed (tub	nd))			ndisturbed 100mm Diameter	
INS									LB - Larg	Disturbed e Bulk Disturb vironmental Sa	ed mple (Jar +	+ Vial + Tub)	Samp		

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REPORT NUMBER

00	BSL				00.											14463	
СО	NTRAC	T Lime	rick Gas	works									BOREH SHEET	OLE N) .	F01 Sheet 1 of 1	
	-ORDIN	IATES LEVEL (m	156,5	83.71 E 91.13 N 7.47		RIG TYP	PE OLE DIAN	IFTER	? (mı	_	Sonic 40		DATE D			20/11/2009	
CLI	IENT	Bord	Gais	7.47		BOREHO	OLE DEPT	Г Н (m)		9	.00		BORED	BY		Boart Longye	ear
EN	GINEER	. Moud	nei			CASING	DEPTH (m) ⊤		9	.00		PROCE	SSEDE	3 Y	D. O'Shea	
Depth (m)			Des	scription			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	`	Field Test Results	Standpipe Details
- 0 - - - - - - - 1		E GROUNI NEC.	D: Loose	light brown	, clayey sli	ightly		X X X X X			1	ENV	0.50-1.0				32
· 1	grave	lly sand. S	light HC	black/orang impact. soft at 3.00-		clayey		6.2		1.20	2	ENV	1.20-1.5	0			
2	browr	grey, san	dy gravel	lly clay. Po	essible HC			XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			3	ENV	2.00-2.5	0			
- - - 3 - - - - - - -								××××××××××××××××××××××××××××××××××××××	3. Q	ny other i	e.						
- 4	MADE Possi	E GROUNI ble HC.	D: Firm g	rey slightly	sandy clay			iite	7	4.00	4	ENV	4.50-5.0	0			
- - - - 6	MADE grave	E GROUNI Ily clay. Po	D: Soft gr	ey slightly s C.	sandy sligh	Godyne of copyric		1.4	7	6.00	5	ENV	6.00-6.5	0			
- - - - 7	MADE	E GROUNI	D: Soft gr	ey sandy g		y with		0.6	7	6.80	6	ENV	6.80-7.3	0			
-	Loose		ey cobbl	y gravel - pı	obable	/		0.1		7.30 7.50							
- - 8 - - -	LIIVIE	STONE. IN	IEG.														
9	End o	f Borehole	at 9.00 r	m				-1.5	53	9.00							
HA	ARD ST	RATA BOF	RING/CHI	SELLING				1			1	1		V	VATE	R STRIKE DET	AILS
Froi	m (m)	To (m)	Time (h)	Comments			Wate Strik		Cas Dep		Sealed At	Rise To		ime min)	Com	nments	
							3.111		~					,	No	water strike	
															GROI	JNDWATER DE	TAILS
		TION DETA		D7 Paga	Tv.	20	Da	te		Hole epth	Casing Depth	Dej W	oth to ater	Comm			
	Date		NZ 10	RZ Base	Тур	JC											
INS	MARKS	;								D - Small [B - Bulk Di LB - Large	e Legen Disturbed (tub sturbed Bulk Disturbe ronmental Sar) ed	· Vial + Tub)	San	nple	bed 100mm Diameter bed Piston Sample	

(IC	SL	/		OL	OILOI	ППОД	L DOI		ILO						14463	
CON	ITRAC	T Lime	rick Gas	works								BOREH SHEET		0.	F02 Sheet 1 of 1	
CO-0	ORDIN	IATES	156,9 156,9	973.46 E 583.93 N		RIG TYP	E			Sonic	-	DATE D		D	20/11/2009	
GRO	UND	LEVEL (m		7.51		BOREHO	OLE DIAM	IETER ((mm)	112		DATE L	.OGGEI	D	20/11/2009	
CLIE			Gais				OLE DEPT			8.00		BORED			Boart Longye	ear
ENG	INEER	. Moud	hel			CASING	DEPTH (ı	m)		8.00		PROCE	SSED	BY	D. O'Shea	1
(E)								٥	<u> </u>	-		nples	>	$\overline{}$) e
Depth (m)			De	scription			Legend	i cito	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
- 0	MADE grave	E GROUNI Ily clay. P	D: Soft/fi	rm, brown/g HC.	rey/black,	sandy		× × × × × × × × × × × × × × × × × × ×		1	ENV	0.50-1.0				
2	grave MADE	lly sand. I	Possible D: Soft/fi	rm, brown/b		/		5.81 5.51	2.00		ENV	1.70-2.0	00			
3	No re	covery - ob	served	by driller as	made grou	und		4.51	· Mothe	, 13°E.						
- 5	CODDI	es. Strong E GROUNI	HC.	e, black, clay	ev gravelly	v sand S		3.01 2.51	4.50 5.00		ENV	5.00-5.5	50			
6	Loose	ble HC.	ndy grav	velly cobbles	Consent	For his		X X X 1.01	6.50							
- 7 - 7 				HC - free ph	iase oil.			X X X X		4	ENV	7.00-7.5	50			
-	LIME	STONE. N	IEC.					0.01	7.50							
- 8	End o	f Borehole	at 8.00	m				-0.49	8.00							
HAF	RD ST	RATA BOF		ISELLING										NATI	ER STRIKE DET	AILS
From	(m)	To (m)	Time (h)	Comments			Wate Strik		asing Depth	Sealed At	Ris To		Γime min)	Con	nments	
			, /						•	-			,	No	water strike	
										1.2				GRO	UNDWATER DE	TAILS
	T ALLA Date	Tip Depti		p RZ Base	Тур)e	Da	te	Hole Depth	Casing Depth		pth to ater	Comm	ents		
REM	IARKS	3		ı				·	B - Bul LB - La	IPIE Legel all Disturbed (tu c Disturbed rge Bulk Disturb nvironmental Si	oed	+ Vial + Tub)	San	nple	rbed 100mm Diameter rbed Piston Sample	

	2.0													14463	
NTRAC	T Lim	erick G	aswork	KS									OLE NO	. ••	·
-ORDIN	IATES				F	RIG TYP	E		:	Sonic	<u> </u>		RILLED		
OUND	LEVEL (n				E	BOREHO	LE DIAM	ETER (mm)	140		DATE L	OGGE	14/11/2009	
		d Gais						` ,						Boart Longy	
SINEER	R Mou	uchel			(CASING	DEPTH (n	n)	1	10.00			SSED E	G. Thornton	1
								<u> </u>	E.			ipies	5		be
		D	Descrip	otion			Legend	Flevation	Depth (Ref. Numbe	Sample Type	Depth (m)	Recove	Results	Standpipe Details
MADE NEC.		ND: Sof	t black	/brown	gravelly cla	ıy.				1	ENV	0.50-1.0			
		ND: Loc	se ligh	nt brown	ı clayey gra	ıvelly		6.85	1.00						
MADI	E GROUN		n brow	n slightl	ly sandy sli	ghtly		6.35	1.50	2	ENV	1.50-2.0	00		
MADE	E GROUN	ND: Bou	ulder					5.35	2.50						
sand	with red b	orick. H	C odo	ur.		/		4.95 4.75	2.90	3 4	ENV ENV	2.90-3.0 3.00-3.1	0		
cobbl	es. NEC	ND: Firn	n dark	grey cla	ay with occa	asionai		esonly.	any other	5	ENV	3.50-4.0	10		
MADI increa	E GROUN asing with	ND: Ver depth.	y soft (dark gre		Se		3.35	4.50	6	ENV	4.50-5.0	00		
					cent.	for triple				7	ENV	5.50-6.0	00		
				black ve	\sim			1.35	6.50	8	ENV	6.50-7.0	10		
******	7000. 110	o prido	0 0							9	ENV	7.00-7.5	60		
					80m within	band		0.35	7.50						
.RÐ∩ST	ŔŖŢÆBO	MRING/C	M)SEL	LING				1			1	<u> </u>	v	VATER STRIKE DE	TAILS
n (m)	To (m)	Time (h)	Com	ments										Comments	
		(1.7)					Gunn		Spa.	7.0		,	,	No water strike	
													G	GROUNDWATER DI	ETAILS
			Гор R	Z Base	Турє	e	Dat	e	Hole Depth	Casing Depth		pth to ater	Comme	ents	
MARKS	3	1							B - Bulk I LB - Larg	Disturbed e Bulk Disturb	ed	+ Vial + Tub)	Sam	ple	
	MADI Sand MADI COBBI M	MADE GROUN Sand with red by MADE GROUN SANDE GROUN MADE GROUN SANDE OUND LEVEL (m AOD) ENT Bord Gais SINEER Mouchel MADE GROUND: Soft NEC. MADE GROUND: Local Soft MADE GROUND: Firre gravelly clay. NEC. MADE GROUND: Firre gravelly clay. NEC. MADE GROUND: Firre cobbles. NEC. MADE GROUND: Firre cobbles. NEC. MADE GROUND: Vere increasing with depth. MADE GROUND: Vere increasing with depth. MADE GROUND: Vere with wood. Free phase of clayey gravel otherway. MADE GROUND: Vere with wood. Free phase of clayey gravel otherway. MADE GROUND: Vere with wood. Free phase of clayey gravel otherway.	OUND LEVEL (m AOD) 7 ENT Bord Gais GINEER Mouchel Descrip MADE GROUND: Soft black NEC. MADE GROUND: Loose light sand. NEC. MADE GROUND: Firm brown gravelly clay. NEC. MADE GROUND: Boulder MADE GROUND: Loose black sand with red brick. HC odo MADE GROUND: Firm dark cobbles. NEC. MADE GROUND: Very soft increasing with depth. LIMESTONE. Local sheen co of clayey gravel otherwise Ni LIMESTONE. Local sheen co of clayey gravel otherwise Ni TALLATION DETAILS Date Tip Depth RZ Top R TALLATION DETAILS Date Tip Depth RZ Top R TALLATION DETAILS Date Tip Depth RZ Top R	OUND LEVEL (m AOD) 7.85 ENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft black/brown NEC. MADE GROUND: Firm brown slight gravelly clay. NEC. MADE GROUND: Boulder MADE GROUND: Boulder MADE GROUND: Hoose black very sand with red brick. HC odour. MADE GROUND: Firm dark grey cla cobbles. NEC. MADE GROUND: Very soft dark grey increasing with depth. MADE GROUND: Very soft dark grey cla cobbles. NEC. MADE GROUND: Very soft dark grey cla cobbles. NEC.	ADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Firm dark grey clay with occidents. NEC. MADE GROUND: Very soft dark grey clay. HO increasing with depth. MADE GROUND: Very soft black very gravelly with wood. Free phase oil. LIMESTONE. Local sheen of HC 9.80m within of clayey gravel otherwise NEC.	ORDINATES 156,967.69 E 156,578.36 N OUND LEVEL (m AOD) 7.85 ENT Bord Gais BOREHC CASING Description MADE GROUND: Soft black/brown gravelly clay. NEC. MADE GROUND: Loose light brown clayey gravelly sand. NEC. MADE GROUND: Firm brown slightly sandy slightly gravelly clay. NEC. MADE GROUND: Boulder MADE GROUND: Boulder MADE GROUND: Loose black very clayey gravelly sand with red brick. HC odour. MADE GROUND: Firm dark grey clay with occasional cobbles. NEC. MADE GROUND: Very soft dark grey clay. HC increasing with depth. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. LIMESTONE. Local sheen of HC 9.80m within band of clayey gravel otherwise NEC. NEDISTRATABBORING/CONSELLING IN (m) To (m) Time (h) Comments TALLATION DETAILS Date Tip Depth RZ Top RZ Base Type	CORDINATES 156,967.69 E 156,578.36 N OUND LEVEL (m AOD) 7.85 BOREHOLE DIAM BOREHOLE DIAM BOREHOLE DEPT CASING DEPTH (r CASING DEPTH) (r CASIN	ORDINATES 156,967.89 E 156,578.36 N OUND LEVEL (m AOD) 7.85 ENT Bord Gais GINEER Mouchel Description Description Description MADE GROUND: Soft black/brown gravelly clay. NEC. MADE GROUND: Firm brown slightly sandy slightly gravelly clay. NEC. MADE GROUND: Boulder MADE GROUND: Firm dark grey clay with occasional cobbles. NEC. MADE GROUND: Firm dark grey clay with occasional cobbles. NEC. MADE GROUND: Very soft dark grey clay. HC increasing with depth. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. LIMESTONE. Local sheen of HC 9.80m within band of clayey gravel otherwise NEC. MADE GROUND: Comments MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil. MADE GROUND: Very soft black very gravelly clay with mode. Free phase oil.	ORDINATES 156,967.80 E 156,578.36 N OUND LEVEL (m AOD) 7.85 BOREHOLE DIAMETER (mm) BOREHOLE DIAMETER (mm) BOREHOLE DEPTH (m) CASING DEPTH (m)	ADDE GROUND: Firm dark grey clay with occasional cobbles. NEC. MADE GROUND: Very soft black very gravelly sand with red brick. HC odour. MADE GROUND: Firm dark grey clay with occasional cobbles. NEC. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. MADE GROUND: Very soft black very gravelly clay with wood. Free phase oil. Sample Leger. Sample Leger. Sealed Depth	ORDINATES 156,987.69 E 156,578.38 N OUND LEVEL (m ADD 7.85 ENT 56,578.38 N OUND LEVEL (m ADD 7.85 ENT 56,578.38 N OUND LEVEL (m ADD 7.85 ENT 56,578.38 N OUND 10.00 To 10.00 To 10.00 ENT 56,578.38 N OUND 10.00 E	ARKS Section Comments 156,987,59 E 156,578,36 N N N N N N N N N	ORDINATES 156.967 69 E 156.573.36 N RIG TYPE BOREHOLE DIAMETER (mm) 140 DATE ORILLET DATE ORIGINATION DETAILS DATE ORIGINAL SEARCH DATE OR DATE ORIGINAL SEARCH DATE OR DATE	Section Sect	

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(ICSI	/											14463	
CONTRAC	T Lime	erick Ga	sworks								OLE NO		
CO-ORDIN	IATES	156	,967.69 E	RIG TYP				Sonic		HEET	RILLED	Sheet 2 of 2 12/11/2009	
GROUND	LEVEL (m	156 AOD)	,578.36 N 7.85	BOREHO	LE DIAM	ETER (r	nm) ´	140	I		OGGED		
CLIENT	Boro	d Gais		BOREHO	LE DEPT	H (m)		10.00	E	BORED	BY	Boart Longye	ear
ENGINEER	R Mou	chel		CASING	DEPTH (n	n)		10.00			SSED E		
ê						_	E E		Sam	oles			e e
Depth (m)		D	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	oth C	Recovery	Field Test Results	Standpipe Details
ĎÉ					Leg	Ele	Dep	Ref	Sar	Depth (m)	Rec	- Trocuito	Star Deta
10						-2.15	10.00						
11													
12													
13								Be.					
							othe,						
.						only.	MIN						
14					208	es of the							
					Plite	Mil							
_				For its of copyris	ction net b								
15				ritisQ.	at or								
				FOLDALL									
16				, of contract of									
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				Co									
17													
- 40													
18													
19													
. 19													
HAPD ST	DATA BOI	DING/CI	HISELLING									VATER STRIKE DET	All C
	To (m)	Time	Comments		Wate			Sealed	Rise		ime	Comments	AILS
10111 (111)	10 (111)	(h)	Comments		Strike	e De	epth	At	То	(r	min)		
												No water strike	
						Hele	C!	1.5	41- 1	C	GROUNDWATER DE	TAILS	
INSTALLA				Dat	е	Hole Depth	Casing Depth	Dep Wa	th to ater	Comme	ents		
Date	Date Tip Depth RZ Top RZ Base Type												
							16	<u> </u>					
REMARKS	5						Samp D - Small B - Bulk D	le Legen Disturbed (tub	nd)			Jndisturbed 100mm Diameter	
							LB - Larg	Disturbed e Bulk Disturbe ironmental Sai	ed mple (Jar + \	Vial + Tub)	Sam		

GEOTECHNICAL BORING RECORD

O	BSL)		G	EUIE	CHNICA	IL BUR	ing i	KECO	עט				14463	
СО	NTRAC	T Lime	erick Gas	sworks								BOREHO SHEET	OLE NO	D. F04 Sheet 1 of	1
CO	-ORDIN	IATES	156, 156,	959.59 E 573.67 N		RIG TY	PE		5	Sonic		DATE D	RILLED	12/11/2009)
GR	OUND I	LEVEL (m	AOD)	6.50			OLE DIAM	•	nm) 1	40		DATE LO	OGGE	13/11/2009)
	ENT		Gais				OLE DEPT			6.00		BORED		Boart Long	-
ENG	SINEER	. Mou	chel			CASING	DEPTH (r	n) 	T 6	5.00		PROCES	SSED E	A. Mahony	
Œ								_	Ξ			ipies		Field Teet	e e
Depth (m)			D€	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE	E GROUN gravelly	D: Soft silt. NEC	brown, sli	ghtly gre	y very		_		1	ENV	0.20-0.70			"
1	MADE verv s	E GROUN andy, slig	D: Soft	dark grey/	grey, slig	ghtly clayey, ional		5.50	1.00	2	ENV	1.00-1.50			
,	cobble	es. Possi EGROUN	ble sligh D: Soft	t HC. black, ver	/ silty, v	ery sandy		5.00	1.50	3	ENV	1.50-2.00)		
2	MADE	I with occa E GROUN y, sandy g	D: Soft	dark brow	n mottle	d, slightly		4.50	2.00		5. 0./				
3	Onevil	ماند ماند ماند	d C	طلان کا ا				3.50	3.00	4	ENV	3.00-3.50			
	cobble	black silty es. Heav	y HC.	LAY WITH	some gra	avei and			other,	3 500					
4		STONE (p). NEC.	ulverise	d due to s	onic drilli	ing without		2,80°	3.70						
- - - -							: DR X 20	direc							
- - 5 -						or inst									
: : :						For ites									
- 6 - - -	End o	f Borehol	e at 6.00	m	C	Ment		0.50	6.00						
- - - - 7															
- - - -															
- - 8 -															
- - - -															
- 9 - - -															
: HA	ARD ST	RATA BO	RING/CH	IISELLING	ì									VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Commen	S		Wate Strik		sing S	Sealed At	Rise To		ime nin)	Comments	
			(11)				Stilk	e De	5 2 (1)	AL	10	(1)	11111)	No water strike	
														GROUNDWATER D	ETAILS
INS	TALLA	TION DET	AILS				Dat	te	Hole	Casing	ı Dej	oth to ater	Commo		
Date Tip Depth RZ Top RZ Base Type									Depth	Depth	VV	ater			
REI	MARKS	<u> </u> 							D - Small	le Legen	nd			Undisturbed 100mm Diameter	
									B - Bulk D LB - Large	isturbed Bulk Disturbe ronmental Sa	ed	⊦ Vial + Tub)	Sam		

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00	BSL)		G	EOTEC	CHNICA	L BOR	ING	REC	ORD				14463	
СО	NTRAC	T Lim	erick Ga	asworks								BOREH SHEET	OLE NO	F05 Sheet 1 of 1	
СО	-ORDIN	IATES	156 156	6,952.13 E 6,567.49 N		RIG TYP	E			Sonic	<u> </u>	DATE D	RILLED	12/11/2009	
GR	OUND	LEVEL (m		6.47		BOREHO			mm)	140		DATE L	OGGED	13/11/2009	
	ENT		d Gais			BOREHO				4.00		BORED		Boart Longy	
ENG	GINEER	. Mou	ichel			CASING	DEPTH (r	n) 		4.00		PROCES nples	SSED B	Y G. Thornton	
(E)							_	5	<u> </u>			· ·	2	Field Test	ipe
Depth (m)			D	escription			Legend	Flevation	Denth (m)	Ref.	Sample Type	Depth (m)	Recovery	Results	Standpipe Details
- 0	MADE	GROUN	ID: Stiff	f brown grav	elly clay.	NEC.									
										1	ENV	0.50-0.8	0		
:	MADE	E GROUN	ID: Stiff	f brown grav	ellv clav v	vith		5.67	3.0	30					
- - 1 -	∖occas	ional cob	bles. N	EC.	, 5.2, 1	/	7 7 7 7	5.47	1.0						
	LIME	STONE.	NEC.]							
2]							
]							
- - 3										3 ℃.					
:									3	nei					
								His.	KIII	geruse.					
4	End o	f Borehol	e at 4.0	0 m		for its go		62.47	4.0	00					
							alitho	ditec							
							tion letter	,							
- - - 5						a spe	A OMIT								
						COLULIA									
						500									
- - 6						entor									
:					Cons	50									
-															
- - 7															
- - - 8															
-															
- - - 9															
- 9 -															
-															
: H/	ARD ST	RATA BO	RING/C	HISELLING									W	 ATER STRIKE DET	ΓAILS
Fror	m (m)	To (m)	Time (h)	Comment	s		Wate Strik		asing epth	Sealed At	Ris To		ime min)	Comments	
														No water strike	
INS	TALLA	TION DE	ΓAILS				Dat	ie	Hole			pth to	G Comme	nts	IAILS
	Date			op RZ Bas	ве Т	уре		·	Depth	n Depth	VV	aler		-	
RF	MARKS	<u> </u>							Sa	mple Legei	nd				
		•							D - S B - E	Small Disturbed (tu Bulk Disturbed	b)		U - Ur Samp	ndisturbed 100mm Diameter	
									LB -	Large Bulk Disturb - Environmental Sa	oed ample (Jar -	+ Vial + Tub)		ndisturbed Piston Sample	

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-	0.20									14463	
СО	NTRAC	T Lime	erick Gas	works								BOREH(OLE NO	D. F06 Sheet 1 of	1
	-ORDIN	IATES LEVEL (m	156,	944.81 E 562.05 N 6.56		G TYPI OREHO	E OLE DIAM	ETER (r		Sonic 140		DATE D		12/11/2009	١
CLI	IENT GINEER	Bord	Gais	0.00	ВС	DREHO	DEPTH (n	H (m)	4	4.50 4.50		BORED PROCES	BY	Boart Long	
		Wiodi	51101				52 (1.00		nples		7 ti Mariony	
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	_	Field Test Results	Standpipe Details
0	sandy HC. MADE	gravel wit	th occasi D: Black	c carbonace	very silty/clay s. Possible s ous gravel an	light		6.36 6.16 5.76	0.20 0.40 0.80	1 2 3	ENV ENV ENV	0.00-0.20 0.20-0.40 0.40-0.80 0.80-1.50	0		
1	MADE	GROUN I. Slight H	D: Loose C.	l cream mar dark brown	silty sandy										
2	fine to	E GROUN medium (wood. Hi STONE. N	gravel wi gh HC in	th occasiona	silty/clayey sa al cobbles wit	andy, th		5.06	1.50						
- 3									2	æ.					
4								~ ~ ~	any other						
	End o	f Borehole	e at 4.50	m			ion pire	2.06	4.50						
- - 5 - -					Ŷ	or inspe	it Owific								
6					Consent of	0,									
- - - - - 7															
- - - - - - - - 8															
· 0															
- - 9 - - - - -															
H/	ARD STI	RATA BO	RING/CH	ISELLING										VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing S epth	Sealed At	Rise To		ime nin)	Comments	
														No water strike	
														GROUNDWATER D	ETAILS
	INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							е	Hole Depth	Casing Depth	Dej W	oth to ater	Comme		
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type REMARKS									Samp	le Leger	nd				
									B - Bulk E LB - Larg	Disturbed (tub Disturbed e Bulk Disturbe ironmental Sa	ed	+ Vial + Tub)	Sam	Undisturbed 100mm Diameter uple Undisturbed Piston Sample	

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REPORT NUMBER

100	BSL	/			0.20.									14463	
СО	NTRAC	T Lime	rick Gas	works								BOREH SHEET	OLE NO	D. F07 Sheet 1 of	1
	-ORDIN	ATES LEVEL (m /	156,5	36.74 E 555.18 N 7.32		RIG TYP	E OLE DIAM	ETER (mm)	Sonic 140		DATE D		12/11/2009)
CLI	ENT GINEER	Bord	Gais	7.02		BOREHO	OLE DEPT DEPTH (r	H (m)	····· ,	4.50 4.50		BORED	BY	Boart Long	year
	JINEER	Wiodo				- OAOIITO		,		7.00		nples		J. C. Monto	
Depth (m)			Des	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type		Recovery	Field Test Results	Standpipe Details
0	MADE impac	GROUNE t visible fro	D: Stiff b om 0.50n	rown very g n-1.10m.	ravelly cla	ау. НС				1	ENV	0.50-1.0	0		
1	MADE	GROUNE	D: Stiff g	rey gravelly	clay. HC	odour.		6.22	1.10	2	ENV	1.10-1.5	0		
2	LIMES band.	STONE. L	ocal HC	sheen and	local thin	clay		5.82	1.50						
3									i Any othe	, 13°E.					
- - - - - - - -	End o	f Borehole	at 4 50 i	m			700		4.50						
- - - - - - - - - - - - - - -	Liid 0	Dorchold	at 4.50 i	"		For insp	tion owner re	2.02	1.00						
- 6 -					Conser	Hor									
7 - - - - - - - - - - - - - - - - - - -															
- 0 - - - - - - - - - - - - - - - - - -															
- - - - - -	ADD ST	DATA BOD	DING/CLU	SELLING										NATED STRIKE DE	TAUS
		RATA BOR	Time				Wate		asing	Sealed	Ris		ime	VATER STRIKE DE Comments	IAILS
	11 (111)	Γο (m)	(h)	Comments			Strik		epth	At	То	1)	min)	No water strike	
														NO Water Strike	
													C	GROUNDWATER D	ETAILS
	INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							e	Hole Depth	Casing Depth		pth to ater	Comme	ents	
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type REMARKS									Sam	iple Leger	nd				
							Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed LB - Large Bulk Disturbed						U - Undisturbed 100mm Diameter Sample Jar + Vial + Tub) P - Undisturbed Piston Sample		

Color of the same
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REPORT NUMBER

00	BSL			-										14463	
СО	NTRAC	T Lime	rick Gas	sworks								BOREH SHEET	OLE NO	D. F08 Sheet 1 of 2	1
	-ORDIN	IATES LEVEL (m	156,	932.78 E 544.58 N 7.98		IG TYPI OREHO	E DLE DIAM	ETER (I	mm)	Sonic 140		DATE D		23/11/2009	
CLI	IENT GINEER	Bord	Gais	7.00	В	OREHO	LE DEPT DEPTH (r	H (m)	,	2.50 2.50		BORED PROCE	BY	Boart Longy	
							`	<u> </u>				nples			
Depth (m)			De	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0					orown mottle ts. Possible I					1	ENV	0.00-0.5	0		
1	MADE slightl HC.	GROUNI y sandy ve	D: Soft, o	dark brown/b	olack, clayey ed brick. Pos	ssible		6.98	1.00		ENV	1.00-1.5	0		
2		STONE. S	Slight HC	on occasion	nal surfaces.			6.48	1.50						
- - - -	End o	f Borehole	at 2.50	m		-		5.48	2.50						
3									:Nº	, 13°E.					
- 4								esonly.	any of						
- - -							an Pitro	hited ,							
- - - 5						inspe	it owner								
					Ś	CODALIA)								
6					Consento										
- - - 7															
8															
- - - - - 9															
	ARD ST	RATA BOF	RING/CH	ISELLING										VATER STRIKE DE	TAILS
		To (m)	Time (h)	Comments			Wate		asing epth	Sealed At	Ris To		ime	Comments	· · · · · · · · · · · · · · · · · · ·
			~ 7						1				-,	No water strike	
1														ROUNDWATER D	ETAILS
	NSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							te	Hole Depth	Casing Depth	De W	pth to ater	Comme		
			1.1.2.10	ם משפים	туре				1-						
KE	MARKS								D - Sma B - Bulk LB - Lai	ple Leger all Disturbed (tul Disturbed rge Bulk Disturb nvironmental Sa	b) ed	+ Vial + Tub)	Sam	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	

100	BSL	/												1440	3
СО	NTRAC	T Lime	erick Ga	sworks								BOREH	OLE N	. ••	
CO	-ORDIN	IATES		926.13 E		RIG TYPE				Sonic		SHEET DATE D	DII I EI	Sheet 1 o	
GR	OUND	LEVEL (m	156; AOD)	538.73 N 8.17		BOREHO	LE DIAM	ETER (ı	mm) ^	140		DATE L			
	IENT				1	BOREHO	LE DEPT	H (m)	3	3.50	İ	BORED	BY	Boart Lon	ıgyear
EN	GINEER	. Mou	chel			CASING I	DEPTH (r	n)		3.50		PROCE	SSEDI	BY A. Mahon	у
Œ								_	ε E			nples		2	e e
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
							reĉ	E E	De	S P	1	1			Sta
0	MADI	GROUN	D: Loos	e black grave	elly silt/sand	d. HC				1	ENV	0.00-0.5	0		
	MADE	E GROUN	D: Soft,	dark brown p	eaty sandy	/		7.67	0.50	2	ENV	0.50-1.0	0		
1	_	•		k & root hair		HC.		7.17	1.00	3	ENV	1.00-1.5	0		
	grave	Ily silt with	ש. ססπ, glass, ۱	black peaty s vood & root h	nairs. Stron	g HC		1.17	1.00						
	LIME	STONE. H	IC decr	easing with d	epth.	Í		6.67	1.50	1					
2															
						}									
3						ļ				ose.					
	End	f Borehole	at 3 E0	m				4.67	3050	1					
	Lilu C	DOIGHOR	. aเ ง.บเ	111	Consent			Ould.	3.50						
1							200	es of to							
							2 Pitt	Mil							
						.0	tion net ?								
5						insp	KO,								
						to, Will									
6					, X	of of									
ט					CORSEIL										
					C										
7															
8															
9															
			RING/CH Time	IISELLING			Wate	er Ca	asing S	Sealed	Ris	е т	ime	WATER STRIKE D	ETAILS
ror	m (m)	To (m)	(h)	Comments			Strik		epth	At	To		min)	Comments	
														No water strike	
								11.1		. 1		(GROUNDWATER	DETAILS	
NSTALLATION DETAILS							Dat	:e	Hole Depth	Casing Depth	De W	oth to ater	Comm	ents	
Date Tip Depth RZ Top RZ Base Type															
,F	MARKS	<u> </u>							Sama	le Locar	nd .				
\ =	WAKKS	•							D - Small B - Bulk D	le Leger Disturbed (tub Disturbed	0)			Undisturbed 100mm Diamete	r
									LB - Large	e Bulk Disturbe ironmental Sa	ed Imple (Jar +	+ Vial + Tub)	P -	Undisturbed Piston Sample	

OC	BSL	/		OL	.01201		L DOI		IXLO					14	463	
CO	NTRAC	T Lime	erick Gas	sworks	,	ı						BOREH SHEET	OLE NO		et 1 of 1	
CO.	-ORDIN	IATES	156, 156	908.22 E 530.52 N		RIG TYP	E			Sonic	-	DATE D	RILLED		1/2009	
GR	OUND I	LEVEL (m		6.22		BOREHO	DLE DIAM	ETER ((mm)	140		DATE L	OGGED	20/1	1/2009	
	ENT		d Gais				LE DEPT			5.00		BORED			rt Longye	ear
ENC	SINEER	. Mou	chel			CASING	DEPTH (n	n)		5.00		PROCE nples	SSED E	BY A. M	lahony	
Œ							_	۶	<u> </u>			ipies			4	be
Depth (m)			D€	escription			Legend	To:to:	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field T Resu		Standpipe Details
0 -1 -2 -3 -6 -7 -8	MADE sandy	gravelly (ccasional	D: Soft/f silt/clay.	irm, dark bro ery gravelly e cobbles.	0.20-0.30r NEC. ey/black ming with de	n) clay	1000 CTC	3.92 3.22 3.22 1.22	3.00	3 0	ENV	1.00-1.5 2.50-3.0	50			
	DD ST	DATA DO	DING/CL	IISELLING										VATED STD	IVE DET	All C
		To (m)	Time	Comments			Wate		asing	Sealed	Ris	- 1	ime	VATER STR Comments	VE DE I	MILO
	,	- \/	(h)	35			Strik	e <u>C</u>	Depth	At	То) (1	min)	No water s	strike	
													C	GROUNDWA	TER DE	TAILS
INSTALLATION DETAILS							Dat	te	Hole Depth	Casing Depth		pth to ater	Comme	ents		
REI	MARKS	3	1	ı	1				B - Bu LB - L	nple Legel nall Disturbed (tu Ilk Disturbed arge Bulk Disturt Environmental Si	oed	+ Vial + Tub)	Sam	Jndisturbed 100mm ple Jndisturbed Piston S		

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00	381	-/		OL.	O I LOI II	110AL	L DOIN		INEO(14463	
СО	NTRA	CT Lim	erick Gas	works								BOREH SHEET	OLE NO	D. F12 Sheet 1 of 1	
СО	-ORDI	NATES		002.25 E 529.41 N	R	IG TYPE	≣			Sonic	-	DATE D	RILLED		
GR	OUND	LEVEL (m		5.60	В	OREHO	LE DIAM	ETER (ı	nm)	140		DATE L	OGGED	19/11/2009	
CLI	ENT	Boro	d Gais		В	OREHO	LE DEPT	H (m)		3.70		BORED	BY	Boart Longy	ear
ENG	GINEE	R Mou	chel		C	ASING I	DEPTH (r	n)		3.70		PROCE	SSED B	G. Thornton	1
<u></u>								_	<u> </u>		_	nples			e
Depth (m)			Des	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0		E GROUN NEC.	ID: Firm li	ght brown sa	andy gravell	у				1 2	ENV	0.00-0.5	0		
				grey gravel				4.90 4.80	0.70		EINV	0.50-1.00			
1	∖clay.	NEC.		ght brown sa	, ,	y		4.40	1.20						
	grave	elly silt/clay	ID: Very s with occ	oft, brown, s asional cobb	sandy very oles & root h	nairs.		4.20	1.40		END/	4 00 0 4			
2	MAD	E GROUN	D: Very s	oft, brown, s	sandy very			3.80 3.50	1.80 2.10	3 4	ENV	2.10-2.3			
	Sligh	t HC incre	asing with	asional cobb depth. black, sandy		//[3.30	2.30						
3	clay/	silt with oc	casional c	cobbles. Str m, brown/gr	ong HC	//-]		Se.					
	sand	y gravelly asing with	silt/clay w						other						
		STONE.						1.90	3.70						
4	End	of Borehol	e at 3.70	m			S	82 9 to							
							Durpe	diff							
							tion terre								
5						:150	TOM'S								
					al cobbles.	for 12 its									
					S	CON.									
6					cent	,									
					Cours										
7															
-8															
9															
.															
HA	ARD S	TRATA BO	RING/CH	SELLING									V	│ /ATER STRIKE DET	TAILS
ror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		ime min)	Comments	
														No water strike	
														POUNDWATER	TAUC
INIC	TALL	ATION DET	TAIL ©				Dot		Hole	Casing	De	pth to		ROUNDWATER DE	IAILS
	Date			p RZ Base	Туре		Dat	.ਦ	Depth	Depth		pth to ater	Comme	51165	
REI	MARK)-1.20m. Wa sheen and h		in fast f	rom surfa	ice,	Sam D - Sma B - Bulk	DIE Leger Il Disturbed (tul Disturbed ge Bulk Disturb	nd b)		Samp	Indisturbed 100mm Diameter	
									Env - Er	ge Bulk Disturb	ample (Jar -	+ Vial + Tub)	P-U	ndisturbed Piston Sample	

100	381															14403	
СО	NTRAC	T Lin	nerick	Gaswo	orks								BOREH	OLE N	O .	G01	
CO	-ORDIN	IATES			9.48 E		RIG TYPE				Sonic	-	SHEET DATE D	DII I EI		Sheet 1 of 2 19/11/2009	
GR	OUND	LEVEL (r			9.00 N 7.92		BOREHO	LE DIAM	ETER (mm)	140		DATE L			20/11/2009	
	ENT	•	rd Gai				BOREHO	LE DEPT	H (m)	,	11.00		BORED	BY		Boart Longye	ear
	GINEER		uchel				CASING I	DEPTH (n	n)		11.00		PROCE		BY	D. O'Shea	
آ ۔										<u> </u>		San	nples				е
Depth (m)				Desc	ription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
0	MADI grave	E GROU lly clay w	ND: So	oft, bro casion	own/red/bla al cobbles	ack sandy s. NEC.					1	ENV	0.00-0.5	0			
1	MADI	E GROU	ND: Lo	oose li		sandy clay. , clayey slig s. NEC.			7.12 6.92	0.80 1.00	2	ENV	1.00-1.5	0			
2	MADI	- CROII	ND: C	tiff do	rk brown/a	rey/black, s	and v		5.42	2.50		ENV	2.50-3.0	0			
3	clay.	Possible	HC.			, clayey slig			4.00	2.00	Ø1.						
					nal cobble		jiidy		53.92	othe							
4	MADI sandy	E GROU / slightly	ND: Segravel	oft (firr lly clay	n 5.00-6.0 . NEC.	0m), browr	n/grey,		ora 92 Jire	4.00		ENV	4.50-5.0	0			
5						Consent	Forther de Copylia										
7						Coll					5	ENV	7.00-7.5	0			
8	MADI slight	E GROU ly gravell	ND: Se y clay.	oft, gre . Poss	ey/brown/b sible HC.	olack, sandy	y		-0.08	8.00	6	ENV	8.50-9.0	0			
9	LIME	STONE.	NEC.				-		-1.08	9.00							
HΑ	RD ST	RATA B			ELLING		 						<u>'</u>		WATI	ER STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)		omments			Wate Strike		asing Depth	Sealed At	Ris To		ime min)	Con	nments	
			_												No	water strike	
										11-1	10-1			(GRO	UNDWATER DE	TAILS
INS	TALLA	TION DE						Dat	е	Hole Depth	Casing Depth	De W	pth to ater	Comm	ents		
	Date	Tip De	pth RZ	Z Top	RZ Base	Туре	е										
REI	MARKS	<u>.</u> S								D - Sma B - Bulk	ple Leger all Disturbed (tube) Disturbed	0)				rbed 100mm Diameter	
										LB - Lar	ge Bulk Disturb	ed Imple (Jar -	+ Vial + Tub)	P -	nple Undistur	rbed Piston Sample	

Color of the color
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REPORT NUMBER

(16	SL			-	0.20								1446	3
CONT	RACT	Lime	rick Gas	works							BOREH SHEET	OLE NO	O. G01 Sheet 2 o	of 2
	RDINA JND LI	ATES EVEL (m /	156,5	989.48 E 579.00 N 7.92	RIG TYF	PE OLE DIAM	IETER (I	mm)	Sonic 140	Ī	DATE D		1 9/11/20	09
CLIEN	ΙΤ	Bord Mouc	Gais			OLE DEPT G DEPTH (1			11.00 11.00		BORED PROCE:		Boart Loi Bo D. O'She	
					-					Sam	ples			
Depth (m)				scription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
		TONE. N					-3.08	11.00)					
12 13 14 15 16 17 18 18 19 19					For inst	etion purper re	es only.	any other	E.					
HARI	D STR			ISELLING		1	-	<u>'</u>					WATER STRIKE I	DETAILS
From ((m) T	o (m)	Time (h)	Comments		Wate Strik		asing epth	Sealed At	Rise To		ime min)	Comments	
													No water strike	
								11-1	0	. 1 -		(GROUNDWATER	DETAILS
INST <i>A</i>		Tip Depth		p RZ Base	Туре	Da	te	Hole Depth	Casing Depth	Der W	oth to ater	Comm	ents	
REMA	ARKS							D - Sma B - Bulk LB - La	ple Leger all Disturbed (tub Disturbed ge Bulk Disturb nvironmental Sa	o) ed	· Vial + Tub)	Sam	Undisturbed 100mm Diamet nple Undisturbed Piston Sample	er

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

681	/												1446	3	
NTRA	CT Lim	nerick Ga	asworks											of 2	
		156	5,576.61 N				IETER (mm)	Sonic 140		DATE D	RILLE	D 19/11/20	009	
IENT	Boi	rd Gais	7.50		BOREH	OLE DEPT	ΓH (m)	, ,	11.50		BORED	BY	Boart Lo	ngyear	
GINEE	R IVIO	ucnei			CASING	DEPIH (I	m)		11.50			:SSED 1	A. Mano	ny	
		D	escription			puebe-	acito, co	Depth (m)	Ref. Number	_	<u> </u>	Recovery	Field Test Results	Caico	Standpipe Details
silt/cl	ay with m	any cobl	oles & red b						2	ENV	0.00-0.5	50			
with (depth), sa	indy grav					6.49	1.50	3	ENV	2.00-2.5	50			XX//XX///XX//
No re	ecovery.						4.99	· ayothe	, 13°E.						
sand	y slightly	gravelly	silt/clay with	rown/black occasional	l S				4	ENV	5.00-5.5	50			
MADE GROUND: Soft/firm, green/yellow mottled, sandy slightly gravelly silt/clay with occasional cobbles, red brick & wood. No recovery.					tled,		2.19 1.99			ENV	5.80-6.0	00			XX//XX///XX///
							0.49	7.50	6	ENV	8.00-8.5	50			
LIME	STONE.	NEC.					-1.01	9.00							
ARD ST	TRATA BO		HISELLING			10/51	or C	ooin~	Cooled	D:-			WATER STRIKE	DETAIL	_S
m (m)	To (m)	(h)	Comment	5					Sealed				Comments		
													No water strike	÷	
													GROUNDWATER	DETA	ILS
STALLA	ATION DE	TAILS				Da	te	Hole Depth		De W	pth to ater	Comm	ents		
					•			Борит	Бори	,,,					
MARK	S							D - Sm B - Bull LB - La	all Disturbed (tulk K Disturbed rge Bulk Disturb	b) ed	. No. L. Tub.	San	nple	ter	
	MAD silt/citop a MAD sand cobb No re	MADE GROUI sandy slightly cobbles, red b MADE GROUI sandy slightly cobbles, red b MADE GROUI gravelly sand visual slightly cobbles. Necoboles and slightly cobbles and slightly sandy slightly sandy slightly sandy slightly sandy slightly sandy slightly sandy slightly sandy slightly sandy slightly sandy slightly sand visual slightly sand sandy slightly sandy sandy slightly s	MADE GROUND: Softwith depth), sandy slightly gravelly scobbles, red brick & wo No recovery. MADE GROUND: Softwith depth), sandy slightly gravelly scobbles, red brick & wo No recovery. MADE GROUND: Softwith depth), sandy slightly gravelly scobbles, red brick & wo No recovery. MADE GROUND: Med gravelly scobbles, red brick & wo No recovery. MADE GROUND: Med gravelly scobbles, red brick & wo No recovery. MADE GROUND: Med gravelly sand with occasion with occasion with sandy slightly gravelly scobbles, red brick & wo No recovery.	DORDINATES 156,982.14 E 156,576.61 N ROUND LEVEL (m AOD) 7.99 JENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft, dark brown silt/clay with many cobbles & red by top and bottom of strata. MADE GROUND: Soft/firm, brown with depth), sandy gravelly clay with cobbles. NEC. MADE GROUND: Soft/firm, dark by sandy slightly gravelly silt/clay with cobbles, red brick & wood. MADE GROUND: Soft/firm, green/sandy slightly gravelly silt/clay with cobbles, red brick & wood. MADE GROUND: Medium dense, gravelly sand with occasional cobbles. Nec. LIMESTONE. NEC. BARD STRATA BORING/CHISELLING (h) Comments	PORDINATES 156,982.14 E 156,576.61 N ROUND LEVEL (m AOD) T.99 JENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft, dark brown, sandy grasilt/clay with many cobbles & red brick. Slight top and bottom of strata. MADE GROUND: Soft/firm, brown (becoming with depth), sandy gravelly clay with occasion cobbles. NEC. MADE GROUND: Soft/firm, dark brown/black sandy slightly gravelly silt/clay with occasional cobbles, red brick & wood. MADE GROUND: Soft/firm, green/yellow mot sandy slightly gravelly silt/clay with occasional cobbles, red brick & wood. MADE GROUND: Medium dense, brown, clay gravelly sand with occasional cobbles. Sligh LIMESTONE. NEC. ARD STRATA BORING/CHISELLING m (m) To (m) Time (n) Comments Time (n) Comments Time (n) To ments To make the province of the pro	PORDINATES 156,982.14 E 156,576.61 N BOREH BOREH BOREH BOREH BOREH BOREH GINEER Mouchel Description MADE GROUND: Soft, dark brown, sandy gravelly silf/clay with many cobbles & red brick. Slight HC, at top and bottom of strata. MADE GROUND: Soft/firm, brown (becoming black with depth), sandy gravelly clay with occasional cobbles. NEC. MADE GROUND: Soft/firm, dark brown/black mottled, sandy slightly gravelly silf/clay with occasional cobbles, red brick & wood. MADE GROUND: Soft/firm, green/yellow mottled, sandy slightly gravelly silf/clay with occasional cobbles, red brick & wood. MADE GROUND: Soft/firm, green/yellow mottled, sandy slightly gravelly silf/clay with occasional cobbles, red brick & wood. No recovery. MADE GROUND: Medium dense, brown, clayey, silty gravelly sand with occasional cobbles. Slight HC LIMESTONE. NEC. ARD STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type 11.50 10.00 11.50 50mm SP	PORDINATES 156,982.14 E 156,576.61 N BOREHOLE DIAM BOREHOLE DIAM BOREHOLE DIAM BOREHOLE DIAM BOREHOLE DIAM BOREHOLE DIAM BOREHOLE DEPT CASING DEPTH (IIII) Description Description	PORDINATES 158,982.14 E 156,576.61 N BOREHOLE DIAMETER (BOUND LEVEL (m AOD) 7.99 BOREHOLE DIAMETER (BOREHOLE DEPTH (m) CASING DEPTH (m) Description Description Description Description Description Description Description MADE GROUND: Soft, dark brown, sandy gravelly silt/clay with many cobbles & red brick. Slight HC, at top and bottom of strata. MADE GROUND: Soft/firm, brown (becoming black with depth), sandy gravelly clay with occasional cobbles. NEC. MADE GROUND: Soft/firm, dark brown/black mottled, sandy slightly gravelly silt/clay with occasional cobbles, red brick & wood. MADE GROUND: Soft/firm, green/yellow mottled, sandy slightly gravelly silt/clay with occasional cobbles, red brick & wood. MADE GROUND: Medium dense, brown, clayey, silty gravelly sand with occasional cobbles. Slight HC LIMESTONE. NEC. Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type	PORDINATES 156,892.14 E 156,576.61 N 156,576	ACROINATES 156,982.14 E 156,576 61 N SOUND LEVEL (m AOD) 7.99 BOREHOLE DIAMETER (mm) 140 BOREHOLE DIAMETER (mm) 140 BOREHOLE DIAMETER (mm) 11.50 CASING DEPTH (m) DORDINATES 156 982.14 E 156,576.61 N 156,576	SAME SAME	SHEET DATE DRILLE DATE D	Second S	SHEET 156,982.14 E 156,786.11 N BOREHOLE DIAMETER (mm) 140 BOREHOLE DIAMETER (mm) 115.0 BOR	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

(I)@	BEL	/														14403	
CON	NTRAC"	Γ Lime	rick Ga	sworks									BOREH	OLE N	10.	G02	
CO-	ORDIN	ATFS	156	982.14 E		RIG TYF)E			Son	io		SHEET			Sheet 2 of 2	
		.EVEL (m	156,	576.61 N 7.99			OLE DIAM	ETER (mm)	140			DATE D DATE L			19/11/2009 20/11/2009	
CLIE			Gais				OLE DEPT			11.5			BORED			Boart Longye	ear
ENG	INEER	Moud	chel			CASING	DEPTH (r	n)		11.5	0		PROCE	SSED	BY	A. Mahony	
€								_	= E	<u> </u>		Sam	ipies	- ;	<u></u>		e e
Depth (m)			De	escription			Legend	Flevation	Denth (m)		Ket. Number	Sample Type	Depth (m)		Recovery	Field Test Results	Standpipe Details
- 10 -	LIMES	STONE. N	IEC. (cc	ntinued)											_		
-								1									
11								1									
								1									
:	End of	Borehole	at 11.5	0 m				-3.51	11.	50							<u> —</u>
12																	
. 12																	
13					Conse					01.							
13										et use							
								.4	. Add								
14								as Office	K Wit.								
- 14							200	ited									
:							on Pilite	8									
- - - 15						<u>.</u>	ection net										
- 15						of inst	M. C										
						EO, All											
- - - 16						atofic											
. 16					\$ 0115e												
					C												
: 																	
17																	
18																	
18																	
- 19 -																	
-	DD STI	DATA BOI	DINC/CL	HEEL LING											14/4	TED STOWE DET	A !! C
			Time	ISELLING Comments			Wate		asing	Sea		Rise		Гime		TER STRIKE DET	AILS
			(h)				Strik	e L	epth	A	τ	To		min)		lo water strike	
															I IN	io water strike	
															GRO	OUNDWATER DE	TAILS
INS	TALLA	TION DET	Dat	te	Hole Depth		asing epth	Der W	oth to ater	Comn							
	Date 11-09	Tip Dept 11.50	10.0			/pe m SP					- 1						
BEN	//ARKS								90	mnle I	egen	d					
التلده									IB-B	mple L Small Disturb Bulk Disturb	ed				- Undis ample	sturbed 100mm Diameter	
									LB -	Large Bulk	Disturbe	d nple (Jar +	· Vial + Tub)	P	- Undis	turbed Piston Sample	

O	SL	/												14	403	
CON	TRAC	Γ Lime	rick Ga	sworks								BOREH	OLE N	O. G 03	3	
	ORDIN	ATFS	156	974.42 E		RIG TYP				Sonic	-	SHEET			et 1 of 2	
			156,	571.25 N 7.92			C DLE DIAM	FTFR (mm)	140		DATE L			1/2009 1/2009	
		EVEL (m		7.92			OLE DEPT	`	111111)	11.00	H					
CLIE	:NT INEER	Bord Moud	Gais				DEPTH (r			11.00		BORED PROCE:			rt Longy lahony	ear
		Wood	J. 101			<u>OAOII10</u>		, 		11.00		nples	OOLD .	71.10	unony	
								5	Depth (m)	<u></u>	_	-	2	Field T	-oct	Standpipe Details
Deptili (III)			De	escription			Legend	Flevation	bt di	Ref. Number	Sample Type	Depth (m)	Recovery	Resu		ndp tails
3							Fe	4		중골		1				Sta
	MADE	GROUNI	D: Soft,	dark brown,	slightly san	dy				1	ENV	0.00-0.5	0			
	red bri	ck & root	hairs. N	ional cobble IEC.	s, wood, coi	ncrete,										
										2	ENV	1.00-1.5	0			
												45000				
	MADE	GROUNI	D: Soft,	brown, very bles. Possi	sandy grave	elly		6.42	1.50	3	ENV	1.50-2.0	١			
L											END.	2400-				
	MADE	GROUNI silt. NE	D: Loos	e, grey, very	sandy grav	elly		5.82	2.10	4	ENV	2.10-2.5	٦			
	MADE	GROUNI	D: Soft/f	irm, grey/bla	ack/brown m	nottled,		5.42	2.50	5	ENV	2.50-3.0	0			
	slightly	sandy gr	avelly c	lay with occa	asional cobb	oles.										
1	HC No red	overv.				/		4.92	3.00	(13°C)						
							\bowtie		3.00	0"						
								es afo	MIN							
								62 9 2G	>							
								direc								
						S										
						For inst										
						to by.										
L					×(8										
		GROUNI s. HC	D: Loos	e, grey, claye	ey silty grav	elly		1.92	6.00							
	000010	0. 110			Co		\bowtie									=
							\bowtie									
									7-5							=
	MADE	. GROUNI / sandv ar	ປ: Soft/f avellv ດ	irm, grey/bro lay with man	own mottled ov cobbles	, HC		0.42	7.50							
		··~, 91	5, 0	. ,	,											
							\bowtie									
										6	ENV	8.50-9.0	0			=
L		TONE	150					4 00	0.00							
	LIMES	STONE. N	NEC.					-1.08	9.00							
							H									
ΑΙ	RD STE			IISELLING		-	101-1-		ooina T	Cooled	D:-	<u> </u>		WATER STR	KE DET	AILS
mc	(m) 1	o (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Ris To		ime min)	Comments		
														No water s	strike	
														GROUNDWA	TER DF	TAILS
IST		TION DET	AILS				Dat	e	Hole	Casing	De	pth to ater	Comm			
	ate			p RZ Base	Туре	e			Depth	Depth	VV	aler				
	09-09	1.00	1.00		50mm											
ΕM	IARKS	2.0 hrs s	l tanding	- Health and	 d Safety due	e to verv	contamina	ated	Sam	l ple Leger	nd					
*		soils.	.a.ranig	Suiti ail	. carety add	. to vory	- Containing		D - Sma B - Bulk	all Disturbed (tul	b)			Undisturbed 100mm	Diameter	
									LB - Lar	rge Bulk Disturb nvironmental Sa	ed ample (Jar -	+ Vial + Tub)	P -	nple Undisturbed Piston S	ample	

College College
IGSL

100	BSL	/											14463	•
CO	NTRAC	T Lime	erick Gas	works							BOREH	OLE NO		
СО	-ORDIN	ATES	156,9	974.42 E	RIG TYP	PE			Sonic	<u> </u>	SHEET DATE D	RILLE	Sheet 2 of 24/11/2009	
GR	OUND I	EVEL (m	156,8 AOD)	571.25 N 7.92	BOREHO	OLE DIAM	ETER (mm)	140		DATE L			
CLI	ENT	Boro	d Gais		BOREHO	OLE DEPT	H (m)		11.00	Ī	BORED	BY	Boart Long	gyear
ENC	GINEER	Mou	chel		CASING	DEPTH (r	n)	_	11.00		PROCE	SSED E		
٦								- F			ples			l e
Depth (m)			De	scription		Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
10	LIMES	STONE. I	NEC. (co	ntinued)										
11	End o	f Borehole	e at 11.00	O m			-3.08	11.00)					
- 40														
12														
13									.01*					
13								nei	1150					
							٠٨.	· oyotti						
14					For its of copyris		25 OIL	K Will.						
-						1700	ited t							
						on Pure	8							
15					న	citienter								
					Or inst	N. C								
					ticoby									
16					ant of									
					Conse									
17														
18														
19														
НА	RD ST	RATA BO	RING/CH Time	ISELLING		Wate	r C	asing	Sealed	Rise		ime	VATER STRIKE DE	ETAILS
ror	m (m)	To (m)	(h)	Comments		Strik		epth	At	To		min)	Comments	
													No water strike	
													GROUNDWATER D	OFTAILS
INS	TALLA	TION DET	AILS			Dat	te	Hole Depth	Casing Depth	I Der	oth to ater	Comm		
	Date	Tip Dep	h RZ To	p RZ Base				ъерии	Depin	VV	aiGl			
	-09-09	1.00	1.00	9.00	50mm SP									
REI	MARKS	2.0 hrs s soils.	standing -	- Health and	Safety due to very	contamina	ated	Sam D - Sma	ple Legen II Disturbed (tub Disturbed	nd ⁽⁾			Undisturbed 100mm Diameter	
								LB - Lar	Disturbed ge Bulk Disturbe vironmental Sa	ed mple (Jar +	· Vial + Tub)	Sam		

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		•										1446	3	
СО	NTRAC	T Lim	erick Ga	asworks								BOREHO SHEET	OLE NO	D. G04 Sheet 1 o		
	-ORDIN		156	5,966.14 E 5,565.03 N		RIG TYP	PE DLE DIAM	ETED (:		Sonic 140		DATE DE		12/11/20	09	
	ENT	LEVEL (n Bor	d Gais	7.45		4	OLE DEPT			12.00	-	BORED		Boart Loi	ngyear	
ENG	SINEER	R Mou	ıchel			CASING	DEPTH (r	n)		12.00		PROCES	SSED B	G. Thorn	ton	
<u>ء</u>								_	. F		_	nples			:	e
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	() ()	Standpipe Details
0	NEC.			very sandy se red/black	• •			7.15 6.95	0.30	1	ENV	0.30-0.50)			
	∖Possi	ble cinde	rs. Poss	sible contan	ination.			6.70	0.50							
1				dark grey o		avel /		6.45	1.00	2	ENV	1.00-1.50)			1 🖔
	\(poss	ible ash).	Possib	le contamin	ation.	/		5.95	1.50							
	\ MADI \clay (a	E GROUN ash). Pos	ND: Soft ssible co	black very	sandy very	gravelly		5.95	1.50							
2				dark grey g		. NEC.										}
										3	ENV	2.50-3.00				
											LINV	2.30-3.00	'			
3	MADI	E GROUN	ND: Soft	: brown/grey	clay. NEC) .		4.45	3.00	ve.						1 🖔
									ather			0.50.400				
								99.	MYOU	4	ENV	3.50-4.00	,			
4								esoily.								1 🖔
								itiell								1 🛭
								N		5	ENV	4.50-5.00)		Š	
5	MADE	E CROLIN	ID: Soff	grey clay.	HC odour	S		2.45	5.00							1 🖔
	IVIADI	E GROUN	ND. 3011	grey clay.	nc odoui.	For inspire		2.43	3.00							
						FORM				6	ENV	5.50-6.00)		Š	
6	1445	- 00011	ID 11			Kof .		4 45	0.00							1 🖔
0	MADI	E GROUN	ND: NO	recovery.	Conse	,		1.45	6.00							
					C											
.																1 🖔
7																
	MADE	E GROUN	ND: Soft	slightly gra	vellv clav.	Sliaht		-0.05	7.50	7	ENV	7.50-9.00			\mathbb{X}	} \{
		neen. 0.3			, ,	Ü										1 🖔
8																
																}
9	MADE	E GROUN	ND: Loo	se slightly c	layey grave	l with		-1.55	9.00							
	occas	sional con	bies. n	C-free phas	e oii.					8	ENV	9.50-10.00	0			}
HA	RD ST	RATA BO		HISELLING			Wate		noina	Sealed	Ris	' T:	ime	VATER STRIKE I	DETAIL	LS
-ror	m (m)	To (m)	Time (h)	Comments	3		Strik		epth	At	To		nin)	Comments		
														No water strike	!	
															DETA	
INIC	TALLA	TION DE	TAILE	<u> </u>			Det		Hole	Casing	De	pth to 1		SROUNDWATER	DE l'A	ILS
	Date	Tin Der	th RZT	op RZ Bas	e Ty	ne	Dat	.e	Depth	Depth	W	oth to ater	Comme	ziil8		
	-11-09	12.00	10.0		e Ty 50mn											
RF	MARKS	\							Samr	le Leger	nd					
	·······	•							D - Smal B - Bulk I	I Disturbed (tub Disturbed	0)		U - U Sam	Undisturbed 100mm Diamet	er	
									LB - Larg	ge Bulk Disturb vironmental Sa	ed ımple (Jar +	+ Vial + Tub)	P - U	Indisturbed Piston Sample		

00	BSL	/													14403	
СО	NTRAC	r Lime	erick Gas	works								BOREH	OLE N	O .	G04	
CO	-ORDIN	ATES	156,9	966.14 E	RI	G TYPE				Sonic	F	SHEET			Sheet 2 of 2	
		.EVEL (m	156,	565.03 N 7.45		OREHOL		ETER (140		DATE D			12/11/2009 13/11/2009	
	ENT		I Gais	7.10		OREHOL			-	12.00	-	BORED			Boart Longye	
	GINEER	Moud				ASING D				12.00		PROCE		BY	G. Thornton	zui
											San	nples				a)
Depth (m)			De	scription			Legend	Flevetion	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
10	LIMES	STONE. H	HC, Reco	very predor	minantly oil.			-2.55	10.00					-		
								-								
						F										
11						F		1								
								1								
12								4.55	40.00							
12	End of	Borehole	e at 12.00	J M				-4.55	12.00							
13										01.						
13									200	150						
								.4	oy oth							
14					Consent of			35 OTH	i dir.							
14							120	ited t								
							on Pilities	8								
15						Section	io wher									
13						ांगडी	, o									
					Ŷ	OBAL										
16					atos											
10					CORSEL											
					C											
17																
17																
18																
18																
19																
19																
HA	ARD ST	RATA BOI	RING/CH	ISELLING										WATE	ER STRIKE DETA	AILS
-ror	m (m)	Го (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Ris To		ime min)	Com	nments	
														No	water strike	
									Hole	Casing	Do	nth to			JNDWATER DE	TAILS
		Tin Dont		n D7 D	T		Dat	te	Depth	Depth	W	pth to ater	Comm	ents		
	Date -11-09	Tip Dept 12.00	10.00		Type 50mm S	Р	1									
REI	MARKS								Samp	l le Legen	nd					
									D - Smal B - Bulk I	Disturbed (tub)		Sai	mple	bed 100mm Diameter	
									Env - En	ironmental Sa	mple (Jar +	+ Vial + Tub)	P -	Undistur	bed Piston Sample	

100	BSL	/												144	63	
CO	NTRAC	T Lime	rick Gas	works								BOREH	OLE N	O. G05		
	-ORDIN	ΔTFS	156 0	959.42 E	Ι,	RIG TYP				Conio	-	SHEET				
		EVEL (m	156,5	559.33 N 7.24			E DLE DIAM	ETED (mm)	Sonic 140		DATE D				
		•		1.24			OLE DEPT	•	,	11.00	-			Boart Longyear		
	ENT SINEER		Gais thel				DEPTH (n	` '		11.00		BORED PROCES			0,	
								ĺ			San	nples				
Depth (m)			Des	scription			pue	Flevation	Depth (m)	Ref. Number	Sample Type	ıtı	Recovery	Field Tes		
Ľé							Legend	a L		Ref	Sar	Depth (m)	Reco	i i i i i i i i i i i i i i i i i i i	Star	
0				o firm browr						1	ENV	0.00-0.5	0			
		es. Possib			K and occas	sioriai										
1				eddish blac phase oil.	k sandy, gra	avelly		6.24	1.00	2	ENV	1.00-1.5	U			
+				eddish blac	k sandy. gra	avelly		5.74	1.50							
	silt/cla	y. Only 0.	10m rec	overed - fre	e phase oil.											
	MADE	GROUNI	D: Soft to	slightly firn	n, grey, very	y		4.24	3.00	(15°.						
	Slight		Ony One V	5554510	Jobbics				othe	<i>r</i>						
								oily	Carry .							
								: 169 fr	3.00	3	ENV	4.00-4.5	U			
-	MADF	GROUNI	D: Grev s	silty sand. V	Vater wash	ed		2.74	4.50	_						
	away	much of re	covery (only 1.00m	recovered).	Free										
•	priase	on iii walt	∵ 1 .			, insp										
						For ith				4	ENV	5.50-6.0	0			
	MADE	GROLINI						GROUND: cobble with some silty sand, HC. 1.34	5.90	_						
ĺ		GROUNI			only surren	. 10.		1.24	6.00	/						
					Co											
-	MADE	GROUNI	D: Soft to	o firm grey, o	clayey, very	sandy		-0.26	7.50	\dashv						
	silt. H	eavy HC v	with free	phase oil.	,	•				5	ENN/	8.00-8.5				
										5	ENV	0.00-8.5	٦			
-	LIMES	STONE. H	leavy HC	with free p	hase oil.			-1.56	8.80							
1																
							H									
		RATA BOF	Time				Wate		asing	Sealed	Ris	e T	ime V	WATER STRIKI	E DETAILS	
or	m (m) -	Го (m)	(h)	Comments			Strike	e D	epth NR	At NS	To	1)	min) NR	Comments Rapid		
							1.30	´	INIX	1113	ואר	` '	INIX	Γαρία		
									I Ial-	Casia		-41- 1	(GROUNDWATE	ER DETAILS	
		TION DETA		1===	_		Dat	:e	Hole Depth	Casing Depth	De W	oth to ater	Comm	ents		
	Date -11-09	Tip Deptl 9.00	h RZ To 1.00	p RZ Base 9.00	Type 50mm											
				0.50	0011111				1-	<u> </u>						
ιΕľ	MARKS								D - Sma	ple Leger all Disturbed (tub Disturbed	nd •)			Undisturbed 100mm Dia	meter	
									LB - Lar	: Disturbed rge Bulk Disturb nvironmental Sa	ed imple (Jar +	+ Vial + Tub)	San P - I	nple Undisturbed Piston Sam	ole	

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00	BSL	/		OL	ППОД	L DOIN		ILC	<i>,</i>	\ D					14463		
СО	NTRAC	T Lim	erick Ga	sworks									BOREI SHEET		NO.	G05 Sheet 2 of 2	
CO	-ORDIN	IATES	156, 156.	,959.42 E ,559.33 N		RIG TYPI	E			So	onic		DATE		LED	17/11/2009	
GR	OUND	LEVEL (n	n AOD)	7.24		BOREHO	LE DIAM	ETER	(mm)	14	40		DATE	LOG	GED	17/11/2009	
	ENT		d Gais			BOREHO					1.00		BORE			Boart Longyear	
ENG	GINEER	R Mou	uchel			CASING	DEPTH (r	n)		11	1.00		PROCE	ESSE	D BY	A. Mahony	
<u>آ</u>								,	= E	<u> </u>			nples			_) e
Depth (m)			De	escription			Legend		Denth (m)	Cepui	Ref. Number	Sample Type	Depth	(111)	Recovery	Field Test Results	Standpipe Details
10			Heavy H	C with free ph	nase oil.												
	(conti	nueu)				-		1									
						-		-									
11	End o	of Boreho	le at 11.0	0 m				-3.76	11.	00							(////////
12																	
13											.e.·						
13										ein	20						
										Ille							
					Consent			only	I MIL								
14							٥	es of	1								
							DUID	dill									
							tion is to										
15						2520	Y ONL										
						COLUTION TO											
						1,00											
16					ď	, or											
					Conser												
					C												
17																	
18																	
19																	
нл	NDD ST	DATA BO	DING/CL	HISELLING											۱۸/۸	TER STRIKE DET	TAII S
		To (m)	Time	Comments			Wate		asing	Se	ealed	Rise	- 1	Time	; C	omments	IAILO
		, ,	(h)				Strik	е	Depth		At	To		(min)	,		
															GR	OUNDWATER DE	TAILS
INS	TALLA	TION DE	TAILS				Dat	te	Hole Depth		Casing Depth	Dej	oth to ater	Cor	nmen	ts	
	Date		th RZ To		Тур				Бери	+	Бериі		3101				
17	-11-09	9.00	1.00	9.00	50mm	SP											
REI	MARKS	 }							Sa	l alamı	e Leaen	ıd					
		-							D - S B - E	Small Di Bulk Dis	e Legen isturbed (tub sturbed Bulk Disturbe)			U - Undi Sample	isturbed 100mm Diameter	
									LB -	Large E	Bulk Disturbe onmental Sa	ed mple (Jar +	⊦ Vial + Tub)	P - Undi	isturbed Piston Sample	

100	BSL	/													14463		
СО	NTRAC	T Lime	erick Ga	sworks								BOREH	OLE N	О.	G06		
CO	-ORDIN	IATES	156	,952.02 E		RIG TYPE				Sonic	T I	SHEET			Sheet 1 of 2		
		LEVEL (m	156	,552.79 N 7.20		BOREHO		FTFR (mm)	112		DATE L					
				7.20		BOREHO		`	,	11.00	H			_			
	IENT GINEER		l Gais			CASING I				11.00		BORED PROCE		BY	Boart Longye D. O'Shea	ear	
		11100	01101			0,10,110	, (ı	, 		11.00		nples	0025		D. 0 01100		
Œ			_				ъ	2	Depth (m)	e	<u>o</u>		2	5	Field Test	Standpipe Details	
Depth (m)			D	escription			Legend	Flevation	epth	Ref. Number	Sample Type	Depth (m)	Recovery		Results	andpetails	
0							~~~~~	ū		űΖ	ώ É.	٥٥	· 8	-		<i>\$</i> 7 ∆	
0				e sandy cobl crete NEC.	bly gravel -												
_,							$\times\!\!\times\!\!\times$		1.00								
1	MADI sand.	GROUN Possible	D: Loos HC.	e, brown/red	, clayey gra	avelly		6.20	1.00								
	00	. 000.0.0					$\times\!\!\times\!\!\times$			1	ENV	1.50-2.0	10				
							\ggg	1	L								
2	MADI	GROUN	D: Loos	e black/brow obbles. Stro	n, clayey g	gravelly		5.20	2.00								
	phase		norial CC	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	g 110 - 116	~	\ggg			2	ENV	2.50-3.0	10				
							>>>>										
3									١,	10°C.							
	MADE	CDOUN	D. C:	/a-# 0 00 7	00> h		>>>>	2.70	3.50	>							
	sandy	= GROUN clay with	D: Firm occasio	(soft 6.00-7.	00m), brow Possible	vn, very HC.		3.70	MIN SOU								
4								esoni,	S								
								difec		3	END/	4.50.5.0	.				
										3	ENV	4.50-5.0	0				
5						ુર્જ											
						to the											
						1,000											
6					aŠ.	, o											
					COUSE												
					O					4	ENV	6.50-7.0	10				
7							>>>>										
'							>>>>										
	MADE	GROUN	D: Firm	/soft, green/g	rey, clayey	/ sandy		-0.60	7.80	- F	EN1/	9.00.0.5					
8	grave	I. Strong	HC.				XXX			5	ENV	8.00-8.5	iu				
							XXX	\$									
		GROUN	D: Firm,	brown sand	y clay. Po	ssible		-1.50 -1.70	8.70	6	ENV	8.70-8.9	0				
9	HC.	E GROUN	D: Soft.	black, sandy	/ gravellv c	lay.		-1.70	9.00	4							
	Stron	g HC.				/ F	\Box										
.	LIME	STONE. N	NEC.			F]									
HA	ARD ST	RATA BOI		HISELLING			1	1	<u>'</u>		' 	·		WAT	ER STRIKE DET	AILS	
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Ris To		ime min)	Cor	nments		
	T													No	water strike		
														CBC	UNDWATER RE	TA!! ^	
INIC		TION DET	All 6				Det	10	Hole	Casing) De	pth to			UNDWATER DE	IAILS	
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							Dat	le	Depth	Depth	Ň	pth to ater	Comm	ients	; 		
	Date	Tip Dept	174 11	op INZ base	. 1 yp	J.C	\dashv										
DE	MARKS	<u> </u>							Same	ole Logor	nd.						
ΚEI	WAKK	•							D - Sma B - Bulk	ple Leger Il Disturbed (tub Disturbed	0)				urbed 100mm Diameter		
									LB - Lar	ge Bulk Disturb vironmental Sa	ed imple (Jar	+ Vial + Tub)	Sar P -	mple Undistu	irbed Piston Sample		

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REPORT NUMBER

IGSL			0 _	0.20								14463	
CONTRACT	Limer	rick Gasw	vorks							BOREH SHEET	OLE NO	D. G06 Sheet 2 of 2	
CO-ORDINA GROUND LE		156,55	52.02 E 52.79 N 7.20	RIG TYP BOREHO	E DLE DIAM	ETER (r		Sonic 112	ī	DATE D		20/11/2009	
CLIENT ENGINEER	Bord Moucl	Gais			DLE DEPT DEPTH (r			11.00 11.00		BORED PROCES		Boart Longyear D. O'Shea	
				-					Sam				
Depth (m)			cription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
		EC. (cont				-3.80	11.00						
12 13 14 15 16 17				For its of Copyrid	ction purpos	es offy.	any other	S.					
HARD STRA	ATA BOR	ING/CHIS	SELLING									VATER STRIKE DET	AILS
From (m) To	(m)	Time (h)	omments		Wate Strik		sing epth	Sealed At	Rise To		ime min)	Comments	
		\/			Sun			- 15			/	No water strike	
											G	GROUNDWATER DE	TAILS
Date 7	Dat	te	Hole Depth	Casing Depth	Der W	oth to ater	Comme	ents					
REMARKS							D - Smal B - Bulk LB - Larg	DIE Legen I Disturbed Je Bulk Disturbed Je Bulk Disturbed Je Bulk Disturbed) ed	Vial + Tub)	Sam	Jndisturbed 100mm Diameter ple Indisturbed Piston Sample	

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100	68			·	OL.	O I LOI				ILU(14463	
СО	NTRA	CT Lin	nerick Ga	sworks									BOREH SHEET	OLE NO	D. G07 Sheet 1 of 1	1
СО	-ORDI	NATES		,945.33 E ,546.67 N			RIG TYF	PΕ			Sonic	-	DATE D	RILLED		
GR	OUND	LEVEL (ı		7.24			BOREH	OLE DIAM	ETER (r	nm)	140	L	DATE L	OGGED	15/11/2009	
CL	IENT	Во	rd Gais				BOREH	OLE DEPT	H (m)		9.00		BORED	BY	Boart Longy	/ear
EN	GINEE	R Mo	uchel				CASING	DEPTH (n	n)		9.00		PROCE	SSED E	G. Thornton	1
Ē									_	E E			nples			e
Depth (m)			D	escription	n			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
1	Claye	DE GROU DE GROU DE GROU Drick. NE	with occa	sional co	bble	s. NEC.		ense			2	ENV	1.50-2.0	0		
2	MAE with	E GROU free phas	ND: Loos e oil	e dark gr	rey/b	rown clay	ey sand		4.74	2.50	3	ENV	2.50-3.0	0		
3		E GROU		ecovery.					4.24	3.00	3.00 ps.					
5	MAC with	E GROU free phas	ND: Loos e oil.	e dark gı	rey/b	rown clay	vey sand		2.74	4.50	4	ENV	4.50-5.00 5.50-6.00			
7	varia	se black g ably weath ESTONE.	ered lime	OBBLES estone.	S. HC	Conset	-05		1.54	5.70 6.00						
8																
9	End	of Boreho	ole at 9.00) m					-1.76	9.00						
H/	ARD S	TRATA B		HISELLIN	I G			1	· · ·	'			1		VATER STRIKE DE	TAILS
⁼roı	m (m)	To (m)	Time (h)	Comme	ents			Wate Strike		asing epth	Sealed At	Rise To		ime min)	Comments	
															No water strike	
														G	GROUNDWATER DE	ETAILS
INS	Date	Tip De	TAILS pth RZ T	op RZ B	Base	Ту	ре	Dat	e	Hole Depth	Casing Depth		oth to ater	Comme	ents	
RE	MARK	S						l	B - Bulk LB - Lar	ple Leger Il Disturbed (tut Disturbed ge Bulk Disturb svironmental Sa	ed	Vicil i Tok	Sam	Undisturbed 100mm Diameter mple Undisturbed Piston Sample		

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REPORT NUMBER

00	GSL	/		<u> </u>											14463		
СО	NTRAC	T Lime	erick Gas	works									BOREH SHEET		NO.	G08 Sheet 1 of 1	
	ORDIN	ATES .EVEL (m	156,	937.52 E 540.22 N 7.28		RIG TYP	E DLE DIAM	ETER ((mm)		Sonic 40		DATE L	ORILLI		1 8/11/2009	
CLI	IENT GINEER	Bord	l Gais			BOREHO	DLE DEPT DEPTH (r	H (m)	. ,	2	.50 .50		BORED	BY		Boart Longye	ear
								ĺ					nples			,	
Depth (m)			De	scription			Legend	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	Elevation (m)	nebili (III)	Ref. Number	Sample Type	Depth		Recovery	Field Test Results	Standpipe Details
3 3 5 5 6 6 7 7 9	Slight	f Borehole	: NEC.	m	Consen	·	Houng the tee	6.88									
- HΔ	ARD STI	RATA BOE	RING/CH	ISELLING											WΔ	TER STRIKE DET.	ΔII S
		Го (m)	Time	Comments			Wate Strik		asing	S	Sealed	Ris To		Time		mments	
			(11)				Suik	C L	Depth		At	10		(min)		lo water strike	
															GR	OUNDWATER DE	TAILS
INS	TALLA	TION DET	AILS				Dat	te	Hole		Casing	De	pth to ater	Comi			·ALO
INSTALLATION DETAILS								Deptl	11	Depth	- vv	alti					
REI	MARKS		1						D - S B - I LB -	Small [Bulk Di - Large	e Legen Disturbed (tub sturbed Bulk Disturbe ronmental Sa	o) ed	+ Vial + Tub)	S	Sample	sturbed 100mm Diameter sturbed Piston Sample	

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GEOTECHNICAL BORING RECORD											14	463				
СО	NTRAC	T Lim	erick Ga	sworks		I						BOREH SHEET	OLE N) et 1 of 1	
СО	-ORDIN	IATES	156 156	929.91 E 534.60 N		RIG TYP	E			Sonic		DATE D	RILLE			
GR	OUND	LEVEL (m		7.20		BOREHO	DLE DIAM	ETER (ı	mm)	140		DATE L	OGGEI	ID 18/11/2009		
l .	IENT		d Gais				DLE DEPT			2.50		BORED		Boart Longyear		ear
ENG	GINEER	. Mou	chel			CASING	DEPTH (r	n)	- :	2.50		PROCE	SSED E	BY A. M	A. Mahony	
Ē								_	E F			nples				e e
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field T Resul		Standpipe Details
- 0	MADE	E GROUN	D: Soft	dark brown/l	olack sand	dy				1	ENV	0.00-0.3				
-		Ily clay wi STONE. I		ick. Very sli	ght HC od	our.		6.90	0.30							
-	LIIVIL	STONE.	NLO.													
- - - 1																
-																
- - 2																
:]								
	End o	f Borehol	e at 2.50	m	Conser			4.70	2.50							
- - 3										٠٥٠						
-									nes	100						
-									4 office							
								only	Mr.							
4							200	es of the								
							Plite	NII.								
Ė						_	tion net i									
5						:159	XOW.									
						Fortig										
						Ecop,										
6					S	Hor										
					COTISE											
-																
7																
F																
F																
E																
8																
ŧ l																
ŧ l																
_ - 9																
- H/	ARD ST	RATA BO		HISELLING				<u> </u>						VATER STRI	KE DET	AILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strik		asing epth	Sealed At	Ris To		ime min)	Comments		
														No water s	trike	
													(GROUNDWA	TER DE	TAILS
INS	INSTALLATION DETAILS							:e	Hole Depth	Casing Depth	De W	pth to ater	Comm	ents		
	Date Tip Depth RZ Top RZ Base Type															
RFI	MARKS	<u> </u> 							Samr	l le Leger	nd					
INS									D - Small B - Bulk I	Disturbed (tub Disturbed	0)		San	Undisturbed 100mm I		
									LB - Larg	je Bulk Disturb vironmental Sa	ed Imple (Jar -	+ Vial + Tub)	P - I	Undisturbed Piston Sa	ample	

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REPORT NUMBER

100	BSL	/		-						-						14463	
COI	NTRAC	T Lime	rick Gas	sworks									BOREH SHEET		NO.	G10 Sheet 1 of 1	
	-ORDIN OUND I	ATES .EVEL (m	156,	922.11 E 528.34 N 6.88		G TYPE	E LE DIAM	ETER ((mm)		Sonic 40		DATE I	DRILL		18/11/2009 18/11/2009	
CLI	ENT SINEER	Bord	Gais		во	REHO	LE DEPT DEPTH (n	H (m)	` ,	2	50 50	t	BOREI PROCE	BY		Boart Longye	ear
					0.1			,					nples			7	
Depth (m)			De	scription			Legend	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	Elevation	Depth (m)	Ref. Number	Sample Type			Recovery	Field Test Results	Standpipe Details
2 3 - 4 - 5 - 6 - 7 - 7 - 8 - 9	botton mediu LIMES	GROUNI n of run) s m sand. I	lightly sil NEC. IEC.	lty, slightly g	rk brown - top ravelly fine to		identification in the second s	6.38 4.38 4.38		.50	, , , , , , , , , , , , , , , , , , ,	ENV	0.00-0.3				
HA	RD STI	RATA BOF	RING/CH	ISELLING											WA	TER STRIKE DET	AILS
Fron	n (m)	Го (m)	Time (h)	Comments			Wate Strike		asing Depth		Sealed At	Rise To		Time (min)	Co	omments	
									Į- 		-		,	,	N	lo water strike	
															GR	OUNDWATER DE	TAILS
	TALLA Date	TION DET		p RZ Base	Туре		Dat	e	Hol Dep		Casing Depth	De W	oth to ater	Com			
	MARKS		10	- 1.42 Dase	Турс				D	- Small [e Legen Disturbed (tub)				sturbed 100mm Diameter	
									LE Ei	B - Large nv - Envir	isturbed Bulk Disturbe ronmental Sa	ed mple (Jar +	· Vial + Tub)		Sample P - Undis	sturbed Piston Sample	

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REPORT NUMBER

100	BSL	/		<u> </u>	00.				0					14463	
СО	NTRAC	T Lime	erick Ga	sworks								BOREH SHEET	OLE NO	D. G11 Sheet 1 of	1
	-ORDIN	ATES LEVEL (m	156	,914.76 E ,523.46 N 6.63		RIG TYP	E DLE DIAM	ETER (mm)	Sonic 140		DATE D		17/11/2009)
CLI	ENT GINEER	Boro	d Gais	0.00		BOREHO	DEPTH (r	H (m)	·····,	2.00		BORED	BY	Boart Long	
		IVIOU	OHO			O/LOING	DE: 111 (.	, 		2.00		nples	COLD	7 t. Marioriy	
Depth (m)			De	escription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	· -	Recovery	Field Test Results	Standpipe Details
0	MADE sandy	GROUN , very gra	D: Soft velly SIL	black/dark bi .T. HC.	rown claye	Э				1	ENV	0.00-0.5	50		
1	MADE SILT/0	GROUN CLAY. HO	D: Soft Cincrea	grey/brown v sing with dep	ery grave th.	lly		6.03	0.60	2	ENV	1.00-1.6	60		
2	1.80-1	STONE, lo 1.90m. f Boreholo	•	ery silty. HC i	n silty zon	е		5.03 4.63	2.00	3	ENV	1.80-1.9	90		
- - - - -	Lila o	i boreno	e at 2.00												
3					Conseri				Sil	ei 13 [©] .					
- - - 4							a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	es alfo	Kany						
- - - -							tion purpo	Hire							
5						For inspe	at Own.								
6					_. ور	rofcob,									
-					Cours										
- 7 - 7 -															
- 8															
- - - -															
9															
H.A	ARD ST	RATA BO		HISELLING										 VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		Time min)	Comments	
														No water strike	
									11	10- :			0	GROUNDWATER D	ETAILS
	TALLA Date	TION DET		op RZ Base	Тур	ре	Dat	te	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
REI	MARKS								San	nple Lege	nd				
									B - Bu LB - L	nall Disturbed (tu lk Disturbed arge Bulk Disturt Environmental Si	ed	+ Vial + Tub)	Sam	Undisturbed 100mm Diameter uple Undisturbed Piston Sample	

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GEOTECHNICAL BORING RECORD

00	BSL)		Gi	EOTEC	HINICA	IL BUR	IING I	KECO	עאי				1440	63
СО	NTRAC	T Lim	erick Gas	sworks								BOREH(OLE NO	D. G12 Sheet 1	l of 1
CO	-ORDIN	IATES	156, 156,	908.01 E 516.78 N		RIG TYP	E		5	Sonic		DATE D	RILLE	o 20/11/2	2009
GR	OUND	LEVEL (m	AOD)	6.85			OLE DIAM	•	•	140		DATE LO	OGGE	D 20/11/2	2009
	ENT		d Gais				OLE DEPT	` '		5.00		BORED			ongyear
ENG	SINEER	. Mou	ıchel			CASING	DEPTH (r	n) 		6.00		PROCES	SSED E	BY D. O'Sh	nea
Œ.								<u> </u>	ΞĒ.		_	ipies	>		, be
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Tes Results	Standpipe Details
- 0	MADE	E GROUN	ID: Conc	rete. NEC.				6.75	0.10					'	
	MADE sand	E GROUN with occa	ID: Loose sional co	e, grey/blac bbles. Pos	k, clayey sible HC.	gravelly				1	ENV	0.50-1.00			
1		E GROUN Ily clay. N		red/brown/o	orange, sa	andy		5.85	1.00	2	ENV	1.00-1.50			
2	MADE grave	E GROUN Ily clay. S	ID: Soft/fi Strong HC	rm, brown/ C - free pha	black, sar se oil.	ndy		5.35	1.50	3	ENV	1.50-2.00			
-	∖possil	ble powde	ered boul	e sandy col der. NEC. brown, san		/		4.65 4.45	2.20	4	ENV	2.50-3.00			
3		ccasional			uy graveii	y ciay		2.05	2.00	<u>v</u> . 2	ENV	3.00-3.30			
	MADE	E GROUN	ID: Soft, I	black/brow phase oil.	n, sandy g	ravelly		3.85 3.55	3.00	6	ENV	3.30-3.80			
	MADE	E GROUN	ID: Firm,	orange/bro				3.33	3,30						
- 4				bbles. Pos gravelly C				3,05	3.80						
- "	\proba	ble weath	nered roc	k. NEC.	ODDLLO	/		62.85 30	4.00						
	LIME	STONE.	NEC.				1200	8							
- - - 5							THE RELL	<u> </u>							
· 5						For inst		1							
						FORYL]							
- 6						at of C		0.05	0.00						
. 0	End o	of Borehol	e at 6.00	m	OTIS	ZII.		0.85	6.00						
					Co										
7															
8															
-															
9															
-															
НА	RD ST	RATA BO	RING/CH Time	ISELLING			Wate	r Co	sing S	Sealed	Rise	·		WATER STRIKE	DETAILS
Fror	n (m)	To (m)	(h)	Comments	i		Strik		epth	At	To		ime nin)	Comments	
														No water strik	ке
														GROUNDWATE	D DETAIL S
ING	ΔΙΙΔΤ	TION DE	ΓΔΙΙ S				Dat		Hole	Casing	J Dei	oth to ater	Comm		IV DE I WIL9
	Date			p RZ Bas	e T	уре	Dai	.0	Depth	Depth	W	ater	COMMIN	CITIO	
						• •									
REI	MARKS	 }							Samn	le Leger	nd				
									D - Small B - Bulk D	Disturbed (tub	0)		San	Undisturbed 100mm Diam	
									Env - Env	e Bulk Disturb ironmental Sa	eu imple (Jar +	· Vial + Tub)	P - I	Undisturbed Piston Sampl	le

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GEOTECHNICAL BORING RECORD

00	BSL)		Gi	LOTEC	ПИІСА	L BUR	IIVG I	KECU	עא					14463	
СО	NTRAC	T Lime	erick Gas	sworks								BOREH(OLE NO	D .	H01 Sheet 1 of 2	
	-ORDIN		156,	996.40 E 574.93 N		RIG TYP				Sonic		DATE D			09/11/2009	
GR	OUND	LEVEL (m	AOD)	7.77		_	OLE DIAM			112		DATE L	OGGE)	09/11/2009	
	ENT		Gais				OLE DEPT			10.50		BORED			Boart Longye	ear
ENG	SINEER	R Mou	chel			CASING	DEPTH (n	n) │	1	10.50		PROCES	SSED E	BY 	G. Thornton	
Œ								<u>_</u>	Ē			ibies	>	,		be
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
- 0	Conci	rete						7.67	0.10							
:	MADE	E GROUN with yellow	D: Stiff I	orown sligh	tly sandy (gravelly										
				tone cobbl	e. NEC	/		7.27 6.97	0.50	1	ENV	0.80-1.00				
1	MADE	GROUN	D: Stiff b	lack slightly	y sandy, sl	lightly		6.67	1.10							
		lly clay. H		grey slightly	gravelly o	/		0.07	1.10			4.50.00				
:	NEC.		- ;	g. c, cg,	g. a. roy c	y.				2	ENV	1.50-2.00	,			
. 2																
										3	ENV	2.50-3.00	ו			
: 																
- 3 -									×.	350						
-									any other i	4	ENV	3.50-4.00	0			
								ally.	MIN							
4								esgion								
								diffe		5	ENV	4.50-5.00				
								,			LINV	4.50-5.00	´			
- - 5						-SQ										
-						For inst										
						to Oby										
- - - 6	NAADI	- 0001111	D. Ol			NEO.		1.77	6.00	6	ENV	6.00-6.50	,			
- 0	(0.50r	= GROUN m recover	ט: Claye y)	y sand with	copples	MEC.		1.77	6.00			0.00 0.00				
	`	•	,,		C											
7																
	LINAT	STONE. 1	UEC.					0.27	7.50							
	LIIVIE	STONE. I	NEC.					0.27	7.50							
- 8																
-																
- - - 9																
-																
-							ЩH									
		To (m)	RING/CH Time	ISELLING Comments			Wate		ising S	Sealed	Rise	e T	ime V		R STRIKE DET	AILS
1 101	11 (111)	10 (111)	(h)	Comments			Strike	e De	epth	At	То	(r	nin)	COIIII		
														No	water strike	
														2001	NDWATER RE	TAU 0
INC	Α Ι ΙΔΤ	TION DET	-2 ΙΙΔ:				Dat	_	Hole	Casing	l Dei	oth to ater	Comm		INDWATER DE	IAILS
	Date			p RZ Bas	e Tv	уре	Dal		Depth	Depth	W	ater	JUITITI	GIIIO		
		,,				•										
REI	MARKS	<u>'</u>							Samp	le Leger	nd					
									B - Bulk D LB - Large	Bulk Disturbe	ed		San	nple	ed 100mm Diameter	
									Env - Env	ironmental Sa	mple (Jar +	Vial + Tub)	۲-۱	JIIUISTUID	ed Piston Sample	

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REPORT NUMBER

100	BSL			0_	0.20								14463	
СО	NTRAC	T Lime	erick Gas	sworks							BOREHO SHEET	DLE NO	. H01 Sheet 2 of 2	
	-ordin Ound I	IATES LEVEL (m	156,	996.40 E 574.93 N 7.77	RIG TYP BOREHO	E DLE DIAM	IETER (ı		Sonic 112		OATE DE		09/11/2009	
CLI	ENT GINEER	Bord	l Gais		BOREHO	DLE DEPT DEPTH (r	TH (m)		10.50 10.50		BORED PROCES		Boart Longye Y G. Thornton	ear
										Sam	oles			
Depth (m)				escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
10	LIMES	STONE. N	NEC. (co	ntinued)										
- - - - - 11	End o	f Borehole	e at 10.5	0 m			-2.73	10.50						
- '' - -														
12														
13								3	Be.					
: : -							44.	any othe						
- - - 14 -						120	ses of for							
						tion purie	82							
15					cor inspi	at on								
- - - - 16					For its of copyrid									
-					Cottset									
- - - 17														
-														
- - - 18														
_ - 19 -														
			RING/CH Time	IISELLING		Wate	er Ca	asing	Sealed	Rise	l Ti	me	ATER STRIKE DET	AILS
Fror	m (m)	To (m)	(h)	Comments		Strik		epth	At	То		nin)	Comments	
													No water strike	
								Hole	Casing	Den	th to		ROUNDWATER DE	TAILS
	TALLA Date	TION DET		p RZ Base	Туре	Dat	te	Depth	Depth	Wa	th to ater	Comme	ents	
RF	MARKS	 						Sami	ple Legen	ıd				
								D - Sma B - Bulk LB - Lar	ll Disturbed (tub Disturbed ge Bulk Disturbe vironmental Sa) ed	Vial + Tub)	Samp	ndisturbed 100mm Diameter ble ndisturbed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL			<u> </u>											14463	
СО	NTRAC	T Lime	rick Gas	works								BOREH SHEET	OLE NO		H02 Sheet 1 of 2	
	-ORDIN OUND I	IATES LEVEL (m	156,5	988.90 E 568.91 N 7.79		RIG TYP	E DLE DIAM	ETER (Sonic 140		DATE D)	09/11/2009 09/11/2009	
CLI	IENT GINEER	Bord	Gais			BOREHO	DEPTH (r	'H (m)		12.00 12.00		BORED PROCE	BY		Boart Longye	ear
										1		nples			<u> </u>	
Depth (m)			Des	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth	Recovery	Fi Fi	eld Test Results	Standpipe Details
. 0	Concr							7.69	0.10	1	ENV	0.10-0.5	0			
		E GROUNI ith red brid		rey/brown s	andy grav	elly,		7.00	0.50	_ 2	ENV	0.50-1.0	0			
	MADE	GROUNI	D: Loose	black claye	ey gravel	/		7.29	0.50	_		0.00 1.0				
- - - 1				ble contami				6.79	1.00	-						
-	clay (r	robable a	ב: Soπ g sh). Pos	rey/white sl sible contar	igntiy grav mination.	/elly										
	, "		,							3	ENV	1.50-2.0	0			
- - 2	MADE	E CROLINI	7. Soft h	olack clay im	nacted wi	th HC		5.79	2.00	4	ENV	2.00-2.1	0			
-	odour		J. 3011 b	nack clay III	ipacieu wi			5.69	2.10	-1						
	MADE	GROUNI	D: Soft li	ght brown s	lightly gra	velly										
-	ciay ir	npacted w	ith HC oc	dour.					indy other							
- 3										3 €. 5	ENV	3.00-3.5	0			
							\bowtie		other							
								Alle.	KIN							
4								e5 250	S	6	ENV	4.00-4.5	0			
								difec								
								^								
- - - 5						S				7	ENV	5.00-5.5	0			
-						For inspire										
-						EO DAY										
_					,	of										
6					aser.	, C	\bowtie			8	ENV	6.00-6.5	0			
					Cor		\bowtie									
7										9	ENV	7.00-7.5	0			
- - - 8							\bowtie			10	ENV	8.00-8.5	0			
-							\bowtie									
-																
9	LIMES	STONE. N	IEC.					-1.21	9.00							
-																
H/	ARD ST	RATA BOF	RING/CHI	SELLING				+			1		V	VATER	STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		ime min)	Comme	ents	
			(**/						9901				,	No wa	ater strike	
														INO Wa	alei Siire	
									Hale			41- 1	(GROUN	DWATER DE	TAILS
INS	TALLA	TION DET	AILS				Dat	te	Hole Depth	Casing Depth	De W	oth to ater	Commo	ents		
	Date	Tip Dept	h RZ Top	p RZ Base	Тур	ре				Į.						
RE	MARKS	3	'	1			1		Samp	ole Leger	nd	-				
									B - Bulk LB - Larg	I Disturbed (tub Disturbed ge Bulk Disturb	ed		Sam	ple	100mm Diameter	
									Env - En	vironmental Sa	mple (Jar +	+ Vial + Tub)	۲-۱	naisturbed F	Piston Sample	

College College
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REPORT NUMBER

IGSL			-	0.20								14463	
CONTRACT	Lime	rick Gasw	orks							BOREH SHEET	OLE NO	D. H02 Sheet 2 of 2	
CO-ORDINA GROUND LE		156,56	88.90 E 88.91 N 7.79	RIG TYP BOREHO	E DLE DIAM	ETER (n		Sonic 140	ı	DATE D		09/11/2009	
CLIENT ENGINEER	Bord Mouc				DEPTH (n			12.00 12.00		BORED PROCES		Boart Longye G. Thornton	ear
									Sam	ples			
Depth (m)			cription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
11		EC. (cont	m			-4.21	12.00						
14 - 15 - 16 - 17				For its of copyright	zion quipo zion quiper rec	es offy.	any other						
- 18 - 19													
HARD STRA		Time			Wate	er Ca	sing	Sealed	Rise	, T	ime	VATER STRIKE DET	AILS
From (m) To) (m)	(h)	omments		Strike		epth	At	То		min)	Comments	
												No water strike	
					_		Hole	Casing	Der	oth to		ROUNDWATER DE	TAILS
Date -			RZ Base	Туре	Dat	e	Depth	Depth	J.W.	oth to ater	Comme	ents	
REMARKS							D - Smal B - Bulk LB - Larg	DIE Legen I Disturbed (tub Disturbed Je Bulk Disturbed vironmental Sai) ed	Vial + Tub)	Sam	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	

100	381	-/															14403	
СО	NTRA	CT Lir	neric	k Gasw	orks									BOREH		IO.	H03	
CO	-ORDII	NATES		156,98	1.95 E	RIG	TYPE				ç	Sonic	F	SHEET			Sheet 1 of 2	
GR	OUND	LEVEL (m AC	156,56				E DIAMI	ETER	(mn		40		DATE L			09/11/2009 09/11/2009	
	ENT		rd G					E DEPT		•		2.00	H	BORED			Boart Longye	ear
	GINEEI		ouche			CA	SING D	EPTH (n	n)		1	2.00		PROCE		BY	G. Thornton	
_											<u>-</u>		San	nples				a)
Depth (m)				Desc	ription			pua	3	Elevation	Depth (m)	Ref. Number	Sample Type	£	Zecovery	200	Field Test Results	Standpipe Details
Dep								Legend		le	Dep	Ref. Nun	San	Depth (m)) 2		Results	Stan Deta
0	Cond	rete					×	~	_	_						-		0,2
	MAD	E GROU	ND:	0.10m ı	recovered	of loose fill			7.39		0.25	1	ENV	0.25-3.0	00			
.							×	\ggg										
1								XXX										
							8	XXX										
							8	>>>>										
-2							8	XXX										
							X	XXX										
							8	XXX										
							\				0.00	0: 2	ENV	3.00-3.5	50			
3	MAD with	E GROU	ND: al col	Stiff bro bbles. N	own slightly NEC excep	y gravelly clay ot slight odour	of 🕅	XXX	4.64		3.00	50 Z		3.00-3.0	, ,			
	HC a	t 6.75m.			·	Ü	X	>>>>	4		y othe							
							8	XXX	only	i di	3.00 A other							
4							\bar{b}		S. S. O. J.			3	ENV	4.00-4.5	50			
							8		Mil									
5						Consent of C	insp					4	ENV	5.00-5.5	50			
						Ç.C	i Vito	XXXX										
						80	×. ×	>>>>										
6						cent	8	$\times\!\!\times\!\!\times$										
						Cons	\bar{b}	XXXX				5	ENV	6.50-7.0	00			
							8	XXX					LINV	0.50-7.0	,0			
7							8	XXX										
							×	XXX										
							8	XXX				6	ENV	7.50-8.0	00			
8							×	XXX										
	Stiff	orown/bla	ack sl	lightly g	ravelly CLA	AY with	<u> </u>		-0.86	;	8.50	7	ENV	8.50-9.0	00			
9					ible TOC.				4 20	<u>,</u>	0.00	-						
	LIIVIE	STONE.	INE	J .					-1.36	'	9.00							
			o															
		Ta (m)	ORIN Tin	ne				Wate	r C	asiı	ng S	Sealed	Ris	e 1	Гіте		TER STRIKE DET	AILS
ror	m (m)	To (m)	(h		omments			Strike		Dep		At	То		min)	00	mments	
																N	o water strike	
																GRO	OUNDWATER DE	TAILS
INS	TALL	ATION DE	ETAIL	_s				Dat	e		ole	Casing	De	pth to ater	Comm			
	Date				RZ Base	Туре		1	\dashv	De	epth	Depth	V\	alei				
REI	MARK	S 0.25-3	.00m	concre	te in barrel	pushed out le	oose m	⊥ aterial. C).1m		Sampl	e Legen	nd					
		recove								- 1	B - Bulk D	Disturbed (tub sturbed Bulk Disturbe			Sa	mple	turbed 100mm Diameter	
											Env - Envi	ronmental Sa	mple (Jar	+ Vial + Tub)	P -	Undist	turbed Piston Sample	

Color of the same	
IGSL	

REPORT NUMBER

1@8	SL			<u> </u>										14463	
CONT	RACT	Lime	rick Ga	asworks							BOREH SHEET		10.	H03 Sheet 2 of 2	
CO-OF		ATES EVEL (m	156	5,981.95 E 5,561.75 N 7.64	RIG TYF	PE OLE DIAM	IETER (I	mm)	Sonic 140		DATE I	ORILLE		09/11/2009 09/11/2009	
CLIEN	т		Gais			OLE DEPT DEPTH (1			12.00 12.00		BOREI PROCE		BY	Boart Longye G. Thornton	ear
										San	ples				0
Depth (m)				escription		Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth	(111)	Recovery	Field Test Results	Standpipe Details
11 12 E		TONE. N					-4.36								
13					For ites	etion purple	es only. Aired for	K METY OF THE	, viec.						
- 18															
HARD	STR			HISELLING		\A/	or 0	001-2	Cools		<u>'</u>		WA	TER STRIKE DET	AILS
From (ı	m) T	o (m)	Time (h)	Comments		Wate Strik		asing epth	Sealed At	Rise To		Time (min)	Co	omments	
													N	lo water strike	
								- اماء	Casia		-41- 4			OUNDWATER DE	TAILS
		Tip Dont		on P7 Page	Tuno	Dat	te	Hole Depth	Casing Depth	Dej W	oth to ater	Comn	nent	S	
Dat REMA				op RZ Base	Type I pushed out loose	material	0.1m	Sam	ple Leger	nd					
* _ # #\		recovery		S. C.C. III Daile	pasiica oat 1005e	material.	J. 1111	D - Sm	all Disturbed (tub k Disturbed rge Bulk Disturbe invironmental Sa	p)	⊦ Vial + Tub		ample	sturbed 100mm Diameter	

100	38L																	14403	
CO	NTRAC	T Lir	meric	ck Gas	swork	ks									BOREH		10.	H04	
CO.	-ORDIN	IATES		156.	973.9	94 E		RIG TY)E				Sonic	-	SHEET			Sheet 1 of 2	
		LEVEL (m A(156,	556.9	92 N '.40			OLE DIAN	IETE	ER (m		140		DATE L			09/11/2009 09/11/2009	
	ENT		ord G			.40		_	OLE DEPT				12.00	-	BORED			Boart Longye	var
	GINEER		ouche						DEPTH (•		12.00		PROCE		ву	G. Thornton	ai
														San	nples				a)
Depth (m)				De	scrip	otion			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Recovery	Field Test Results	Standpipe Details
0 1 2 3 -4 -5 -7 -8	MADI grave HC or	E GROU Ily clay v dour.	JND: JND:	O.10roccasi	m reconal	covered cobbles	Soft bles and rec	to ite		1	.40 .40 .40 .60 .60 .60	3.00 6.00 8.00	2 3 5 4	ENV ENV ENV	1.50-2.0 2.50-3.0 3.00-6.0 7.00-7.5	500			
·																			
		RATA B		NG/CH me					Wate	er	Cas	sing S	Sealed	Ris	e l 1	Time	1	TER STRIKE DET	AILS
-ror	m (m)	To (m)		h)	Com	nments			Strik		De		At	То		min)	Co	omments	
																	N	lo water strike	
																	GR	OUNDWATER DE	TAILS
INS	TALLA	TION DE	ETAI	LS					Da	te		Hole	Casing	De	pth to ater	Comn			
	Date				p R	Z Base	Т	уре			<u> </u>	epth	Depth	VV	aler				
REI	MARKS	0.75 h soils.	rs sta	anding] - He	ealth an	d Safety	due to ve	ry contami	nate	ed	D - Small B - Bulk D LB - Larg	Disturbed (tub Disturbed e Bulk Disturbed vironmental Sal) ed	+ Vial + Tub)	Sa	ample	sturbed 100mm Diameter sturbed Piston Sample	

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100	38L												14463	
COI	NTRAC	T Lime	erick Gas	sworks							BOREH	OLE NO		
CO-	-ORDIN	IATES	156,	973.94 E	RIG TYP				Sonic		SHEET DATE D	DIIIE	Sheet 2 of 2 09/11/2009	
GR	OUND I	LEVEL (m	156, AOD)	556.92 N 7.40		LE DIAM	ETER (mm)	140		DATE L			
	ENT		I Gais		BOREHO	LE DEPT	H (m)		12.00		BORED	BY	Boart Longy	ear
ENC	SINEER	. Mou	chel		CASING	DEPTH (r	n)		12.00	ı	PROCE			
<u>آ</u>							_	. <u> </u>			nples			l e
Depth (m)			De	escription		Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
10	LIME	STONE. N	NEC. (co	ntinued)								†-		
]							
11														
12	End o	f Borehole	e at 12.0	0 m			-4.60	12.00						
13								4	150.					
								othe						
							only	dill						
14					For its of copyrise	200	50 / V							
						2 Dills	Nii.							
					O	ction net t								
15					insp	at on								
					Fotogrife	,								
					, of color									
16					nsent									
					Cox									
17														
18														
19														
.														
			Timo	IISELLING		Wate	er Ca	asing	Sealed	Rise	e T	imo	VATER STRIKE DET	TAILS
101	n (m)	To (m)	(h)	Comments		Strik	e D	epth	At	То	1)	min)	Comments	
													No water strike	
													GROUNDWATER DE	TAILS
INS	TALLA	TION DET	AILS			Dat	te	Hole	Casing	Der	oth to ater	Comm		
	Date			p RZ Base	Туре			Depth	Depth	V V	uici			
DC:	MADICO	0.75	otondia:	n Hoolth and	d Cofoty due to	, nonte =:	noted	0	do Lorra					
KE	VIAKKS	soils.	standing	y - Health and	d Safety due to very	y contamii	nated	I B - Bulk	ole Legen I Disturbed (tub Disturbed				Undisturbed 100mm Diameter	
								LB - Larg	ge Bulk Disturbe vironmental Sai	ed mple (Jar +	· Vial + Tub)	Sam P - l	nple Undisturbed Piston Sample	

IGSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL													14463	
СО	NTRAC	T Lim	erick Ga	asworks								BOREH(OLE NO	D. H05 Sheet 1 of 2	2
	-ORDIN OUND I	IATES LEVEL (m	156	6,965.27 E 6,550.29 N 6.87		RIG TYP	E DLE DIAM	ETER (mm)	Sonic 140		DATE D		06/11/2009	
CLI	ENT GINEER	Bor	d Gais			BOREHO	DEPTH (n	H (m)	,	12.00 12.00		BORED PROCES		Boart Longy G. Thorntor	
												nples			
Depth (m)			D	escription			Legend	Flexetion	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0 - -		GROUN	ID: Soft	grey sandy g	ravelly cla	y. HC		6.72	0.15		ENV	0.15-0.40)		
	\odour MADE	E GROUN	ID: Loos	se cream fine	clayey sa	nd /		6.47 6.07	0.40						
_ - 1 -	MADE	ible ash). E GROUN		se red very cl	ayey grave	əl. /		5.87	1.00						
2	of cre	E GROUN am, brow 3.00m.	ID: Soft n and b	, grey gravelly ack. HC at b	clay with	layers s from				2	ENV	1.50-2.00	0		
										3	ENV	2.50-3.00	0		
- 3 - - - - - - - - - - - - - - - - - -				grey slightly : d red brick. F		with		3.87	3.00	4	ENV	3.50-4.00	0		
						o ^c		lifed		5	ENV	4.50-5.00			
						For inst				6	ENV	5.50-6.00	0		
6	NEC.	E GROUN STONE.		se grey/black en.	clayey saf	id.		0.87 0.57	6.00		ENV	6.00-6.30	0		
7								-							
- - - - 8															
								-							
- 9	LIMES	STONE.	NFC					-2.13	9.00						
HA	RD ST	RATA BO	RING/C	HISELLING				1					V	VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing Depth	Sealed At	Ris To		ime nin)	Comments	
														No water strike	
													- 6	GROUNDWATER D	ETAILS
	TALLA Date	TION DE		op RZ Base	Ту	ne	Dat	te	Hole Depth	Casing Depth		oth to ater	Comme	ents	
	Daic	тір Бер	ui NZ I	op INZ Dase	ı y	νc									
REI	MARKS	Possibly	no rec	overy 0.15-1.	50m.				D - Sma B - Bulk LB - La	ple Leger all Disturbed (tul Disturbed rge Bulk Disturb	b) ed		Sam	Jndisturbed 100mm Diameter ple Indisturbed Piston Sample	
Щ_									Env - E	nvironmental Sa	ample (Jar +	+ Vial + Tub)	P-U	maisturbed Fistori Sample	

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IGSL

REPORT NUMBER

IGST												14463	
CONTRACT	Lime	rick Gasv	vorks							BOREH(OLE NO	D. H05 Sheet 2 of 2	
CO-ORDINAT GROUND LE		156,5	65.27 E 50.29 N 6.87	RIG TYP BOREHO	E DLE DIAM	ETER (n		Sonic 140		DATE LO			
CLIENT ENGINEER	Bord Mouc				DEPTH (n			12.00 12.00		BORED PROCES		Boart Longye Y G. Thornton	ear
									Sam	ples			
Depth (m)			cription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
		at 12.00	m	Consent of convint	zition purpo zition purpo tition per res	-5.13	12.00						
18													
HARD STRA			SELLING									ATER STRIKE DET	AILS
From (m) To	(m)	Time (h)	omments		Wate Strike		sing epth	Sealed At	Rise To		ime nin)	Comments	
												No water strike	
								1			G	ROUNDWATER DE	TAILS
Date T			RZ Base	Туре	Dat	е	Hole Depth	Casing Depth	Der W	oth to ater	Comme	ents	
REMARKS F				•			D - Smal B - Bulk LB - Larg	DIE Legen I Disturbed (tub Disturbed ge Bulk Disturbe vironmental Sar	ed	Vial + Tub)	Samp	ndisturbed 100mm Diameter Die ndisturbed Piston Sample	

100	381	/																14403	
СО	NTRAC	T Lin	nerick	Gasw	orks										BOREH	OLE N	IO.	H06	
CO	-ORDIN	IATES	1	156 95	9.01 E		RIG TYP)E					Sonic	-	SHEET			Sheet 1 of 2	
		LEVEL (1	1	156,54	4.70 N 6.95		BOREH		DIAME	ETER (mm)		40		DATE D			06/11/2009 06/11/2009	
	ENT		rd Gai		0.00		BOREHO			,	,		2.00	H	BORED			Boart Longye	
	GINEEF		uchel				CASING	DEP	TH (m	1)		1	2.00		PROCE		BY	G. Thornton	
(ر												<u></u>		San	nples				a)
Depth (m)				Desc	ription				Legend	Fleyation		Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Necovery y	Field Test Results	Standpipe Details
- 0		rete with								6.80	0	.15							
- - - - - - - 1					n dense, li el. NEC.	ght brown,				0.00			1	ENV	0.50-1.0	0			
· 1	∖clay v	vith red b	rick. 1	NEC.		vn sandy g	/			5.65 5.45		.30	2	ENV	1.30-1.5	0			
2	occas	E GROU sional col	ND: M obles.	ledium Heav	i dense, cli y HC.	ayey grave	I with						3	ENV	2.00-2.5	0			
- 3		E GROU elly clay.			ck, slightly	sandy slig	htly			3.95	3	.00	je.						
- - - - 4										ited for	S OTTY	3 V	4	ENV	3.50-4.0	0			
- 5	slight	E GROU ly gravell cted grav	y clay	with 3	mm-10mn	slightly sand	ĤC "Š			2.45		.50	5	ENV	4.50-5.0	0			
							For in of copyris						6	ENV	5.50-6.0	0			
- 6 - - - - - - 7	MAD grave	E GROU elly sand	ND: M with m	ledium any co	dense, gr obbles. Al	rev clavew				0.95	6	.00	7	ENV	6.50-7.0	0			
- - - - - - - 8													8	ENV	7.50-8.0	0			
-		E GROU		tiff gre	y/brown sl	ightly sand	у			-1.55	8	.50	9	ENV	8.50-9.0	0			
9	at10.		m. NE	EC. (2		gravelly cla vered - sor				-2.05	9	.00	-						
H/	ARD ST	RATA B	ORING	CHIS	ELLING			T									WA1	TER STRIKE DETA	AILS
Fror	m (m)	To (m)	Time (h)		omments				Wate Strike	- 1	asing epth		Sealed At	Ris To		ime min)	Со	mments	
																,	N	o water strike	
			_	_				_									GRO	DUNDWATER DE	TAILS
INS	TALLA	TION DE	TAILS	3					Date	е	Hol		Casing Depth	De W	pth to ater	Comm	nents	3	_
	Date	Tip De	pth RZ	Z Top	RZ Base	Тур	е				<u> </u>	<i>3-1</i>	_ 0001		-				
RE	MARKS	5			I	l					D ·	- Small I - Bulk Di	le Legen Disturbed (tub isturbed Bulk Disturbe)		Sa	mple	turbed 100mm Diameter	
l											En En	∍ - ∟arge nv - Envi	Bulk Disturbe ronmental Sai	nple (Jar -	+ Vial + Tub)	Ρ-	Undist	urbed Piston Sample	

100	38L	/												144	403	
CO	NTRAC	T Lim	erick Ga	asworks								BOREH	OLE NO			
CO	-ORDIN	IATES		5,959.01 E		RIG TYP	 E			Sonic	-	SHEET DATE D			t 2 of 2 /2009	
GR	OUND	LEVEL (m		6,544.70 N 6.95		BOREHO		ETER (ı		140		DATE L			/2009	
	ENT		d Gais			BOREHO		•	•	12.00	H	BORED			Longye	ear
	SINEER		ıchel			CASING	DEPTH (r	n)		12.00		PROCES			ornton	
ج									<u> </u>		San	nples				ө
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Te Result		Standpipe Details
10	LIME	STONE w	ith stiff o	grey, slightly	gravelly cla	ay band		. "		+	051		<u> </u>			0, 🗆
	at10.6	30-10.90n	n. NEC.	(2.00m red .) (continued	overed - so	nic										
		9		., (,			1		10	ENV	10.60-10.9	90			
11								-								
12	End c	f Borehol	e at 12.0	00 m				-5.05	12.00	+						
13										√ 6.						
									thei	·						
								93.	My Or							
14					Consent		,	esofta								
							JITPO	hitell								
							ion Prie	•								
15						a R	OWING									
						Or ite										
						to day.										
16					Š	rox										
					Conser											
17																
''																
10																
18																
19																
		To (m)	Time	Comments	:		Wate			Sealed	Ris		ime	VATER STRII Comments	KE DET	AILS
	()	10 ()	(h)	Commone	·		Strik	e D	epth	At	To) (r	nin)			
														No water st	rike	
														GROUNDWAT	TER DE	TAILS
INS	TALLA	TION DE	TAILS				Dat	te	Hole Depth	Casing Depth	I De	pth to ater	Comm			
	Date	Tip Dep	th RZ T	op RZ Base	е Тур	ре			Dopui	Dopui		2.01				
DE	MARKS	<u> </u>							Sama	le Logor	nd.					
KEİ	VIARNO	,							D - Small B - Bulk I	ole Leger I Disturbed (tub Disturbed	0)			Undisturbed 100mm D	iameter	
									LB - Larg	je Bulk Disturb vironmental Sa	ed mple (Jar -	+ Vial + Tub)	Sam P - I	nple Undisturbed Piston Sa	mple	

100	38L														14463	
СО	NTRAC	T Lim	erick Ga	sworks								BOREH	OLE NO	D.	H07	
CO	-ORDIN	IATES		,951.40 E		RIG TYF	E		;	Sonic	T I	SHEET DATE D	RIIIF	<u> </u>	Sheet 1 of 1 06/11/2009	
GR	OUND	LEVEL (m		,539.25 N 6.99		BOREH	OLE DIAM	ETER (ı	nm)	140		DATE L			06/11/2009	
CLI	ENT	Bor	d Gais			BOREH	OLE DEPT	H (m)	•	7.50		BORED	BY		Boart Longye	ear
ENG	GINEER	R Mou	chel			CASING	DEPTH (n	n)		7.50		PROCE	SSED E	ЗҮ	G. Thornton	
Ē								_	Ξ		_	nples		$\overline{}$		be
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Fi	ield Test Results	Standpipe Details
Ce							Leg	e E	De	Re	1	1				Sta Det
0		E GROUN NEC.	ID: Stiff	brown sandy	, slightly gr	avelly				1	ENV	0.00-0.5	0			
	olay.	NEO.														
1	MADI	E GROUN	ID: Hard	to very hard,	cream/wh	ite,	0	6.24	0.75							
1	sonic	drilling).	NEC.	bable concre	te puiveris	ea by										
	MADI	E GROUN	ID: Firm	dark brown s	lightly sand	dy		5.49	1.50	2	ENV	1.50-2.0	0			
2	slight 2.70-2	ly gravelly 2.80m and	clay. H d 3.80m.	C especially	in gravel ba	ands at										
_																
										3	ENV	2.50-3.0	0			
3									Mry other	્ર.						
									net	100						
								14.	ny oli	4	ENV	3.50-4.0	0			
4								es oily.	O.							
								dited								
	MADI	E GROUN ly gravelly	ID: Stiff	dark grey, slig	ghtly sandy	' ,		2.49	4.50	5	ENV	4.50-5.0	0			
5	Silgiti	iy graveny	ciay. 11	0.		- 50				6	ENV	5.00-5.5	0			
						COLITICA										
	LIME: NEC.	STONE w	ith soft (grey clay band	d 7.20-7.40	w.º&,		1.49	5.50							
6				grey clay band	cent	Or										
					Cours			-								
7										7	ENV	7.20-7.4	0			
	End o	of Borehol	o at 7 50) m				-0.51	7.50	_ ′		7.207.4				
	Lilu C	n borenor	e at 7.50	7 111				-0.51	7.50							
В																
9																
	DD 27	DATA = -	DIVICIO	110E/ 1 17:5											OTD:::=	
		To (m)	Time	Comments			Wate			Sealed	Ris		ime	Comm	STRIKE DET	AILS
101	()	10 (111)	(h)	Comments			Strik	e D	epth	At	To	1) (min)			
														No wa	ater strike	
	TA::-	TION	TAU 0				5		Hole	Casing	1 De	pth to			DWATER DE	TAILS
	Date	Tip Dep		op RZ Base	Тур	e	06-11		Depth 7.50	Depth		alei	Soil dame	ents o at 1.50m	1	
_	שמוט	1 ib Deb	11/4 1	טף וועב ממפפ	тур		00-17	-08	1.30				oon uamp	ν αι 1.3UM	•	
REI	MARKS	1.0 hrs	standing	- Health and	Safety due	e to verv	contamina	 ated	Samr	 ole Leger	nd					
		soils.			.,	- ,			D - Small B - Bulk I	Disturbed (tub	0)		Sam	nple	100mm Diameter	
									Env - Env	ironmental Sa	mple (Jar	+ Vial + Tub)	P-l	Undisturbed	Piston Sample	

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REPORT NUMBER

100	BSL	/		-	0.120	-,			- _		- \-					14463	
COI	NTRAC	T Lime	rick Gas	sworks									BOREH SHEET		NO.	H08 Sheet 1 of 1	
156,532.83 N						RIG TYPE Sonic BOREHOLE DIAMETER (mm) 140							DATE DRILLED			05/11/2009	
	CLIENT Bord Gais ENGINEER Mouchel					BOREHOLE DEPTH (m) CASING DEPTH (m)					2.30 2.30		BORED BY PROCESSED BY			Boart Longyear	
					'					_		San	nples				
Depth (m)			De	escription			Legend	; ;	Elevation	Depth (m)	Ref. Number	Sample Type	1		Recovery	Field Test Results	Standpipe Details
- 0			-	clayey gravel	-		· · · · · ·				1	ENV	0.00-0.3	30			
- 1	pulver	STONE. N ising rock.	.)	m	red - sonic drillir			4.77		2.30							
3 - 4 - 5 - 5 - 6 - 6					For Consent of cof	in of the state of	de Parte	es only spired fr	i and	other	e.						
- 7					C												
НА	RD ST	RATA BOF	RING/CH	IISELLING											WA	TER STRIKE DETA	AILS
Fron	n (m)	Го (m)	Time (h)	Comments			Wate Strike		asin Depth		Sealed At	Ris To		Time (min)	Co	omments	
									•						N	No water strike	
									111	lo '	Cost				GR	OUNDWATER DE	TAILS
	TALLA [*] Date	Tip Dept		p RZ Base	Туре		Dat	е	Ho Dep		Casing Depth	De W	pth to ater	Com	ment	ts	
REM	MARKS								D B L) - Small I I - Bulk Di B - Large	le Legen Disturbed (tub isturbed Bulk Disturbe ronmental Sal	ed	+ Vial + Tub		Sample	sturbed 100mm Diameter sturbed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/			0.20.										14463	
СО	NTRAC	T Lime	erick Ga	sworks									BOREH(OLE NO	D. H09 Sheet 1 of 1	
156,526.49 N						RIG TYP	ETER	(mm	S 1) 1		DATE D		05/11/2009			
CLIENT Bord Gais					BOREHOLE DEPTH (m) 9.00 CASING DEPTH (m) 9.00							BORED PROCES	BY	Boart Longyear		
									\top				ples			
Depth (m)			De	escription			Legend	i	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 1	NEC.	E GROUN	D: Soft	r stiff grey sar grey/brown s h occasional		6.75	5	0.40	2	ENV	1.00-1.50					
2	grave		ny cobble	ium dense gr es (10cm). N overy).		5.65	5	1.50	3	ENV	2.00-3.00					
3	with o	ccasional les of tar.	cobbles HC odd	se grey clayed s. Made up o our. to firm, sand	f approx. 2	.0% /		4.15 3.65	<u>.</u>	3.00 3.50	e· 4	ENV	3.00-3.50			
- 4 4	clay. MADE grave Very s	HC odour GROUN Ily clay wi	: ID: Very th red br	stiff slightly sick and grass	sandy, slig	htly		03.15 03.15 03.295	S	4.00 4.20	5	ENV	4.00-4.20			
5	Very s grave visible		1.95		5.20	6	ENV	5.50-6.00)							
- 6 - - - - - - - 7	LIMES	STONE. I	HC odou	ır and sheen.	Consen	•		1.15	5	6.00						
- 8																
9	9 End of Borehole at 9.00 m								6	9.00						
HA	ARD ST	RATA BO	RING/CI	HISELLING										w	/ATER STRIKE DET	AILS
Fror	m (m)	To (m)	Time	Comments			Wate		Casir		Sealed	Rise		ime	Comments	
		. /	(h)				Strik 0.10		<u>Dept</u> NR		At NS	<u>To</u> NR		nin) NR	NR	
														G	ROUNDWATER DE	TAILS
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type REMARKS Pic1 & pic2							Dat	te		ole epth	Casing Depth	De W	oth to ater	Comme		
		Pic1 & p			1					Sampl	e Legen	nd.				
		α μ								D - Small [B - Bulk Di LB - Large	Disturbed (tub) ed	· Vial + Tub)	Samp	Indisturbed 100mm Diameter ple ndisturbed Piston Sample	

100	38L															14403	
СО	NTRAC	T Lin	nerick	Gaswo	orks								BOREH	OLE N	O .	H10	
CO	-ORDIN	IATES	1	156,92	7.95 E		RIG TYP				Sonic	T T	SHEET			Sheet 1 of 1	
	156,520.73 N GROUND LEVEL (m AOD) 6.96 BOF							L DLE DIAM	ETER (140		DATE D			05/11/2009 05/11/2009	
	ENT		rd Gai		0.50			LE DEPT			3.00	-	BORED			Boart Longye	aar
	GINEER		uchel	3				DEPTH (r			3.00		PROCE		BY	G. Thornton	Jui
											San	nples				0	
Depth (m)				Desc	ription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	(paper)	Field Test Results	Standpipe Details
0	Stiff g	rey/brow	n sligh	htly sar	ndy gravell	y CLAY.	NEC.				1	ENV	0.00-0.5	0			
1	_			-	LAY. NEO				6.26 5.96	0.70 1.00							
'		STONE. 2.00-3.00		dour a	nd sheen	1.00-2.00	m.		5.96	1.00							
											2	ENV	1.50-2.0	0			
-2																	
-																	
3	End -	of Boreho	do ot o	2 00 ~~					3.96	3.00	e.						
	⊏na c	n Doreito	ne al 3	ווו טט.כ					3.90	3.00	S.						
									14.	of other							
. 4							for insper		es office	W. T.							
								1170	itied,								
								On Pure	8								
5							De Colonia de Colonia	ctioning									
							or inst	N. C									
							troopy.										
6						2	rot										
						CORSE	•										
						O											
7																	
8																	
9																	
HA	ARD ST	RATA BO	ORING	CHIS	FILING									Ш,	WATE	ER STRIKE DET	All S
		To (m)	Time	e Co	mments			Wate			Sealed At	Ris To		ïme		nments	AILO
			(h)					Strik		epth	AL		' '	min)	No	water strike	
															140	water strike	
															GPO	UNDWATER DE	TAILS
INSTALLATION DETAILS							Dat	e	Hole	Casing	I De	pth to ater	Comm		JINDWATER DE	IAILS	
	Date				RZ Base	Ту	ре			Depth	Depth	VV	alei				
		L															
REI	MARKS	Pic1 0.	00-2.0	00m &	pic2 2.00-3	3.00m		'	•	D - Small	le Legen Disturbed (tub	nd)			Undict	rhad 100mm Diagrantes	
										B - Bulk I LB - Larg	Disturbed e Bulk Disturbe vironmental Sa	ed	+ Vial + Tub\	Sai	mple	rbed 100mm Diameter rbed Piston Sample	
										LIIV - LIIV		יישויי (טמו ד	* · IUU)				

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100	BSL	/													14463		
СО	NTRAC	T Lim	erick Ga	asworks								BOREH	OLE NO	•	111		
CO-ORDINATES 156,920.54 E RIG TYPE										Sonic	<u> </u>	SHEET DATE D	DII I EF		Sheet 1 of 1 17/11/2009		
156,514.62 N GROUND LEVEL (m AOD) 6.77 BOREHOL								ETER (r		140		DATE LO			7/11/2009		
CLIENT Bord Gais ENGINEER Mouchel						BOREHO				2.00	-	BORED	BY	E	Boart Longy	ear	
ENG						CASING	DEPTH (n	n)	2	2.00		PROCES	SSED E		A. Mahony		
<u> </u>								_	<u></u>			nples				Φ	
Depui (III)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Fie R	ld Test esults	Standpipe Details	
0	Soft b	lack, very ional cob	/ sandy, bles. H	very gravelly eavy HC.	SILT with		*0 × × × × × × × × × × × × × × × × × × ×			1	ENV	0.50-1.00	0				
1	Soft to	o locally f	rm, gre	//black mottle	ed, very gra	velly	<u> </u>	5.77	1.00		ENV	1.30-1.35	_				
	grave		y heavy	HC at 1.30m				5.27	1.50	- 3 2	ENV	1.35-1.50					
2	End c	f Borehol	e at 2.0					4.77	2.00								
3					Consent					°€.							
								.41.	other	30							
4							a O'	esolitor	W.								
							tion purp	Air									
5						COT ITS OF	it own										
6					×	of copy,											
6					Consen	,											
7																	
8																	
9																	
HÆ	ARD ST	RATA BO	RING/C	HISELLING									V	VATER S	TRIKE DET	AILS	
ror	m (m)	To (m)	Time (h)	Comments			Wate Strike		sing Septh	Sealed At	Rise To		ime nin)	Comme	nts		
			. /							-				No wat	er strike		
													(GROUND	WATER DE	TAILS	
INSTALLATION DETAILS							Dat	е	Hole Depth	Casing Depth	De W	oth to ater	Comm	ents			
_	Date	Tip Dep	th RZ T	op RZ Base	Тур	е											
REI	MARKS	}	-1		1		l		D - Small B - Bulk D	le Leger Disturbed (tub Disturbed	0)				0mm Diameter		
									LB - Large	e Bulk Disturb ironmental Sa	ed mple (Jar +	+ Vial + Tub)	Sam P - U	nple Jndisturbed Pi	ston Sample		

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL	/												144	63
COI	NTRAC	r Lime	rick Gasv	vorks								BOREH SHEET	OLE NO	D. H12 Sheet	1 of 1
	ORDIN	ATES .EVEL (m /	156,5	13.09 E 09.48 N 6.76		RIG TYP	E DLE DIAM	ETER (ı		Sonic 140		DATE D) 17/11/2	2009
CLI	ENT SINEER	Bord Mouc	Gais	0.70		BOREHO	DEPTH (r	H (m)		4.50 4.50		BORED BY PROCESSED B		Boart L	_ongyear
												nples		7 11 1110	
Depth (m)			Des	cription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	·	Recovery	Field Tes Results	1 = 2
- 0					CLAY. HO). 	<u></u>	6.56	0.20	1	ENV	0.20-0.4	0		
:		silty GRA\ ev/brown			/CLAY. Sli		<u> </u>	6.36	0.40	1					
	∖HC.					/	<u> </u>	6.06	0.70	2	ENV	0.70-1.5	0		
1	Soft to	HC.	mottled t	orown silty s	sandy grav	elly	x - x								
-	Limes	tone BOUI	LDER (pı	ılverised w	ith silt)			5.26	1.50	3	ENV	1.50-2.0	0		
2	Limes	tone BOUI	LDER					4.76	2.00						
	Soft (c	rumbly) to	locally s	tiff, grey/bro	own gravell	ly	×°× ×°	4.26	2.50						
		Very bad					×			4	ENV	2.70-3.0	0		
3	Limes	tone GRA	VEL. NE	C.			0000	3.76	3.00	De.					
-	LIMES	STONE. N	IEC.					3.26	3.50 May 3.50						
								3.26 es offs	dit						
4								esonis hired for							
-	End of	Borehole	at 4.50 r	n	Consent		25, 20,	2.26	4.50						
		20.0				0	citotret t								
5						insp	at or								
						FOT THE	ý								
						of cor									
- 6					asent	,									
					Corr										
7															
8															
9															
:															
·															
	RD STE	RATA BOR	RING/CHI	SELLING										UATER STRIKE	E DETAILS
Fron	n (m)	Го (m)	Time (h)	Comments			Wate		asing epth	Sealed At	Ris To		ime min)	Comments	
			(11)				Suik	6 D	ерит	AL	10	(1	11111)	No water etri	ko
														No water stri	ке
IN:C	TAL: 67	FION DET							Hole	Casing	1 De	pth to		GROUNDWATE	ER DETAILS
		Tip Depth		RZ Base	T		Dat	ie	Depth	Depth		pth to ater	Comm	ents	
	Date -09-09	4.50	3.00	4.50	Typ 50mm		\dashv								
PE	MARKS								Same	nle Legar					
κEľ	CANAIN								D - Sma	ole Leger Il Disturbed (tul Disturbed	b)			Undisturbed 100mm Diar	meter
									LB - Lar	Disturbed ge Bulk Disturb vironmental Sa	ed ample (Jar -	+ Vial + Tub)	Sam P - U	iple Jndisturbed Piston Samp	ole

Color of the same
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00	BSL			O.	JOILO		L DOI		INLOC						14463	
СО	NTRAC	T Lime	rick Gas	sworks								BOREH SHEET	OLE NO). O.	I01 Sheet 1 of 2	
СО	-ORDIN	IATES	157, 156,	002.93 E 567.12 N		RIG TYP	E		;	Sonic		DATE D	RILLED)	12/11/2009	
GR	OUND	LEVEL (m		7.81		-	OLE DIAM			140		DATE L	OGGE)	13/11/2009	
	ENT		Gais				OLE DEPT			10.00		BORED		Boart Longyear		ear
ENG	GINEER	R Moud	hel			CASING	DEPTH (n	n)		10.00		PROCE	SSED E	BY	G. Thornton	
Ē								_	ΕÊ			nples	>			be
Depth (m)			De	escription			end	Flevation	Depth (m)	Ref. Number	nple e	윺	ove.		Field Test Results	ndpi
Det							Legend	<u> </u>	Del	Ref	Sample Type	Depth (m)	Recovery			Standpipe Details
- 0	Conc							7.66	0.15	1	ENV	0.00-0.5	0			
:	MADI clay.	E GROUNI	D: Firm	brown sligh	tly sandy	gravelly		7.00	0.13							
	ciay.	NLO.														
1										2	ENV	1.00-1.5	60			
2																
-																
	MADI	E GROUNI	D: Soft	grey slightly	gravelly	clay.		5.31	2.50	3	ENV	2.50-3.0	0			
	NEC.					•										
3									4	12°C.						
:									other	4	ENV	3.50-4.0	10			
								ally.	any other							
4								es 9 to	>							
:								differ		5	END/	45050				
:										5	ENV	4.50-5.0				
- - 5						ZQ.										
-						For inst										
						tropy.				6	ENV	5.50-6.0	0			
- - - 6						of .		4.04	0.00	7	ENV	6.00-6.5	in			
. 0 -		E GROUNI occasional		e grey sligh . NEC.	tly gravely	sand		1.81	6.00	,	LIV	0.00-0.5				
					C											
- 7 -	LIME	STONE. N	IEC.					0.81	7.00							
:																
- 8																
-																
- - - 9																
-																
-																
-																
			Time	OSELLING			Wate	r C	asing	Sealed	Rise	e T	ime V		R STRIKE DET	AILS
Fror	m (m)	To (m)	(h)	Comments			Strik		epth	At	То		min)	Com	ments	
														No	water strike	
														GROU	JNDWATER DE	TAILS
INS	INSTALLATION DETAILS							e	Hole	Casing	J De	oth to ater	Commo			
Date Tip Depth RZ Top RZ Base Type								-	Depth	Depth	VV	ater	- 2			
						•										
PE	MARKS	<u> </u>							Sam-	le Logo	nd.					
KE	WIAKK	,							D - Small B - Rulk	le Leger Disturbed (tub))				oed 100mm Diameter	
									LB - Larg Env - En	Disturbed e Bulk Disturb vironmental Sa	ed ımple (Jar +	+ Vial + Tub)	Sam P - U	ipie Jndisturb	ed Piston Sample	

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(ICSI	/											14463	
CONTRAC	T Lim	erick Ga	sworks							BOREH	OLE NO		
CO-ORDII	NATES	157	,002.93 E	RIG TYP	E			Sonic		SHEET DATE D	RILLED	Sheet 2 of 2 12/11/2009	
GROUND	LEVEL (m	i AOD)	,567.12 N 7.81	BOREHO	DLE DIAM	ETER (r	nm) ´	140		DATE L			
CLIENT	Bor	d Gais		BOREHO	DLE DEPT	H (m)	,	10.00	E	BORED	BY	Boart Longy	ear
ENGINEER	R Mou	ıchel		CASING	DEPTH (n	n)	,	10.00		PROCESSED			
€ E						_	E E		Sam	ples	>		e e
Depth (m)		D	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	oth	Recovery	Field Test Results	ndpij ails
Det					Leg	E e	Def	Ref	Sar	Depth (m)	Rec		Standpipe Details
10						-2.19	10.00						
11													
_													
12													
_													
13							2	350					
						4 -	othe.						
14						Only.	MIL						
14					200	es of the							
					TO PHILE	Mr.							
				a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	ctionnet								
15				For its of copyride	at O								
				FORYTH									
16				atof									
10				CORSOL									
				C									
17													
18													
19													
:													
: : :													
HARD ST	RATA BO	RING/C	HISELLING								v	 VATER STRIKE DET	AILS
From (m)	To (m)	Time (h)	Comments		Wate Strike		sing S epth	Sealed At	Rise To		ime min)	Comments	
		(11)						,			,	No water strike	
												THE HARD SHING	
												DOLINDWATER RE	TAILS
INSTALLA	TION DE	TAILS			Dat	e	Hole	Casing	Dep	th to	Comme	ROUNDWATER DE	CIAIL
Date			op RZ Base	Туре	Dat		Depth	Depth	Wa	ater	JJ		
REMARKS	3 3						Samp	le Legen Disturbed (tub	nd				
							B - Bulk D	Disturbed e Bulk Disturbe	ed		Sam	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	
							Env - Env	ironmental Sai	mple (Jar +	Vial + Tub)	r - C	maistarbeu ristori Sarripie	

100	38L																14403	
СО	NTRAC	T Lim	nerick G	aswork	S									BOREH	OLE N	Ю.	102	
CO	-ORDIN	IATES		6,994.9			RIG TYP	E			S	onic	-	SHEET DATE D	DILLE	<u> </u>	Sheet 1 of 2 13/11/2009	
GR	OUND	LEVEL (n		6,559.4 7.	10 N .78		BOREHO	OLE DIAM	ETER	(mr	n) 1	40		DATE L			14/11/2009	
CLI	ENT	Bor	rd Gais				BOREHO	OLE DEPT	H (m)		1	2.00		BORED	BY		Boart Longye	 ear
ENG	GINEER	R Moi	uchel				CASING	DEPTH (n	n)	_	1	2.00		PROCE	SSED	BY	G. Thornton	
آء										ے	Ê			nples		_		e e
Depth (m)			[Descript	tion			Legend	:	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	5	Field Test Results	Standpipe Details
								Leg	i	E e	Del	Red Ne	Sar		, A	3		Stal
0	Conc						/		7.63	3	0.15							
	NEC.				•	gravelly o	//		7.43 7.23		0.35	1 2	ENV	0.35-0.5 0.55-0.7				
1						sand. NE y sand an			7.08	3	0.70	3	ENV	1.00-1.2	5			
1	∖grave	l - possib	le cinde	ers. Pos	ssible c	ontaminati	ion. //		6.53	Į	0.90 1.25	4	ENV	1.25-1.5				ĺ
		E GROUI ble ash.	clay -		6.28		1.50							ĺ				
2	MADI	E GROUN				gravelly o	lay.					5	ENV	2.00-2.5	0			ĺ
2		ble HC. E GROUI	ND: Me	dium de	ense wl	hite clayey	sand -					3		2.00-2.3	•			ĺ
	possi	ble ash.	Possible	e HC.														ĺ
3	slight	ly gravelly	ND: Firi y clay. I	m browi Possible	n mottle e HC in	ed black/gr npact in	ey				ny other i	.Ø: 6	ENV	3.00-3.5	0			ĺ
3	grey/l	olack.									net?			0.00 0.0				ĺ
									.4	۵٠ م	y other							ĺ
4									SOU	ot of	,	7	ENV	4.00-4.5	0			ĺ
-									itied,									ĺ
									8									ĺ
5							S											
							COT ITES											
							troopy.					8	ENV	5.50-6.0	0			
6	MADI	E GROUI	ND: No	recover	rv	Consent	<u>o</u>		1.78	, L	6.00							
	IVII (DI	_ 011001	10.110	1000101	y.	Conso					0.00							
7																		
	MADI	E GROUI	ND: Ver	y soft g	rey san	dy clay. N	EC.		0.28	3	7.50	9	ENV	7.50-8.0	0			
8																		
												4.0		0.505				
												10	ENV	8.50-9.0	١			
9	LIME	STONE.	NEC.						-1.2	2	9.00							
HA	ARD ST	RATA BO	ORING/0	CHISEL	LING										<u> </u>	TAW	TER STRIKE DETA	AILS
ror	m (m)	To (m)	Time (h)	Comi	ments			Wate Strike	- 1	Casi Dep		ealed At	Rise To		ime min)	Co	mments	
																N	o water strike	
																CPC	DUNDWATER DE	TAII S
INS	NSTALLATION DETAILS							Dat	e		lole	Casing		oth to	Comm			IAILO
	Date Tip Depth RZ Top RZ Base Type						Dat	+	De	epth	Depth	W	ater	JOI1111	.01110			
REI	MARKS	3				<u> </u>					Sampl	e Legen	id					
											B - Bulk Di: LB - Large	Bulk Disturbe	ed		Sai	mple	turbed 100mm Diameter turbed Piston Sample	
											Env - Envir	onmental Sar	mple (Jar +	· Vial + Tub)		J. Iuiol		

Color of the color
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REPORT NUMBER

100	BSL	/												14403	
CO	NTRAC	T Lime	erick Ga	sworks							BORE		NO.	102	
СО	-ORDIN	ATES	156	994.98 E	RIG TYP	E			Sonic		SHEET DATE I		FD	Sheet 2 of 2 13/11/2009	
GR	OUND L	.EVEL (m	156 AOD)	559.40 N 7.78	BOREHO	DLE DIAM	ETER (ı	nm)	140		DATE			14/11/2009	
CLI	ENT	Boro	l Gais		BOREHO	DLE DEPT	H (m)		12.00		BOREI	D BY		Boart Longyear	
ENC	SINEER	Mou	chel		CASING	DEPTH (r	n)		12.00		PROCE		BY		
<u>ب</u>							_	<u> </u>		1	nples			_	e e
Depth (m)			De	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth		Recovery	Field Test Results	Standpipe Details
11 11 12		STONE. 1		10 m			-4.22	12.00							
14 15 16 17					Edreett of copyrig	ction purpo in owner re	only.	any other	in the state of th						
. 18 	DD ST	PATA BOI	PING/O	HISELLING									NA/A	TED STRIVE DET	All C
		Γ ο (m)	Time	Comments		Wate		asing	Sealed	Rise		Time		TER STRIKE DETA	AILƏ
	()	. 5 (111)	(h)	Johnnon		Strik	e D	epth	At	To		(min)			
														No water strike	
11:00	TA: /	101: 5==	AII 0					Hole	Casing	Dei	oth to	<u> </u>		OUNDWATER DE	TAILS
	NSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type						te	Depth	Depth	W	oth to ater	Com	men	IS	
	Dale	TIP DEbt	134 10	טף ווע ממשפ	і урс	\dashv									
REI	MARKS							D - Sma B - Bulk LB - La	ple Legen all Disturbed (tub c Disturbed rge Bulk Disturbe nvironmental Sar	o) ed	+ Vial + Tub		Sample	isturbed 100mm Diameter sturbed Piston Sample	

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REPORT NUMBER

0	GSL	-/				- _	-						14463					
CO	NTRAC	CT Lir	merio	ck Gasw	orks									BOREH		NO.	103	
CO	-ORDIN	NATES		156,98			RIG TYP	E				Sonic	-	SHEET DATE [-n	Sheet 1 of 2 13/11/2009	
GR	OUND	LEVEL (m A	156,55 OD)	5.67 N 7.73		BOREHO	DLE DIAM	ETER ((mm)	1	40		DATE L			14/11/2009	
CL	IENT	Вс	ord G	ais			BOREHO	DLE DEPT	H (m)		1	2.00		BORED	BY		Boart Longyear	
EN	GINEEF	R Mo	ouche	el			CASING	DEPTH (r	n)	_	1	2.00		PROCE	SSED	BY	G. Thornton	
Œ									۶	=	Œ			ples		<u>~</u>	Etald Task	be
Depth (m)				Desc	cription			Legend	To:to:	Lievalle	Depth (m)	Ref. Number	Sample Type	Depth (m)		Kecovery	Field Test Results	Standpipe Details
0	Conc	rete																
	No re	covery.							7.23	0	.50							
- - - 1																		
											5 0	1	ENV	1.50-3.0	20			
-	with I	ocal loos	se lig	ht brown	own slightl n clayey sa	y gravelly and (0.10m	clay n).		6.23	1	.50			1.00 0.0				
2	NEC.	0.50m	reco	vered														
- - - 3	MAD		INID.	Vonces	ft brown ol	iabth ara	rolls.		172	2	00	.e. 2	ENV	3.00-3.5	50			
	clay.	NEC.	טאוי.	very so	ft brown sl	ignily grav	relly		4.73	"	iner?	3						
									214	· htty	00							
4									es of the	5		3	ENV	4.00-4.5	50			
									diffe									
-							-8											
- 5 -							or inspire											
-							EODAL.					4	ENV	5.50-6.0	00			
- - 6	MAD	E GROU	IND:	No reco	very.	Consen	toj		1.73	6	.00							
					,	Conse												
-																		
- - 7 -																		
			IND:	Very so	ft brown sl	ightly grav	relly		0.23	7	.50	5	ENV	7.50-8.0	00			
- - - 8	clay.	NEC.										6	ENV	8.00-8.5	50			
- -																		
-	MAD NEC.		IND:	Very so	ft brown ve	ery gravell	y clay.		-0.87 -0.92	I\	.60	/						
9	I \	STONE.	NE	C.					-0.32	. 8	.65							
<u> </u>																		
- -																		<u> </u>
		To (m)	Ti	me C	omments			Wate		asing		Sealed	Rise		Time		TER STRIKE DET omments	AILS
- 10	(111)	10 (111)	(h) O	Omments			Strik	e	Depth		At	To		(min)			
																N	lo water strike	
																GRO	OUNDWATER DE	TAILS
INS	INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							Dat	:e	Hol Dep		Casing Depth	Dej W	oth to ater	Comr	nent	s	
_	Date	Tip De	pth	RZ Top	RZ Base	Тур	oe											
RE	MARKS	 S								9	amni	e Legen	ıd					
		-								D B	- Small [- Bulk Di	Disturbed (tub)		S	ample	turbed 100mm Diameter	
RE										Er	ıv - Envi	ronmental Sa	mple (Jar +	Vial + Tub)) P	- Undis	turbed Piston Sample	

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REPORT NUMBER

IGSL			0 _	0.20								14463	
CONTRACT	Lime	rick Gasw	orks							BOREH SHEET	OLE NO	D. I03 Sheet 2 of 2	
CO-ORDINA GROUND LE		156,5	38.29 E 55.67 N 7.73	RIG TYP BOREHO	E DLE DIAM	ETER (r	nm)	Sonic 140	I		RILLED OGGED		
CLIENT ENGINEER	Bord Mouc				DEPTH (n			12.00 12.00		BORED PROCE	BY SSED E	Boart Longy G. Thornton	
				•					Sam	ples			
Depth (m)			cription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- - - 11	FONE. N		m			-4.27	12.00						
14				For its of copyrid	zilon quiqo n ownei rei	es only.	any other						
- 18 - 18 - 19													
HARD STRA		Time			Wate	er Ca	sing	Sealed	Rise	T e	ime	VATER STRIKE DET	AILS
From (m) To	o (m)	(h) C	omments		Strik		epth	At	To		min)	Comments	
												No water strike	
					Dat		Hole	Casing	Der	oth to		GROUNDWATER DE	TAILS
	INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type						Depth	Depth	W W	oth to ater	Comme	ents	
REMARKS							D - Sma B - Bulk LB - Lar	DIE Legen Il Disturbed (tub Disturbed ge Bulk Disturbe ivironmental Sa	o) ed	· Vial + Tub)	Sam	Jndisturbed 100mm Diameter ple Jndisturbed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	381	/																14403	
COI	NTRAC	r Lin	nerick	Gasw	orks										BOREH		O.	104	
CO-	ORDIN.	ATES			9.48 E		RIG TYF	PE				5	Sonic	F	SHEET DATE [D	Sheet 1 of 2 14/11/2009	
GRO	OUND L	.EVEL (r			9.68 N 7.58		BOREH	OLE	DIAM	ETEF	₹ (m	m) 1	40		DATE L			15/11/2009	
	ENT SINEER		rd Gai	s			BOREH)		1.00 1.00		BORED		DV	Boart Longye G. Thornton	ear
EINC	JINEER	IVIO	ucnei				CASING	ם ס	.P 1	'') 	П		1.00		nples	SSED	ы	G. Monton	
Deptn (m)				Desc	cription				Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	(incoor)	Field Test Results	Standpipe Details
1	Concr	ete. No	recov	ery													-		
. 2	Concr	ete. NE	C.							6.0	08	1.50							
3		GROU ble HC ir			oft dark bro dour.	own/black	clay.			4.7	9. x	2.80	1 2	ENV	2.80-3.0 3.00-3.5				
4	MADE odour.		ND: V	ery so	oft black g	avelly cla	y. HC			e35	80,	4.00	3	ENV	4.00-4.5	50			
5	HC im MADE gravel	pact. GROU ly clay w	ND: V	ery so	oft black ve oft dark bro 5.00m. Po	own/black	slightly			3.0 2.8		4.50 4.70							
	impac	[.					Forth						4	ENV	5.50-6.0	00			
6	HC im	pact.		-	ft black ve	COILS	clay.			1.5		6.00	5	ENV	6.00-6.5	50			
7	clay. I	HC impa	act.	•	ft black/da			\bigotimes		1.1 0.5		7.00	-						
	clay. I	HC impa	act.		ft black sli			$\stackrel{\times}{\times}$		0.0		7.50	6	ENV	7.50-8.0	00			
8	with o		al cobl	oles. I	HC impact					-0.4	42	8.00	_						
9																			
			ORING Time	_	ELLING				Wate	er	Cas	sing S	Sealed	Ris	e -	Time		TER STRIKE DET	AILS
-ron	n (m) 1	Го (m)	(h)		omments				Strike	e	Dep		At	To) (min)		o water strike	
								ļ									GRO	DUNDWATER DE	TAILS
INS	TALLA	TION DE	TAILS	 }					Dat	:e	_	Hole	Casing	De	pth to ater	Comm			
	Date				RZ Base	Ту	ре				טיי	epth	Depth	V	alei				
REM	MARKS	<u> </u>				<u> </u>						D - Small B - Bulk D LB - Large	e Legen Disturbed (tub isturbed Bulk Disturber ronmental Sa) ed	+ Vial + Tub)	Sai	mple	turbed 100mm Diameter turbed Piston Sample	

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CO	NTRAC	T Lim	erick Ga	asworks								BOREH SHEET		О.	I04 Sheet 2 of 2	
CO	-ORDIN	IATES	156 156	5,979.48 E 5,549.68 N		RIG TYPE	E			Sonic		DATE [RILLE		14/11/2009	
GR	OUND	LEVEL (m	AOD)	7.58		BOREHO			,	140		DATE L	OGGE	D	15/11/2009	
	ENT		d Gais			BOREHO				11.00		BORED			Boart Longye	ear
ENC	SINEER	R Mou	ıchel			CASING	DEPTH (r	n) 		11.00		PROCE	SSED	BY	G. Thornton	
Œ							_	 	Œ			ipies	2	<u>^</u>	Ciald Task	<u>b</u> e
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
							Leć	Ele	De	R. Z.	Sa		, A	2		Ste
10	LIME	STONE.	NEC. (c	ontinued)												
11	End o	of Borehol	e at 11.0	00 m				-3.42	11.00							
12																
13										Be.						
									other							
						For its of		only.	MIN							
14							-0	es of to								
							DUIDE	Mile								
							ion rein									
15						:05Q	KOM									
						for it is										
						of cold,										
16					ری	nt o										
					Cours											
17																
18																
19																
HA	RD ST	RATA BO	RING/C	HISELLING										WAT	TER STRIKE DETA	AILS
		To (m)	Time (h)	Comments	;		Wate Strik		asing S epth	Sealed At	Rise To		Time min)		mments	
														N	o water strike	
														GRC	DUNDWATER DE	TAILS
		TION DE					Dat	te	Hole Depth	Casing Depth		oth to ater	Comm	nents	3	
	Date	Tip Dep	th RZ T	op RZ Bas	е Ту	/pe										
REI	MARKS	<u> </u> 							Samp	le Leger	nd					
									D - Small	Disturbed (tub Disturbed e Bulk Disturb	2)		Sa	mple	urbed 100mm Diameter	
									Env - Env	e Bulk Disturbi rironmental Sa	eu imple (Jar +	· Vial + Tub)	D	Undist	urbed Piston Sample	

00	BSL)		GE	OIECH	INICA	L BOR	ING	RECU	טאט				14463	
co	NTRAC	T Lime	erick Gas	sworks								BOREHO SHEET	DLE NO	D. I05 Sheet 1 of 2	<u> </u>
	-ORDIN	IATES LEVEL (m	156,	970.81 E 542.23 N 6.98		RIG TYP	E OLE DIAM	ETER (ı		Sonic 112		DATE DE			
l	IENT GINEER		Gais chel				DEPTH (r			10.50 10.50		BORED PROCES		Boart Longy Y G. Thornton	
آ ج									<u> </u>		Sam	ples			υ
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
3	MADI MADI NEC. 4.50n MADI NADI Possi MADI Sand. MADI NEC. MADI NEC. MADI Sand. MADI NEC.	E GROUNI 3.00m E GROUNI dour. E GROUNI Mostly wan - little recommended E GROUNI NEC. E GROUNI NEC. E GROUNI NEC. E GROUNI NEC. E GROUNI NEC. E GROUNI NEC. E GROUNI NEC. E GROUNI NEC. E GROUNI NEC.	D: Media Ayey gra D: Soft of D: Very Ashed avery. D: Loose D: Cobbl D: Soft of D: Loose D: Very Colaye	um dense, b vel. HC imp lark brown/b soft, dark brown e MEC. lark brown v e dark grey s soft grey ver soft grey cla COBBLES. ered limesto	rown/black act in black grave black grave bown sandy vaterstrike a very claye gravelly gravelly y. HC.	clay. gravel.		3.98 3.48 3.48 2.48 1.38 1.18 1.08 0.98 0.28 -0.22 -0.52	3.50	1 2 3	ENV ENV ENV ENV	3.50-4.00 4.00-4.50 5.00-5.50 5.90-6.00 7.00-7.20			
HA	ARD ST	RATA BO	RING/CH	IISELLING				1					W	/ATER STRIKE DET	TAILS
Fror	m (m)	To (m)	Time (h)	Comments			Wate Strike	er Ca	asing epth	Sealed At	Rise To	- 1	me nin)	Comments	
			(11)				4.50		NR	NS NS	2.00		IR	Rapid	
INS									Hole	Casing	ı Do	oth to		ROUNDWATER DE	TAILS
	Date	Tip Dept		p RZ Base	Тур	oe	Dat	е	Depth	Depth		oth to ater	Comme	ents	
REI	MARKS	3	1	l	1		I		D - Smal B - Bulk I LB - Larg	Die Leger Disturbed (tub Disturbed pe Bulk Disturbe	o) ed	V6-1 - 7 - 1	Samp	ndisturbed 100mm Diameter ble ndisturbed Piston Sample	
									Env - En	vironmental Sa	ımple (Jar +	vial + Tub)	. 01		

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REPORT NUMBER

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СО	NTRAC	T Lim	erick Ga	asworks								BOREH SHEET		10.	105 Sheet 2 of 2	
	-ORDIN	IATES LEVEL (m	156	6,970.81 E 6,542.23 N 6.98		RIG TYP	E DLE DIAM	IFTER (Sonic 112		DATE DATE L	RILLE		13/11/2009 15/11/2009	
CLI	ENT GINEER	Bor	d Gais	0.90		BOREHO	DLE DEPT DEPTH (r	TH (m)		10.50 10.50		BORED	BY		Boart Longye G. Thornton	ear
										10.00		ples			0	
Depth (m)			C	escription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth	()	Recovery	Field Test Results	Standpipe Details
. 10	LIMES	STONE.	NEC. (c	continued)												
- 11	End o	f Boreho	e at 10.	50 m				-3.52	10.50							
13									other	inge.						
- 14 - 14 						for its of	ction purpo	es only.	i day							
- 16					Conse	For This										
- - - - - - - - - - - - - - - - - - -																
- - - - - - 19																
: HA	ARD ST	RATA BO	RING/C	HISELLING	i									WA	TER STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Comment	S		Wate Strik		asing epth	Sealed At	Rise To		Time min)	Со	mments	
ING	TALLAT	TION DE	- ΙΙΔ1				Dat	te	Hole	Casing	Dei	oth to	Comn		DUNDWATER DE	TAILS
	Date			Top RZ Bas	se T	ype	Dai	ıe	Depth	Depth	W	ater	COIIII	nent	.	
INS	MARKS	}							D Sma	ple Leger Ill Disturbed (tub Disturbed ge Bulk Disturben prironmental Sa	1)		U Sa	ample	turbed 100mm Diameter	
									Env - Er	vironmental Sa	mple (Jar +	· Vial + Tub)	P	- Undist	turbed Piston Sample	

00	381				OL	OILOI	ППОД	L DOI		KLOC					14463	
СО	NTRA	CT Lim	nerick Ga	asworks	i								BOREH(OLE NO	D. I06 Sheet 1 of 2	1
CO	-ORDI	NATES	156 156	6,964.77 6,537.80	' E) N		RIG TYP	E			Sonic		DATE D	RILLED	13/11/2009	
GR	OUND	LEVEL (n		7.0			BOREHO	DLE DIAM	ETER	(mm)	112		DATE L	OGGED	15/11/2009	
	ENT		rd Gais					DLE DEPT			9.00		BORED		Boart Longy	
ENG	GINEE	R Mo	uchel				CASING	DEPTH (r	n)		9.00		PROCES	SSED B	G. Thornton	1
<u>E</u>									,	=		_	nples	>) e
Depth (m)			D	escripti	on			Legend	900	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
								Le	Ì		άź	ığ ←	ے ق	Re		St. 9
- 0 -		crete with				Uniday Fa	/		6.91	0.15						
:	phas	e oil from	1.50m-1	1.90m.	gravei	lly clay. Fr	ee				1	ENV	0.50-1.00	0		
- 1																
											2	ENV	1.50-1.90			
												LINV	1.50-1.50	,		
2				soft gra	avelly	very sandy	y clay.		5.16	1.90						
	Free	phase oil	•													
			ND: Loos	se dark	grey c	layey sand	d. HC -		4.56	2.50	3	ENV	2.50-3.00)		
- ,		phase oil.							4.00	0.00	<u>.</u> و.					
- 3 -	MAL in bla		ND: Firm	brown	mottle	d black cla	ay. HC		4.06		. Y	ENV	3.30-3.50	,		
-	MAD	E GROUI	ND: Loos	se black	very	clayey grav	vel.		3.76 3.56	0 -0			0.00 0.00			
		ree phase		brown/l	ماممار ۳	mottled are	/		4	ALL PICTOR						
4	clay	with cobbl	ND: 5011 les at 4.3	600001/1 30m. H	Diack i C impa	mottled gra act - free p	hase		esoni,),	5	ENV	4.00-4.50)		
	oil.	- ODOLU	15.1						a.v							
						sand. HC			2.56 2.36		\dashv					
- - 5	phas		VD. SOIL	DIACK C	iay. II	eavy 110 a	and nee			•	6	ENV	5.00-5.50	0		
:							COT IT!									
	1445	- ODOLU	ID F:				1,064		4.00	F 70						
- - 6	MAL HC i	n dark gre	ND: Firm v mottlin	i brown/ ig.	dark g	rey gravel	iy ciay.		1.36							
-					local	stainingat	start of		1.06	6.00						
	run.					Co										
-																
- 7 -								\vdash								
-																
-									1							
8																
-																
- - 9	Fnd	of Boreho	lo at 0.0	0 m					-1.94	9.00						
-	Ena	oi Boreno	ie at 9.0	U III					-1.84	9.00						
-																
HΑ	ARD S	TRATA BO	DRING/C Time					Wate	er C	asing	Sealed	Rise	e T	ime	VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	(h)	Comm	nents			Strik		Depth	At	To		nin)	Comments	
															No water strike	
															ROUNDWATER D	FTAII ©
INIC	TALL	ATION DE	TAII C					Dat	-	Hole	Casing) Dei	pth to ater	Comme		LIAILO
	Date		oth RZ T	on R7	Rase	Тур	ne .	Dat	16	Depth	Depth	W	ater	COMMINE	51110	
	Daic	T I Del	701 IXC I	JP INZ	ےمعد	ryμ	,,,									
REI	MARK	S								D - Sma	ple Leger III Disturbed (tul	nd _{b)}			Indisturbed 100mm Diameter	
										LB - Lar	Disturbed ge Bulk Disturb vironmental Sa	ed ample (Jar +	+ Vial + Tub)	Samp		
											00	,	/			

0	BSL														14403	
СО	NTRAC	T Lin	nerick G	Saswor	ks								BOREH	OLE NO		
CO	-ORDIN	IATES		6,957.			RIG TYP	E			Sonic	-	SHEET DATE D	DII I EF	Sheet 1 of 1 11/11/2009	
GR	OUND	LEVEL (r		6,532. 7	14 N 7.04		BOREHO	DLE DIAM	ETER (mm) 1	112		DATE L			
CL	IENT	Bo	rd Gais				BOREHO	OLE DEPT	H (m)	8	3.00		BORED	BY	Boart Longy	/ear
EN	GINEER	R Mo	uchel				CASING	DEPTH (r	n)		3.00		PROCES	SSED E		_
Ē									ے	. F		_	nples			l e
Depth (m)			I	Descri	ption			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	t E	Recovery	Field Test Results	Standpipe Details
De								Leg	<u>α</u>	Dep	Ref	Sar	Depth (m)	Rec	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Star
0		E GROU		t to firr	n light br	own sand	ly									
	MADI	E GROUI	ND: Sof	t black	/dark bro	own sandy	/		6.64	0.40	1	ENV	0.40-1.00)		
		lly clay.										END/	1 00 1 5			
1	MADI	E GROUI	ND: Loc casional	ose ligh I cobbl	nt brown, es. Pos	clayey sa sible HC.	andy		6.04	1.00	2	ENV	1.00-1.50	,		
	MADI	E GROU				gravelly o	lay.		5.54	1.50						
2	NEC.								E 0.4	2.00	3	ENV	2.00-3.00			
_	MADI High	E GROU! HC with 1	טא: Sof free pha	τ black ase oil.	/grey sai	ndy grave	ııy clay.		5.04	2.00		,,,	2.00-0.00			
3	MADI	E GDOLII	ND: Sof	ft hlack	eandy o	lay. High	нс		4.04	3.00	e· 4	ENV	3.00-4.00			
		ree phas		DIACK	saliuy C	iay. i liyil	110		7.04	any other	30					
									24.	Mor						
4	MADI	E GROU	ND: Sof	ft brow	n/black n	nottled sa	ndy		e3:040	4.00	5	ENV	4.00-5.00	o		
		lly clay.					,		difec							
5	LIME	STONE.	Local s	spots o	f HC 5.2	0-5.30m.	:150		2.04	5.00	1					
							Fortying									
							of cox.									
6						nsen'										
						Cor										
7																
8										0.00						
8	End o	of Boreho	ole at 8.0	00 m					-0.96	8.00						
9																
-																
H/	ARD ST	RATA BO	ORING/0	CHISEI	LLING									v	VATER STRIKE DE	 TAILS
roi	m (m)	To (m)	Time (h)	Con	nments			Wate		asing Septh	Sealed At	Ris To		ime nin)	Comments	
_			(11)					Ottine		- Spur	7 11			,	No water strike	
															. To Tractor outline	
															GROUNDWATER DE	FTAII Q
N:S	STALLA	TION DE	TAILS					Dat	e	Hole	Casing		pth to	Comm		LIMILO
	Date			Top F	RZ Base	Тур	ре	Dat		Depth	Depth	W	/ater			
₹E	MARKS	s								Samp	L le Leger Disturbed (tub	nd				
										B - Bulk D LB - Large	isturbed Bulk Disturb	ed	+ \/ial + T	Sam	Undisturbed 100mm Diameter nple Undisturbed Piston Sample	
										Env - Env	ironmental Sa	mpie (Jar -	· vial + (UD)			

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GEOTECHNICAL BORING RECORD

00	BSL			GE	OTECF	INICA	L DUK	IING I	KEUU	עאנ					14463	
СО	NTRAC	T Liı	merick Ga	asworks								BOREH SHEET	IOLE N	0.	I08 Sheet 1 of 1	
СО	-ORDIN	NATES	156 156	5,949.84 E 5,525.97 N		RIG TYP	E			Sonic		DATE D	RILLE)	11/11/2009	
GR	OUND	LEVEL (m AOD)	7.11		BOREHO	OLE DIAM	ETER (r	nm)	112		DATE L	.OGGE	D	11/11/2009	
CLI	IENT	Во	ord Gais				DLE DEPT	` ,		7.50		BORED			Boart Longye	ear
EN	GINEEF	R Mo	ouchel			CASING	DEPTH (n	n) 		7.50		PROCE	SSED	BY	D. O'Shea	1
Ē								<u></u>	Ē		_	nples		,		be
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
0	MAD	E GROL	JND: Sof	dark brown/b	lack sand	y										
Ē		elly clay. E GROL		dark brown s	andy sligh	tly		6.81	0.30	1	ENV	0.50-1.0	00			
Ē	grave	elly clay.	Possible	HC.	, ,	,										
1										2	ENV	1.00-1.5	50			
	MAD	E CDOL	JND: No	rocovory				5.61	1.50							
Ē	IVIAD	E GROC	IND. NO	recovery.				3.01	1.50							
2																
Ē																
3	MAD	E GROL	JND: Sof	dark brown s	andy sligh	tly		4.11	3.00	3 €. 3	ENV	3.00-3.5	50			
	-		-	with free pha				0.04	other	4	ENV	3.50-3.9	00			
	MAD clay.	E GROU High HO	JND: Soft C with free	black sandy phase oil.	slightly gra	ivelly		3.61	3.50	•						
4	MAD			brown/black	clay. Poss	sible		S.3.2.10	3.90	5	ENV	3.90-4.3	80			
	HC.	E GROL	JND: Loo	se sandy grav	el and brid	ck.		3.215 3.215 3.215	4.30	6 7	ENV ENV	4.30-4.4 4.40-4.5	10			
Ē	\\Poss	ible HC.				//	30 31	2.71 2.61	4.40	_						
5		STONE.		. High HC.	Consent	. 75%										
Ė						For 11 id										
Ē						of cost,										
6					sent	, or		<u> </u>								
Ė					Cours			<u> </u>								
Ė								<u> </u>								
7]								
Ė																
Ė	End o	of Boreh	ole at 7.5	0 m				-0.39	7.50							
- 8																
E																
Ė																
- 9																
E																
-																
H/	ARD ST	RATA B	ORING/C	HISELLING									<u> </u>	NATE	R STRIKE DET	AILS
		To (m)	Time	Comments			Wate			Sealed	Ris	- 1	Гime		ments	
<u> </u>	- '/	,	(h)				Strik	e D	epth	At	То	<u> </u>	min)			
														No۱	water strike	
														GROU	NDWATER DE	TAILS
INS	STALLA	TION DI	ETAILS				Dat	:e	Hole Depth	Casing Depth	De W	pth to ater	Comm	ents		
	Date	Tip De	epth RZ T	op RZ Base	Тур	e			Борит	Берит		2.01				
RE	MARKS	3		ı			'		Samp	ole Leger	nd					
INS									B - Bulk LB - Larg	I Disturbed (tut Disturbed ge Bulk Disturb vironmental Sa	ed	+ Vial + Tub\	Sar	nple	ed 100mm Diameter ed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-	0.20									14463	
COI	NTRAC	T Lime	rick Gasv	vorks								BOREH SHEET	OLE NO	D. I09 Sheet 1 of 1	
	-ORDIN OUND I	ATES LEVEL (m /	156,5	42.49 E 19.27 N 7.15		RIG TYP BOREHO	E DLE DIAM	ETER (mm)	Sonic 140		DATE D		11/11/2009	
CLI	ENT SINEER	Bord	Gais				DEPTH (n			7.00 7.00		BORED PROCE		Boart Longy A. Mahony	ear/
											Sam	nples			
Depth (m)			Des	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Field Test Results	Standpipe Details
. 1	mottle	d, sandy g GROUNE	ravelly si	o firm dark b lt/clay. Pos o firm dark ed, gravelly	ssible slight	HC.		6.45	0.70	2	ENV	1.00-1.5			
2				ark brown n occasional c				5.15	2.00	3	ENV	2.00-2.5	50		
3	sandy cobble	gravelly cles. Heavy	lay (high HC, very	ark brown n plasticity) w sticky and	vith occasio visible oil.	nal		4.15	3.00 other	€· 4	ENV	3.00-3.5	60		
- - 4 - - - - - - - -	mottle	d, sandy g	ravelly cl th grey s	ay. HC. ilty/clayey li	mestone gr	ravel		3,45 63,45 vite	4.00	5	ENV	4.00-4.5	60		
- 5					Consent	For iting									
- 7	End o	f Borehole	at 7.00 r	n				0.15	7.00	6	ENV	6.90-7.0	0		
9															
HA	RD ST	RATA BOR		SELLING			Wate	or C	neina	Cooled	Rise			VATER STRIKE DET	TAILS
Fron	n (m)	To (m)	Time (h)	Comments			Strike		asing epth	Sealed At	To		Time min)	Comments	
														No water strike	
									Uala	Cosin		-41- 4:	G	GROUNDWATER DE	ETAILS
	TALLA Date	Tip Depth		RZ Base	Туре	9	Dat		Hole Depth 1.50	Casing Depth	De W	oth to ater	Soil very v	ents wet 1.50m-2.00m	
REI	MARKS								D - Sma B - Bulk LB - Lar	DIE Legen Il Disturbed (tub Disturbed ge Bulk Disturbe ivironmental Sa	o) ed	⊦ Vial + Tub)	Sam	Undisturbed 100mm Diameter ple Undisturbed Piston Sample	

	BSL	
СО	NTRACT	Limerick
СО	-ORDINAT	ES
GR	OUND LEV	/EL (m AO
	ENT GINEER	Bord Ga Mouchel
Depth (m)		
1 1	LIMESTO	ONE. NEC

REPORT NUMBER

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100	BSL	/		0_				•							14463	
COI	NTRAC	T Lime	erick Ga	sworks								BOREHO SHEET	OLE N	Ο.	I10 Sheet 1 of 1	
	-ORDIN OUND I	ATES _EVEL (m	156,	934.64 E 512.86 N 7.04	RIG TYF BOREH	PE OLE DIAM	ETER (mm)	Sonio		С	OATE D			13/11/2009 14/11/2009	
	ENT SINEER		l Gais chel			OLE DEPT DEPTH (r			3.00 3.00			BORED PROCES		ву	Boart Longy G. Thornton	
											Sam	oles				4
Depth (m)				escription		Legend	Flevation	Depth (m)	. Ref	Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
- 1 - 2 - 3 - 6 - 6 - 7		f Borehole			Consent of copying	ation pure is	4.04 esonid	3.0	O the .							
HA	RD ST	RATA BOI		IISELLING		\\/oto	or C	aaina	Coole	.d	Diag			NATE	R STRIKE DET	AILS
Fron	n (m)	To (m)	Time (h)	Comments		Wate Strik		asing epth	Seale At	,u	Rise To		ime nin)	Com	ments	
														Nov	water strike	
											T -			GROU	NDWATER DE	TAILS
	TALLA Date	TION DET		pp RZ Base	Туре	Dat	te	Hole Depth	Ca: De	sing pth	Dep Wa	th to ater	Comm	ents		
REI	MARKS							ln e	mple Le mall Disturbe ulk Disturbe Large Bulk D Environmen	ad (tub)		Vial + Tub)	San	nple	ed 100mm Diameter ed Piston Sample	

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0	GSL	/		OL.		AL DON		\LUC					14463	
CC	NTRAC	T Lim	erick Gas	works							BOREH SHEET	OLE NO	D. I11 Sheet 1 of 1	
	ORDIN		156,5	27.25 E 607.49 N	RIG TY				Sonic		DATE D			
		LEVEL (n		7.21		HOLE DIAM			112 4.50	-	DATE L			
	IENT GINEEF		d Gais ichel			HOLE DEPT IG DEPTH (1			4.50 4.50		BORED PROCES		Boart Longy G. Thornton	
		· WOO			- OAOII	DEI III (I	, 		1.00		nples		O. Monton	
Depth (m)			Des	scription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADI	E GROUN with stra	ID: Soft s w/manure	lightly sandy and metal.	/, slightly gravelly TOC.	′ 💥			1	ENV	0.00-0.5			
_1	Very slight odou	ly gravelly	ed grey/ re CLAY wit	ddish browr h occasiona	n slightly sandy, al cobbles. HC	0 0	6.71	0.50	2	ENV	1.00-1.20	0		
·	LIME	STONE.	NEC.				6.01	1.20						
2														
_														
3							-	65	130					
							٠4.	any other						
4							25 X	dir.						
					Consent of copy		diffed							
	End o	of Borehol	e at 4.50 ı	m		tion of te	2.71	4.50						
5						S COMIT								
					FOLI	ion.								
					, of cox									
6					ansent.									
					Co									
7														
-8														
9														
H	ARD ST	RATA BO	RING/CHI	SELLING		Wate	, Ca	sing	Sealed	Rise	, T	ime	VATER STRIKE DET	TAILS
-ro	m (m)	To (m)	(h)	Comments		Strik		epth	At	To		min)	Comments	
													No water strike	
													GROUNDWATER DE	TAILO
INS	STALL ⁴	TION DE	 TAILS			Da	te	Hole	Casing		pth to ater	Comme		LIAILO
	Date			RZ Base	Туре	06-11		Depth 4.50	Depth	VV			m Damp soil, 0.50-1.20m D	Ory.
RE	MARKS	0.00-0.	50m Damp	soil, 0.50-1	.20m Dry.	l		Samp	le Leger Disturbed (tul	nd				
								B - Bulk LB - Larg	Disturbed je Bulk Disturb	ed	+ Vial ± Tok	Sam	Undisturbed 100mm Diameter aple Undisturbed Piston Sample	
								⊨nv - En	vironmental Sa	ınpıe (Jar +	r viai + lub)			

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/		-	0.20.									14463	
СО	NTRAC	T Lime	rick Gasv	works								BOREH SHEET	OLE NO	D. I12 Sheet 1 of 1	
	-ORDIN OUND L	ATES LEVEL (m.	156,5	19.26 E 01.99 N 7.19		RIG TYP	E DLE DIAM	ETER (r		Sonic 140		DATE D			
	ENT GINEER	Bord Moud					DEPTH (r			6.00 6.00		BORED PROCES		Boart Longy A. Mahony	ear
											Sam	nples			
Depth (m)			Des	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Field Test Results	Standpipe Details
0		GROUNI cobbly gra		orown black C.	mottled s	ilty				1	ENV	0.00-0.5	0		
1	Soft b with o	rown mottl ccasional	ed grey s cobbles.	sandy grave NEC.	elly SILT/C	LAY		6.69	0.50	2	ENV	0.70-1.00	0		
	SILT/0	CLAY with	occasion	d grey sand nal cobbles. y cobbly /SI	NEC.	NEC.		5.89 5.59	1.30	3	ENV	1.50-2.0	0		
2										4	ENV	2.80-3.0	0		
3	COBE	ngular to s BLES. (pos ck). NEC.	sub-round ssibly var	ded limestor iably weath	ne GRAVE ered limes	EL and stone	00000	4.19	3.00	9°.					
4	(Poss	ible clay ba STONE (pu	and within	gravelly cob n rock). NE) with browr	C.	clay		53,49 52.89	4.00	5	ENV	4.00-4.3	0		
5	iayer a	at 5.80m.	NEC.		×	For inspir				6	ENV	5.80-5.8	5		
- 6 - - - - - - - - - 7	End o	f Borehole	at 6.00 r	m	Consen	•		1.19	6.00						
- 8 - - - - - -															
- - 9 - - - - -															
! H/	ARD STI	RATA BOF	RING/CHI	SELLING									V	 VATER STRIKE DET	 TAILS
			Time	Comments			Wate Strik		asing S epth	Sealed At	Rise To		ime	Comments	
														No water strike	
													G	ROUNDWATER DE	TAILS
	TALLA Date	TION DETA		RZ Base	Тур	ne.	Dat	te	Hole Depth	Casing Depth	Dej W	pth to ater	Comme	ents	
	Dale	TIP Depti	11/2 10	, INZ Dase	ı y										
REI	MARKS								D - Small B - Bulk D LB - Larg	le Leger Disturbed (tub Disturbed e Bulk Disturbe ironmental Sa	o) ed	+ Vial + Tuh\	Samp	Indisturbed 100mm Diameter ple Indisturbed Piston Sample	
									LIIV - ENV	Jimenidi 3d	pic (Jai +	· viui † IUD)			

00	BSL				OL.	OILOI	ППОД	L DOI		KLOC						14463	
	NTRAC		merio	ck Gasw									BOREH SHEET	OLE N	О.	J01 Sheet 1 of 1	
CO	-ORDIN	IATES		157,00 156,55	8.64 E 9.67 N		RIG TYP				Sonic		DATE D			09/11/2009	
GR	OUND	LEVEL (m A	OD)	7.93			OLE DIAM			112		DATE L	OGGE	D	11/11/2009	
	ENT		ord G					DLE DEPT			9.00		BORED		5),	Boart Longye	ear
EN	GINEER	R Mo	ouche	el			CASING	DEPTH (r	n) 		9.00		PROCE	SSED	BY	S. Letch	1
(E)									 	(E)			İ	2	<u>-</u>	Field Test	ipe
Depth (m)				Desc	ription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Results	Standpipe Details
De								Leć	Ele		8 2	Sa		, R			Sta
- 0	MADI	E GROU lay pipe	IND:	dark br	own clayey	y sandy gr	avel										
-					ightly grave	elly clay (p	ossible		7.43	0.50	1	ENV	0.50-1.0	0			
	ash).	Possibl	e co	ntaminat	tion.												
- 1 -	MADI	E GROU	IND:	Grey sl	ightly sand ontaminati	ly gravelly	clay		6.93	1.00	2	ENV	1.00-1.5	0			
							clav		6.43	1.50							
	with c	ccasion	al co	bbles. I	ightly sand NEC.	iy giaveny	oldy		51.15								
2											3	ENV	2.00-2.5	0			
-																	
-																	
3										١.,	3 €. 4	ENV	3.00-3.5	0			
										other	*						
									ally.	any other							
4									es O to	>	5	ENV	4.00-4.5	0			
									diff								
-																	
5							, 115P										
-							For inst										
	MADI	E CROU	INID:	Crovar	avelly clay	with som	of cold		2.13	5.80	6	ENV	5.80-6.0	0			
_ - 6	cobbl	es and r	ed b	rick. NE	C.	en.	/		1.93	6.00	1						
-	MADI brick	E GROU NEC.	IND:	Grey ar	ngular cobl	bles and r	ed										
	DITOK.	IVEO.															
- - 7	LIME	STONE.	NE	C.					0.93	7.00							
-																	
- - 8																	
-																	
									<u> </u>								
9	End o	of Boreho	ole a	t 9.00 m					-1.07	9.00							
-																	
H/	L ARD ST	RATA B	ORIN	NG/CHIS	ELLING							1			WAT	ER STRIKE DET	AILS
Fro	m (m)	To (m)		me h) Co	omments			Wate Strike		asing epth	Sealed At	Rise To		ime min)	Cor	nments	
				,				Jun			7.11				Nc	o water strike	
															'	, water earne	
															GPO	UNDWATER DE	TAII S
INS	TALI A	TION DE	ΕΤΔΙΙ	 LS				Dat	e	Hole	Casing	ı Dei	pth to ater	Comm			IAILO
	Date				RZ Base	Тур	е		+	Depth	Depth	W	ater	23,7111			
RE	MARKS	s [']						'		Samp	ole Leger	nd					
1										B - Bulk LB - Larg	Disturbed ge Bulk Disturb	ed	L Vial I Tob	Sai	mple	urbed 100mm Diameter urbed Piston Sample	
INS										j Env - En	vironmental Sa	mpie (Jar +	+ vial + Tub)	•			

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REPORT NUMBER

BSL	/		-	0.20.				0	•						14463	
NTRAC	T Lime	rick Gas	works										OLE N	D .	J02	
		156,5	553.79 N				FTFR ((mm)				DATE D			09/11/2009	
IENT	Bord	Gais	7.00		BOREHO	DLE DEPT	H (m)	()	9.	.00	f	BORED	BY		Boart Longye	ear
	Wood	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			<u> </u>	J (.	··,			.00			OOLD .	- 	C. Momon	
		Des	scription			Legend	T Citorio	Depth (m)		Ref. Number	Sample Type		Recovery	`	Field Test Results	Standpipe Details
MADE	GROUNI gravel (po	D: Loose ossible a	e black/grey/ ish & cinders	/white (layes). Possible	ered) e		7.75	0.2	20	1	ENV					
			lark grey/bla	ck slightly	,		5.95	2.0	0	3	ENV	2.00-2.5	0			
MADE	E GROUNI	D: Browi	n to grey (wi	th depth) s	slightly		5.45	2.5	0	<u>و</u> ٠ 4	ENV	3.00-3.5	0			
							esodiy lifedic	K MAY OUT	iei	5	ENV	4.00-4.5	0			
				×	For inspe					6	ENV	5.50-6.0	0			
NEC.			tone cobbles	s and regit	brick.											
Endo	f Porchala	at 0.00					-1.06	9.0	10							
Lila o	i borenole	at 9.00	111				-1.00	0.0								
ARD ST			ISELLING			100			_					VAT	ER STRIKE DET	AILS
m (m)	To (m)	(h)	Comments						S	ealed At				Cor	nments	
														No	o water strike	
									1				(GRO	UNDWATER DE	TAILS
			DZ 5			Dat	te	Hole Depth		Casing Depth	De W	oth to ater				
Date	Tip Depti	n K∠ Io	p R∠ Base	I ур	е											
MARKS	3	1						D - Si B - Bi LB - I	mall D ulk Dis Large	isturbed (tub sturbed Bulk Disturbe) ed	· Vial + Tub)	San	nple		
	MADE Grave MADE Grave MADE Grave MADE Grave MADE Grave MADE Grave MADE Grave MADE Grave MADE Grave MADE Grave	NTRACT Lime -ORDINATES OUND LEVEL (m. IENT Bord GINEER MOUC Concrete MADE GROUNI clayey gravel (pocontamination. MADE GROUNI gravelly clay. NE MADE GROUNI gravelly clay. NE MADE GROUNI gravelly clay. NE To (m) To (m) To (m) To (m)	NTRACT Limerick Gas -ORDINATES 157,0 156,5 OUND LEVEL (m AOD) ENT Bord Gais GINEER Mouchel Concrete MADE GROUND: Loose clayey gravel (possible a contamination. MADE GROUND: Brow gravelly clay. NEC. MADE GROUND: Brow gravelly clay. NEC. LIMESTONE. NEC. End of Borehole at 9.00 ARD STRATA BORING/CH m (m) To (m) Time (h) STALLATION DETAILS Date Tip Depth RZ To	ORDINATES 157,000.86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 ENT Bord Gais GINEER Mouchel Description Concrete MADE GROUND: Loose black/grey/clayey gravel (possible ash & cinders contamination. MADE GROUND: Brown to grey (wi gravelly clay. NEC. MADE GROUND: Brown to grey (wi gravelly clay. NEC. LIMESTONE. NEC. End of Borehole at 9.00 m ARD STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base	NTRACT Limerick Gasworks -ORDINATES 157,000.86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 IENT Bord Gais GINEER Mouchel Description Concrete MADE GROUND: Loose black/grey/white (lay clayey gravel (possible ash & cinders). Possible contamination. MADE GROUND: Brown to grey (with depth) s gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) s gravelly clay. NEC. LIMESTONE. NEC. End of Borehole at 9.00 m ARD STRATA BORING/CHISELLING (h) Comments Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type Type	NTRACT Limerick Gasworks -ORDINATES 157,000.86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 BOREHK GINEER Mouchel Description Concrete MADE GROUND: Loose black/grey/white (layered) clayey gravel (possible ash & cinders). Possible contamination. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. LIMESTONE. NEC. End of Borehole at 9.00 m ARD STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type	NTRACT Limerick Gasworks ORDINATES 157,000.86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 ENT Bord Gais Gineer Mouchel Description Description Description Description Description MADE GROUND: Loose black/grey/white (layered) clayey gravel (possible ash & cinders). Possible contamination. MADE GROUND: Stiff dark grey/black slightly gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. LIMESTONE. NEC.	NTRACT Limerick Gasworks -ORDINATES 157,000.86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 BOREHOLE DIAMETER BOREHOLE DIAMETER BOREHOLE DEPTH (m) CASING DEPTH (m) Description Description Description Description Description ADE GROUND: Loose black/grey/white (layered) clayey gravel (possible ash & cinders). Possible contamination. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. LIMESTONE. NEC. IMESTONE. NEC. AND STRATA BORING/CHISELLING m (m) To (m) Time (h) Comments Water C C Comments TALLATION DETAILS Date Tip Depth RZ Top RZ Base Type Date Tip Depth RZ Top RZ Base Type	NTRACT Limerick Gasworks ORDINATES 157,000,86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 ENT BORD Gais GINEER Mouchel Description Description Description Description Description Description Description ANDE GROUND: Loose black/grey/white (layered) contamination. TALLATION DETAILS Date Tip Depth RZ Top RZ Base Type MARKS RIG TYPE BORCHOLE DIAMETER (mm) BORCHOLE DIAMETER (mm) CASING DEPTH (m) CASING DEPTH (m) 7.75 0.2 4.0 4.0 4.0 4.0 4.0 4.0 4.0	ARADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. MADE GROUND: Brown to grey (with depth) slightly gravelly clay. NEC. MADE GROUND: Description Strike Stri	NTRACT Limerick Gasworks -ORDINATES 157,000.86 E 156,553.79 N OUND LEVEL (m AOD) 7.95 BOREHOLE DIAMETER (mm) 140 BOREHOLE DEPTH (m) 9,00 CASING DEPTH (m) 9,00 CASING DEPTH (m) 9,00 CASING DEPTH (m) 9,00 CASING DEPTH (m) 9,00 CASING DEPTH (m) 9,00 To be scription Description Descr	NTRACT Limerick Gasworks -ORDINATES 157,000.86 E 156,553.79 N 156,553	NTRACT Limerick Gasworks SOREM SOREMOLE DIATE DIS6,553.79 N DIS6	NTRACT Limerick Gasworks	NTRACT Limerick Gasworks Some	NTRACT Limerick Gasworks SOREHOLE NO. JU2 Sheet 1 of 1

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

00	BSL	/														14463	
СО	NTRAC	T Lime	erick Gasv	works									BOREH SHEET	OLE N	0.	J03 Sheet 1 of 1	
	-ORDIN	ATES LEVEL (m	156,5	93.13 E 46.82 N 7.63		RIG TYP	E DLE DIAM	ETER	(mı	_	onic 40		DATE D			10/11/2009	
CLI	ENT GINEER	Bord	Gais	7.00		BOREHO	DLE DEPT DEPTH (r	H (m)		9	.00		BORED PROCE	BY		Boart Longye	ear
			J. 1. 0.										ples		- · 		
Depth (m)			Des	scription			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
0				rown grave				7.1	3	0.50	1	ENV	0.50-1.0	0			
: - 1 -	odour MADE Strong		D: Soft bl	ack very gra	avelly clay.	. /		6.6 6.4	L	1.00	2	ENV	1.00-1.2	0			
- 2	MADE	GROUNI	D: Stiff sli	ightly grave ack very gra	, ,	/		6.1	3	1.50	3	ENV	2.00-2.5	0			
- 2	odour										, and the second		2.00 2.0				
- - 3 -										net)	e 4	ENV	3.00-3.5	0			
4	MADE NEC.	GROUNI	D: Firm b	rown (grey	at 6.00m) (clay.		4.1; esopt hited	3.	3.50	5	ENV	4.00-4.5	0			
5						For inspire					6	ENV	5.50-6.0	0			
6	MADE many	GROUNI cobbles.	D: Stiff gr NEC.	ey very gra	velly clay	vith		1.6	3	6.00	7	ENV	6.50-7.0	0			
- - 7 - - - -	MADE	GROUNI	D: Hard b les. NE0	own clay. It prown very g C.		ay with		0.6 0.5 0.1	3	7.00 7.10 7.50	8	ENV	7.10-7.5	0			
8	LIMES	STONE. N	IEC.														
9		tiff grey sl f Borehole		velly CLAY n	. NEC.		0	-1.1 -1.3		8.80 9.00	9	ENV	8.80-9.0	0			
- H/	ARD STI	RATA BOF	RING/CHI	SELLING											NAT	ER STRIKE DET	AILS
	Ī	To (m)	Time	Comments			Wate Strik		Cas Der		ealed At	Rise To	- 1	ime min)		mments	
			(11)				Suik	<u>-</u>	net	7011	Λί	10		11111)	No	o water strike	
															000		TAU 0
INIC	TAL : 4:	TION DET	AII S				D-4	to	F	Hole	Casing	Dei	oth to			OUNDWATER DE	IAILS
	Date			RZ Base	Тур	е	Dat	ıc		epth	Depth	Ŭ W	oth to ater	Comm	CIIIS	•	
INS	MARKS									D - Small [B - Bulk Di LB - Large	Bulk Disturbe) ed	V-1	San	nple	urbed 100mm Diameter urbed Piston Sample	
										⊥ Env - Envir	onmental Sar	ripie (Jar +	viai + Tub)				

00	BSL)		GE	OTECH	NICA	L BOR	ING	KECO	עאי				14463	
СО	NTRAC	T Lim	erick Ga	sworks								BOREHO SHEET	OLE NO	J04 Sheet 1 of 1	
	ORDIN	IATES LEVEL (n	156	,986.64 E ,541.20 N 7.86		RIG TYP BOREHO	E DLE DIAM	ETER (r		Sonic 112		DATE LO		18/11/2009	
1	IENT GINEER		d Gais uchel				DEPTH (r			3.00 3.00		BORED PROCES		Boart Longye Y G. Thornton	ear
											Sam	ples			4)
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	MADI NEC.	E GROUN	ND: Soft	dark grey, ve	ry gravelly c	lay.									
	cinde	rs) Possi	ble conta	e black sand amination.		ssible		7.36 7.31	0.50 0.55	1	ENV	0.55-1.00)		
1	MADI white	E GROUN /grey/ligh	ND: Soft t brown/r	sandy clay in ed (possible	layers of ash). NEC.										
Ē										2	ENV	1.50-2.00)		
[2 [MADI depth	E GROUN) slightly	ND: Very gravelly	soft dark gre clay. NEC.	y to black (v	vith		5.86	2.00						
Ė.										3	ENV	2.50-3.00)		
3	MADI odoui		ND: Very	soft black gra	avelly clay.	HC		4.86	3.00 difer	3 €.	ENV	3.50-4.00			
Ē 4								soffy.	any			0.00 4.00			
								esoni? hitedfor		5	ENV	4.30-4.80			
5	MADI		ND: Loos	e black claye	y gravel. H	C		3.06 2.86	4.80						
Ė	MADI	E GROUN		soft dark gre	· · · · · · · · · · · · · · · · · · ·	odour.		2.36	5.50	6	ENV	5.50-6.00)		
6	occas	sional cob STONE.	bles. H	C odour.	eente	\$00 ·		1.86	6.00						
Ė					Cours										
7															
- 8	End o	of Boreho	le at 8.00) m				-0.14	8.00						
9															
Ė															
HA	ARD ST	RATA BO		HISELLING			147			21-1	Б.			ATER STRIKE DET	AILS
	m (m)	To (m)	Time (h)	Comments			Wate Strik		sing S epth	Sealed At	Rise To	- 1	ime nin)	Comments	
021.02														No water strike	
Image: Second control of the control													ROUNDWATER DE	TAILS	
INS	STALLA	TION DE	TAILS				Dat	e	Hole Depth	Casing Depth	Dej W	oth to ater	Comme		
INSTALLATION DETAILS Date Hole Depth Depth															
RE	MARKS	s [']			I				D - Small	le Leger Disturbed (tub	nd))			ndisturbed 100mm Diameter	
IGSL									B - Bulk D LB - Larg Env - Env	Disturbed e Bulk Disturbe rironmental Sa	ed mple (Jar +	· Vial + Tub)	Samp		

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GEOTECHNICAL BORING RECORD

00	BSL)			GE	JIEG	HNICA	L BUR	IING	RECO	עאי					14463	
СО	NTRAC	T Lim	nerick Ga	aswork	KS .								BOREHO SHEET	OLE NO). O.	J05 Sheet 1 of 1	
	-ORDIN		156	6,979.1 6,535.8	84 N		RIG TYP				Sonic		DATE D			19/11/2009	
		_EVEL (n	n AOD)	8	.18		-	OLE DIAM	•	•	112	-	DATE LO	JGGEL) ——	19/11/2009	
	ENT SINEER		d Gais					OLE DEPT	` ,		8.00		BORED PROCES		.v	Boart Longye D. O'Shea	ear
EIN	JINEER	IVIO	uchel				CASING	DEPTH (r			3.00		nples	SED E	1	D. O Silea	
(E)								75	5	(E)	<u></u>	_	i –	2	┤ .	ield Test	<u>i</u> be
Depth (m)			D	escrip	otion			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Results	Standpipe Details
0	MADE	GROUN gravel w	ND: Loos	se brov sional	wn/dark cobbles	brown, c	layey le HC.				1	ENV	0.00-0.50	_			
	MADE NEC.	GROUN	ND: Loos	se bro	wn claye	y sandy	gravel.		7.68	0.50							
1		GROUN	ND: Dark	brow	n/green/	black cla	ivev		7.18	1.00	2	ENV	1.00-1.20				
	\sand.	Possible	e HC.		_		/		6.98	1.20			4.50.0.50				
.		GROUN GROUN							6.68	1.50	3	ENV	1.50-2.50	'			
2	Possil	ble HC.		9 , -		,	.,.										
	MADE	GROUN	ND: Soft, NEC.	, light y	yellow/br	own san	dy		5.68	2.50							
3	MADE	GROUN	ND: No r	ecove	ry.				5.18	3.00	12°E.						
									conty.	any other							
4									esoni,								
	MADE	CDOUN	ID. 0-#						3.68	4.50	4	ENV	4.50-5.00	,			
	NEC.	GROUN				-	-		3.00	4.50							
- 5 -	MADE sand.	GROUN	ND: Soft	grey/b	orown, cl	ayey, gra	avelly in S		3.18	5.00							
	MADE	GROUN	ND: Soft	black	sandy g	ravelly cl	ay.tot		2.88	5.30	5	ENV	5.30-6.00	'			
		HC conte					ay.Foody		0.40	0.00							
6	7.50-8	STONE. 3.00m.	NEC ex	cept Ic	ocal HC	spots be	ween		2.18	6.00							
						C			1								
- - - 7									1								
- '									1								
]								
. 8	End o	f Boreho	le at 8 N	0 m					0.18	8.00							
	Liid 0	Doreno	ie at o.o.	0 111					0.10	0.00							
-																	
- - - 9																	
:																	
HA	RD ST	RATA BO		HISEL	LING			Wate	or I C	asing :	Sealed	Rise			VATER	STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Com	ments			Strik		epth	At	To	- 1	me nin)	Comm	ents	
															No w	ater strike	
INIC	TALLA	TION DE	TAII 6					Det	to	Hole	Casing	I Dei	pth to			IDWATER DE	TAILS
	Date		th RZ T	op R	Z Base	Tv	ре	Dat	ie	Depth	Depth	W	ater	Comm	EIIIS		
						y	, -										
REI	MARKS									Samp	l le Leger	nd					
1										B - Bulk I LB - Larg	e Bulk Disturb	ed		Sam	ple	I 100mm Diameter	
										Env - Env	rironmental Sa	mple (Jar +	Vial + Tub)	۲-۱	uisturbed	Piston Sample	

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REPORT NUMBER

00	BSL	/		<u> </u>											14463	
СО	NTRAC	T Lime	erick Gas	works								BOREH	OLE NO	D .	J06	
СО	-ORDIN	ATES	156,9	971.57 E		RIG TYP	F			Sonic	-	SHEET	DU 1 EE		Sheet 1 of 1	
		LEVEL (m	156,5	30.02 N 7.98			L DLE DIAM	ETER (ı		140		DATE D			11/11/2009 11/11/2009	
	ENT		d Gais	7.00			OLE DEPT			9.00	-	BORED			Boart Longye	ear
	GINEER					CASING	DEPTH (r	n)		9.00		PROCE		3Y_	D. O'Shea	
<u>_</u>								_				nples				Φ
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	F	Field Test Results	Standpipe Details
- 0				rown sandy				7.78	0.20	1	ENV	0.20-0.7	0			
-	clay.	Possible I	HC.	ark brown s	andy grave	elly			0.20							
_ - 1 -	MADE	E GROUN	D: Stiff d	ark brown/b	lack sandy	,		6.88	1.10		ENV	1.10-1.3	0			
:				ssible HC. brown clay	ev gravelly	/		6.68 6.48	1.30	\exists						
-	cobble	es. NEC.							1.50							
2	MADE	E GROUN	D: Loose	grey cobble	es. NEC.											
- - - 3										01.						
									Many other	150						
								٠٠.	24 Office							
- - - 4								es offor	Mr.							
. 4								itied								
	MADE	GROUN	D: Loose	black claye	y sandy gr	avelly		3.48	4.50							
- - - 5	cobble	es. High I	HC impac	t.		S				3	ENV	5.00-5.5	0			
. J						for institution										
						to by										
- - - 6	1 11/4/2	STONE. 1	UEC.		×	of the second		1.98	6.00							
	LIIVIE	STONE. I	NEC.		Conser			1.90	0.00							
· ·					O											
- - 7																
-																
- - - 8																
- - - 9	Endo	f Borehole	o ot 0 00					-1.02	9.00							
	Elido	DOTETION	e at 9.00	111				-1.02	9.00							
H/	ARD STI	RATA BO	RING/CH	ISELLING							<u> </u>		V	VATER	R STRIKE DET	AILS
Froi	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To		ime min)	Comn	nents	
														No w	ater strike	
														20011		
INIC	ΤΔΙΙΔΤ	TION DET	ΔΙΙ S				Dat		Hole	Casing	J De	pth to	Comm		NDWATER DE	IAILS
	Date			p RZ Base	Тур	e_	Dat		Depth	Depth	W	/ater	COMMIN	CIIIO		
					1											
RE	MARKS	;							Samp	ole Leger	nd					
ı									B - Bulk LB - Larg	I Disturbed (tub Disturbed ge Bulk Disturb	ed		Sam	ple	d 100mm Diameter	
									Env - En	vironmental Sa	mple (Jar -	+ Vial + Tub)	r-U	u.stul Del	iotori oampie	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL			-	.									1446	53
СО	NTRAC	T Lime	rick Gas	works								BOREH(OLE NO	D. J07 Sheet 1	of 1
	-ORDIN OUND I	IATES LEVEL (m /	156,5	63.72 E 523.53 N 8.04		RIG TYP BOREHO	E DLE DIAM	ETER (ı		Sonic 140		DATE D		10/11/20	009
	ENT GINEER	Bord Mouc					DEPTH (r			7.50 7.50		BORED PROCES		Boart Lo	
_											San	nples			σ,
Deptn (m)			Des	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0				and topsoil.	. NEC. ly sandy gra	avolly /		7.94	0.10	1	ENV	0.10-0.30)		
	∖clay w	vith occasio	onal cobb	oles. NEC.				7.74	0.30						
1	MADE	E GROUNI	D: No red	covery (loos	e material).										
	MADE	E GROUNE	D: Loose	dark brown	to black ve	ery		6.54	1.50	2	ENV	1.50-1.70			
2					. Possible location clay. NEC.			6.34	1.70						
-	MADE	E GROUNE	D: Soft a	ev slightly o	gravelly clay			5.74	2.30						
	occas	sional cobb	les. Stro	ong HC.	gravery eray	*******				3	ENV	2.50-3.00)		
3	MADE	E GROUNE	D: Soft bl	ack very gra	avelly clay v	vith		5.04	3.00	ve.					
		ional cobb							ather	4	ENV	3.50-4.00			
								ally.	MY	4	EINV	3.50-4.00	,		
4	MADE	- GROUNI	D: Stiff ar	ey gravelly	clav with			e ⁵ 0714.	4.10	5	ENV	4.10-4.50			
	occas	sional cobb	les (poss	sible pulveri	sed rock).	HC		3.54	4.50						
	\	STONE. N	IEC.			/	10 10	3.54	4.50						
5					Consent	insp	09								
						for give									
					×.	3,00,									
6					. Ment			-							
					Co			1							
7															
'															
	End o	f Borehole	at 7.50 ı	m				0.54	7.50						
8															
9															
HA	ARD ST	RATA BOR	RING/CHI	SELLING									v	VATER STRIKE	DETAILS
ror	m (m)	To (m)	Time (h)	Comments			Wate Strike		asing epth	Sealed At	Ris To	- 1	ime nin)	Comments	
														No water strike	e
									Hole	Casing	ı De	nth to		GROUNDWATER	R DETAILS
	TALLA Date	Tin Dent		RZ Base	Туре	7	Dat	te	Depth	Depth		pth to ater	Comme	ents	
	Paic	THE DEPT	111/2 10	JINZ Dase	туре		\dashv								
٦Ę١	MARKS	 }							Samr	le Leger	 nd				
									D - Smal B - Bulk	I Disturbed (tub Disturbed ge Bulk Disturb	0)		Sam	Undisturbed 100mm Diame	
									Env - En	ge Bulk Disturb vironmental Sa	eu imple (Jar +	+ Vial + Tub)	P - L	Jndisturbed Piston Sample	•

(1) (1) (1) (1) (1)
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REPORT NUMBER

0	GSL			<u> </u>											14463	
CO	NTRAC	T Lim	erick Ga	sworks								BORE		10 .	J08	
СС	-ORDIN	IATES	156	,956.35 E	R	RIG TYP				Sonic		SHEET DATE I		-D	Sheet 1 of 1 11/11/2009	
GR	OUND	LEVEL (m		,517.85 N 7.47	В	BOREHO	DLE DIAM	ETER (mm)	140		DATE			12/11/2009	
1	IENT		d Gais				DLE DEPT			3.00		BORE			Boart Longye	ear
EN	GINEER	R Mou	ıchel		C	SASING	DEPTH (r	n) 		3.00		PROCE nples	ESSED	BY	G. Thornton	
Œ			5				5	5	<u> </u>	e e		· -		2	Field Test	oipe
Depth (m)			יט	escription			Legend	Flevation	Depth (m)	Ref.	Sample Type	Depth		Kecovery	Results	Standpipe Details
- 0	MADE	E GROUN	ID: Dark	k brown claye	y sandy gra	velly			1	1 1 2	ENV	0.00-0.4 0.10-0.		צ		00
Ē	silt. N	IEC.		ly SILT. NEC			X	7.07	0.4			0.10-0.	30			
<u>-</u> -		STONE.		iy OILT. IVLO	<u>, </u>	/		6.97	0.5							
1								1								
Ē]								
-																
2																
-																
- 3 -	End o	f Borehol	e at 3.00) m	Consent			4.47	3.0	00 %.						
									, ox	get						
								only	Kith							
4							-6	6,966								
							Durge	dill								
							cion per 10									
- 5 -						115P	NOW.									
-					4	for Wild	6									
-					S	it cox										
- 6					asent.											
					Cor											
-																
7																
- 8 -																
-																
- 9 -																
Ē																
							<u> </u>									
			Time	Comments			Wate		asing	Sealed	Ris	e ·	Time		TER STRIKE DET	AILS
L10	m (m)	To (m)	(h)	Comments			Strik		epth	At	To		(min)		mments	
														N	o water strike	
15	TA:::	TION	TAU C						Hole	Casin	g De	oth to	0-		DUNDWATER DE	TAILS
INS	Date	Tip Dep		op RZ Base	Туре	<u> </u>	Dat	ie	Depth			pth to ater	Comr	nent	S	
					1,700		\neg									
RE	MARKS	<u> </u>			<u> </u>				Sa	mple Lege	end					
									D - S B - B LB -	Small Disturbed (t Bulk Disturbed Large Bulk Distu	ub) rbed		S	ample	turbed 100mm Diameter	
INS RE									Env -	- Environmental S	Sample (Jar	+ Vial + Tub) Р	- Undist	turbed Piston Sample	

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00	BSL			OL	OTEOTIMOA			INE OC					1446	3
	NTRAC		rick Gas	sworks							BOREH SHEET	OLE N	O. J09 Sheet 1	of 1
	-ORDIN		156,	948.85 E 510.81 N	RIG TYP				Sonic	I		ORILLEI		
		LEVEL (m		7.23		OLE DIAM			140	-		OGGE		
	ENT GINEER		Gais			OLE DEPT DEPTH (r			2.50 2.50		BORED) BY ESSED I	Boart Lo BY A. Maho	
	OIIVEEIV	Wiouc	, i i c i		- OAOIITO		, 		2.00		ples	.OOLD I	7. Wane	
Depth (m)			De	scription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
2		STONE. N		m	Consent of copyring	stion purge	4.73	2.50	e.					
- 6					Consent of copying									
-														
-														
HΑ	ARD ST	RATA BOF		ISELLING									WATER STRIKE	DETAILS
Fror	m (m)	To (m)	Time (h)	Comments		Wate Strik		asing epth	Sealed At	Rise To	- 1	Time (min)	Comments	
													No water strik	е
										'			GROUNDWATER	R DETAILS
	TALLA Date	Tip Dept		p RZ Base	Туре	Dat	te	Hole Depth	Casing Depth		oth to ater	Comm	ents	
REI	MARKS	s '						B - Bulk LB - Lar	ple Leger Ill Disturbed (tub Disturbed ge Bulk Disturbe invironmental Sa	ed	· Vial + Tub)	San	Undisturbed 100mm Diame nple Undisturbed Piston Sample	

(1	١		050	ATECUNIO A		INIC F		חםר				REPORT NUMBER	2
00	BSL)		GEO	TECHNICA	LBUR	ING F	KEU	טאט				14463	
СО	NTRAC	T Lii	merick Ga	asworks							BOREHO SHEET	LE NO	D. J10 Sheet 1 of 1	
СО	-ORDIN	ATES		5,940.02 E 5,506.75 N	RIG TYP				Sonic		DATE DR		05/11/2009	
	OUND L		m AOD) ord Gais	6.95		OLE DIAM		nm)	140 3.00		BORED B		05/11/2009 Boart Longy	vear
1	GINEER		ouchel			DEPTH (n			3.00	0	PROCESS			
Depth (m)			D	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	mples (m)	Recovery	Field Test Results	Standpipe Details
- 0	_	•		ravelly CLAY. 1	NEC.	<u> </u>			1	ENV	1	<u>~</u>		
- 1	LIMES	STONE.	NEC.				6.65	0.30						
1														
Ē														
2														
3														
	End of	f Boreh	ole at 3.0	0 m			3.95	3.00	ve.					
- 4							. 41 •	odite	>					
4						ج ج	es office	dir.						
						an Phito	litico							
5					For its of	t Owner								
					Forthigh									
6					entofo									
-					Cours									
7														
Ē														
9														
<u> </u>	NDU GAE	2ATA P	ODING	HISELLING								14	/ATER STRIKE DET	TAIL S
	m (m)		Time (h)	Comments		Wate Strike	er Ca	sing epth	Sealed At	Ris To		ne (Comments	

14463.GPJ IGSL.GDT 23/12/09 GROUNDWATER DETAILS Casing Depth Depth to Water Hole **INSTALLATION DETAILS** Date Comments Depth
 Date
 Tip Depth
 RZ Top
 RZ Base

 5-11-09
 3.00
 1.00
 3.00
 Type 50mm SP 05-11-09 IGSL BH LOG REMARKS pic1 0.30-3.00m of rock?. Sample 001ENV taken by hand excavation due to core barrel getting no recovery between 0.00m-0.30m. Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
En - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample

No water strike

CH2	1
IGSL)

00	BSL)		GE	OTECHNICA	AL BUR	(ING I	RECC	טאט				14463		
СО	NTRAC	T Lim	erick Ga	sworks							BOREH SHEET	OLE NO	D. J11 Sheet 1 of 1		
	ORDIN	IATES LEVEL (m	156,	933.36 E 499.93 N 7.43	RIG TY BORE	PE HOLE DIAM	IETER (r		Sonic 112		DATE D		05/11/2009		
	IENT GINEER		d Gais uchel			HOLE DEPT G DEPTH (r			2.50 2.50		BORED PROCE		Boart Longy G. Thornton		
										San	nples			0	
Depth (m)			De	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details	
0					CLAY. NEC.		7.00	0.40							
	NEČ.				ly gravelly CLAY.	<u> </u>	7.03	0.40	1	ENV	0.85-0.9).			
1	∬HC oc	dour.			gravelly SAND.		6.58 6.48 6.43	0.85	┧	LINV	0.05-0.9				
Ē	Very s	stiff to har	d sandy		lly CLAY. NEC. Y with occasional		6.23	1.00	_						
2		es. NEC. STONE.													
<u> </u>	End o	f Borehol	e at 2.50	m			4.93	2.50							
3					For its			6	Asc.						
Ė							24.	ny othe							
4							ses offici	0.							
Ė						an Plitte	diffe								
5					ر ف	Petioniei									
Ē					Forin	1911									
6					atolicox										
					Conserv										
Ė															
F 7															
8															
Ė															
E 9															
Ė															
H	ARD STI	RATA BO	RING/CH	IISELLING								V	VATER STRIKE DE	TAILS	
		To (m)	Time (h)	Comments		Wate Strik		sing epth	Sealed At	Rise To	- 1	Time min)	Comments	.,0	
67			(**)									,	No water strike		
INS	STALLA	TION DE	TAILS			Dat	te	Hole	Casing) Dé	pth to	Commo	GROUNDWATER DE ents	TAILS	
	Date		th RZ To	p RZ Base	Туре			Depth	Depth	VV	rater	- 2			
RE	MARKS	<u> </u> ;						Samp	ole Leger	nd b)					
GSL BH LOG 14463.6PJ GSL.GD 23/12/09								B - Bulk LB - Larg	ll Disturbed (tul Disturbed ge Bulk Disturb vironmental Sa	ed	+ Vial + Tub)	U - Undisturbed 100mm Diameter Sample Vial + Tub) P - Undisturbed Piston Sample			

IGSL

00	BSL)		GE	OTECH	INICA	L BUR	IIIG I	KECU	עאי					14463	
СО	NTRAC	T Liı	merick Ga	asworks								BOREHO SHEET	OLE NO). D.	J12 Sheet 1 of 1	
СО	-ORDIN	IATES	156	5,926.01 E		RIG TYP	E			Sonic		DATE D	RII I FI	<u> </u>	16/11/2009	
GR	OUND	LEVEL (156 (m AOD)	5,494.56 N 7.43		BOREHO	DLE DIAM	ETER (n	nm)	140		DATE LO			16/11/2009	
	IENT		ord Gais			BOREHO	OLE DEPT	H (m)	;	3.50		BORED	BY		Boart Longy	ear
	GINEER		ouchel			CASING	DEPTH (r	n)	;	3.50		PROCES		3Y	A. Mahony	· ·
$\overline{}$											Sam	ples				4)
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	F	Field Test Results	Standpipe Details
- 0	MADI	E GROL	IND: Blad	ck gravelly fill.				7.38	0.05		0,		~			00
-	MADI	E GROL	JND: Soft	t light brown sa		elly		7.30	0.03							
-	silt/cla	ay. NEC) .							1	ENV	0.50-1.00)			
- - - 1																
-																
-	Very	sandy G	RAVEL w	vith occasional	l cobbles.	Gravel		5.93	1.50							
- - - 2			-	parse with dep	otn. NEC.		30.00	5.43	2.00							
	LIIVIE	STONE.	NEC.					3.43	2.00							
-										<i>a</i> .•						
- 3 -										150						
	End o	of Boreh	ole at 3.5	0 m				3.93	3.50							
								Oily	MIL.							
4							200	es of the								
-							Plite	NII.								
					Consent		ction neit									
5						1150	ot out									
-						FOLLIN	\$									
						of cost.										
- 6					ent	,										
-					Cours											
- - 7																
Ē																
- - 8																
-																
Ē																
- 9																
- 9																
Ė																
Ė_							<u> </u>									
				HISELLING			Wate	ar I Ca	sing	Spalad	Rise	_ T		VATER	STRIKE DET	AILS
Froi	m (m)	To (m)	Time (h)	Comments			Strik		epth	Sealed At	To		ime nin)	Comm	nents	
														No w	ater strike	
															IDMATES SE	TA!! 0
17:0		TION: P	ETAU O						Hole	Casing	l Dei	oth to			NDWATER DE	IAILS
		Tip De		on D7 Page	T. //~		Dat	.e	Depth	Depth	W	oth to ater	Comm	ents		
	Date	T I I DE	pui KZ I	op RZ Base	Тур	<u>ਦ</u>										
-	MAR:									la La						
RE	MARKS	•							D - Small	Disturbed (tub	1 a				d 100mm Diameter	
INS									LB - Larg	Disturbed e Bulk Disturb vironmental Sa	ed mole (.lar +	· Vial + Tub\	San	nple	d Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

681	-/												14463	
NTRAC	CT Lime	erick Gas	works									OLE NO		
		156,5	54.69 N				ETER (1	mm)	Sonic		DATE DI		19/11/2009	
IENT	Bord	l Gais	7.90		BOREHO	OLE DEPT	H (m)		6.50		BORED	BY	Boart Longy	ear
GINEER	NIOUC	JIEI			CASING	DEP I II (I	'') 		0.50			SED B	A. Manony	
		Des	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
				mottled sa	ndy				1	ENV	0.30-0.80)		
slight	tly sandy gi	D: Firm, g ravelly cla	grey/brown/ ay with occa	black mott isional cob	led, obles.		7.16	0.80	2	ENV	1.00-1.50)		
(blac	k 4.00-4.50	m), sligh	tly sandy gr	wn/grey m avelly clay	ottled with		6.46	1.50						
									3 3 S.	ENV	2.50-3.00			
							esonly.	any other	4	ENV	3.50-4.00			
LIME	STONE. N	NEC.			or its p		3.46	4.50						
				Consent	to copy.									
End	of Borehole	e at 6.50 i	m	·			1.46	6.50						
ARD ST	RATA BOI		SELLING			187	^	i	Carle		_ -		ATER STRIKE DET	TAILS
m (m)	To (m)	(h)	Comments						Sealed At				Comments	
													No water strike	
												G	ROUNDWATER DE	TAILS
STALL/	ATION DET	AILS				Dat	:e	Hole Depth			oth to ater	Comme	nts	
Date 0-11-09		h RZ Top 1.00	RZ Base 4.50					_ _	Борит					
MARK	S	1		ı		I	I	D - Sma B - Bulk LB - Lar	II Disturbed (tub Disturbed ge Bulk Disturb	b) ed	+ Vial + Tub\	Samp	le	
	MAD grave MAD slight NEC MAD (blac occa LIME	MADE GROUN gravelly silt with MADE GROUN Slightly sandy gravel. MADE GROUN (black 4.00-4.50 occasional cobt) End of Borehole ARD STRATA BOI M (m) To (m) To (m)	PORDINATES 157.0 156,5 COUND LEVEL (m AOD) IENT Bord Gais GINEER Mouchel MADE GROUND: Soft w gravelly silt with red brick NEC. MADE GROUND: Soft/fir (black 4.00-4.50m), sligh occasional cobbles. NE LIMESTONE. NEC. End of Borehole at 6.50 m ARD STRATA BORING/CHI (h) CARD STRATA BORING/CHI (h) ARD STRATA BORING/CHI (h) MADE GROUND: Soft/fir (black 4.00-4.50m), sligh occasional cobbles. NE CARD STRATA BORING/CHI (h) ARD STRATA BORING/CHI (h)	PORDINATES 157,011.65 E 156,554.69 N 20UND LEVEL (m AOD) 7.96 IENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft white/brown is gravelly silt with red brick. NEC. MADE GROUND: Soft/firm, grey/brown/slightly sandy gravelly clay with occa NEC. MADE GROUND: Soft/firm, dark bro (black 4.00-4.50m), slightly sandy groccasional cobbles. NEC. LIMESTONE. NEC.	PORDINATES 157,011.65 E 156,554.69 N OUND LEVEL (m AOD) 7.96 IENT Bord Gais GINEER Mouchel Description MADE GROUND: Soft white/brown mottled sa gravelly silt with red brick. NEC. MADE GROUND: Soft/firm, dark brown/grey m (black 4.00-4.50m), slightly sandy gravelly clay occasional cobbles. NEC. LIMESTONE. NEC. LIMESTONE. NEC.	INTRACT Limerick Gasworks PORDINATES 157,011.65 E 156,554.69 N BOREHO STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type 1-11-09 4.50 1.00 K ADD SOmm SP DOmm SP 150,554.69 N BOREHO STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type 1-11-09 4.50 1.00 4.50 50mm SP DOmm SP 150,554.69 N BOREHO STALLATION DETAILS Type 1-11-09 4.50 1.00 4.50 50mm SP 150,555 Com	NTRACT Limerick Gasworks PORDINATES 157,011.65 E 156,554.69 N SOUND LEVEL (m AOD) 7.96 BENT Bord Gais GINER Mouchel Description Description Description MADE GROUND: Soft white/brown mottled sandy gravelly silt with red brick. NEC. MADE GROUND: Firm, grey/brown/black mottled, slightly sandy gravelly clay with occasional cobbbles. NEC. MADE GROUND: Soft/firm, dark brown/grey mottled (black 4.00-4.50m), slightly sandy gravelly clay with occasional cobbbles. NEC. LIMESTONE. NEC. ARD STRATA BORING/CHISELLING Imm (m) To (m) Time (n) Comments Wate STALLATION DETAILS Date Tip Depth RZ Top RZ Base Type 1-11-09 4.50 1.00 4.50 50mm SP	ARD STRATA BORING/CHISELLING End of Borehole at 6.50 m RIG TYPE BOREHOLE DIAMETER (I BOREHOLE DIAMETER (I BOREHOLE DEPTH (m) CASING DEPTH (m) Description MADE GROUND: Soft white/brown mottled sandy gravelly silt with red brick. NEC. MADE GROUND: Soft/firm, dark brown/grey mottled (black 4.00-4.50m), slightly sandy gravelly clay with occasional cobbles. NEC. LIMESTONE. NEC. ARD STRATA BORING/CHISELLING IIII IIII IIII IIII Comments Tip Depth RZ Top RZ Base Type 11-109 4.50 1.00 4.50 50mm SP Date Type Date Type Date Type Date Type Date Type 1-11-09 4.50 1.00 4.50 50mm SP	NTRACT Limerick Gasworks -ORDINATES 157,011.65 E 156,554.69 N 10.00 Description 90 Description	NTRACT Limerick Gasworks CORDINATES 157,011.65 E 156,554.69 N COUND LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 BOREHOLE DEPTH (m) 6.50 Golder Mouchel CASING DEPTH (m) 6.50 Golder Mouchel CASING DEPTH (m) 6.50 Golder	NTRACT Limerick Gasworks	NORDINATES 157.011 (6 E 156.554.69 N 166.554.69 N 166.564 N	NTRACT Limerick Gasworks LORDINATES 157,011.65 E 16546.99 N OND LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (m M ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m ADD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LEVEL (m AD) 7.96 BOREHOLE DIAMETER (mm) 140 DATE CONDING LE	NTRACT Limenck Gasworks Sonce Sheet

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	GSL	/		-										14463	
СО	NTRAC	T Lime	rick Gasv	works								BOREH(OLE NO	D. K02 Sheet 1 of 1	
	ORDIN	ATES LEVEL (m	156,5	05.74 E 49.10 N 8.05		RIG TYPI BOREHO	E DLE DIAM	ETER (I		Sonic 140		DATE D		19/11/2009	
CLI	IENT GINEER	Bord	Gais				DEPTH (r			6.50 6.50		BORED PROCES		Boart Longy A. Mahony	ear
											San	nples			
Depth (m)			Des	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Field Test Results	Standpipe Details
- 0	silt wit	th red brick	k. NEC.		, sandy grav m, sandy gra			6.85	1.20	2	ENV	1.00-1.50			
2	silt.	NEC.	J. FIIIII, O	nange/crea	m, sandy gr	aveny		0.03	1.20	3	ENV	2.00-2.50	0		
- 3	silt/cla	y with red	brick. N	lark brown, IEC. rey/black m	sandy grave	elly		5.25 4.95	2.80 3.10 3.10	₩° 4	ENV	3.00-3.50	0		
5	LIMES	STONE. N	EC.			insp or its		aited for	4.50	5	ENV	4.00-4.50	0		
6	End o	f Borehole	at 6.50 r	m	Consent of	i copy		1.55	6.50						
8 9															
		RATA BOF	Time				Wate	er C	asing	Sealed	Ris	е т	ime	VATER STRIKE DET	AILS
l	m (m)	To (m)	(h)	Comments			Strik		epth	At	To		nin)	Comments	
														No water strike	
													G	GROUNDWATER DE	TAILS
	INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type						Dat	te	Hole Depth	Casing Depth	De W	pth to ater	Comme	ents	
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type REMARKS									D - Sma B - Bulk LB - Lar	DIE Leger I Disturbed (tut Disturbed ge Bulk Disturb	o) ed	I Viol - T · ·	Sam	Jndisturbed 100mm Diameter ple Indisturbed Piston Sample	
									Eliv - En	vironmental Sa	"uhie (Jat	· viai T (UD)		•	

IGSL

GEOTECHNICAL BORING RECORD

00	BSL)		G	EU	IECH	INICA	L BUR	ING	KEU	JKD					14463	
СО	NTRAC	T Lim	erick Gas	sworks									BOREH SHEET	OLE N	0.	K03 Sheet 1 of 1	
CO	-ORDIN	IATES	157, 156,	000.08 E 540.07 N			RIG TYP				Sonic		DATE D	RILLE	ס	19/11/2009	
GR	OUND I	LEVEL (m		7.99				OLE DIAM		(mm)	112		DATE L	OGGE	D	19/11/2009	
	ENT		d Gais					DEPT			7.00		BORED		- >-	Boart Longye	ear
ENG	SINEER	. Mou	chel				CASING	DEPTH (n	n) 		7.00		PROCES nples	SSEDE	SY 	G. Thornton	
(E)									5	<u>E</u>	ū		İ	2	,	Field Test	ipe
Depth (m)			De	escription				Legend		Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Results	Standpipe Details
0								Le Le	Ü		άź	l∝⊢	ے ا	- R			20 00
- 0	grave		D: Loose	e dark gre	y/blad	ck very c	layey										
:											1	ENV	0.50-1.0	0			
: - - 1	MADE	CDOUN	D. V.		الد داد				6.99	1.00		ENV	1.00-1.5	0			
: '	white/	dark grey	ום: very : /black (p	soft grave ossible as	ny cia h, cir	ay in iaye nders, cli	ers ot inker,		6.99	1.00	' -						
	asbes	stos).															
2																	
											3	ENV	2.50-3.0	0			
3	MADE	CDOUN	D. C		als (مالد ما مالدان	- \		4.99	2.00	e.						
-	grave	Ily clay. N	IEC.	rey to bla	CK (W	nın deptr	1)		4.99	3.00	X 135						
									~~	· Moth	4	ENV	3.50-4.0	0			
- - - 4									esonly nited fo	X MILL							
									ited								
	MADE	GROUN	D: Stiff b	lack clay	with f	frequent			3.49		5	ENV	4.50-5.0	0			
- - - 5		es. Possi STONE. I		n black, no	ogo	our.	~ O		2.99	5.00	<u> </u>						
. Ĭ	LIIVIE	STONE.	NEC.			Consent	COT ITES		2.55	3.00							
							troopy.		1								
- - 6						di	ot										
						COURSEL]								
-						O											
- - - 7	End o	f Borehol	at 7 00	m					0.99	7.00	<u> </u>						
	Liid o	Dorchor	c at 7.00						0.00	7.00							
- - - 8																	
-																	
- - 9																	
Ē																	
-																	
- HA	ARD ST	RATA BO	RING/CH	IISELLING										v	NATE	R STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Commen	s			Wate Strike		asing Depth	Sealed At	Ris To		ime min)	Com	ments	
			(17)											,,,,	No	water strike	
															GROL	JNDWATER DE	TAILS
INS	TALLA	TION DET	AILS					Dat	e	Hole Depth	Casing	De W	pth to ater	Comm			
	Date	Tip Dep	th RZ To	p RZ Ba	se	Тур	е			Борит	Бери	, , , ,	2.01				
REI	MARKS	;								D - Sm	ple Leger all Disturbed (tu	nd _{b)}				ped 100mm Diameter	
INS										LB - La	k Disturbed rge Bulk Disturb nvironmental Sa	oed ample (Jar -	+ Vial + Tub)	San	nple	oed Piston Sample	

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REPORT NUMBER

100	BSL	/		<u> </u>					- _	•						14463	
СО	NTRAC	T Lime	rick Gas	works									BOREH SHEET		Ο.	K04 Sheet 1 of 2	
CO-ORDINATES 156,992.94 E 156,534.88 N GROUND LEVEL (m AOD) 7.88 BOREHOL							Sonic E DIAMETER (mm) 140						ORILLE LOGGE				
CLI	CLIENT Bord Gais BOREHOLE							E DEPTH (m) 10.00					BORED BY			Boart Longyear	
ENG	GINEER	Moud	hel			CASING	DEPTH (m)		1	0.00		PROCE	SSED	BY	G. Thornton	
<u></u>								l ,	_ .	<u> </u>			ples				ā
Depth (m)			De	scription			Legend	;;	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)			Field Test Results	Standpipe Details
- 0 - - - - - - 1				e brown clay . Possible co				× × × × × × × ×			2	ENV	0.00-0.£				
2	MADE		6.38		.50	ø.											
4	MADE sand.	E GROUNI Strong HO	D: Medii C odour.	um dense, s 1.00m reco	lightly gra	250		esoft jired 3.38		.50	3	ENV	5.50.04				
6	MADE odour	GROUNE and thick	D: Firm b tar like s	olack very gr ubstance.	avelly cla	For it		1.88	6	.00	4	ENV	5.50-6.0 6.25-6.7				
- 7	Very s	E GROUNI strong HC. rom 6.00-7		0.88		.00	5	ENV	7.50-8.0	00							
- 8 - - - - -		GROUNI lastic. HC		tone cobble n rock.	s and red		-0.13	8	.00								
9		STONE. H						-1.13	3 9	.00							
HA	\RĐ16T	RATA: BOX		SELLING							\ · ·	<u> </u>			WAT	ER STRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Comments			Wat Strik		asing Depth		Sealed At	Rise To		Time min)	Cor	mments	
									•					,	No	o water strike	
															GRO	UNDWATER DE	TAILS
INSTALLATION DETAILS Date Tip Depth RZ Top RZ Base Type							Da	te	Hole Dep		Casing Depth	De W	oth to ater	Comm	ents	3	
	MARKS				. ,	-			D-	- Small [e Legen)			Indiat	urbed 100mm Diameter	
									B - LB	- Bulk Di B - Large	isturbed Bulk Disturbe ronmental Sa	ed	· Vial + Tub)	Sar	nple	urbed 100mm Diameter urbed Piston Sample	

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REPORT NUMBER

100															14400	
CONTRA	ACT Lii	merick (Gaswor	rks								BOREH SHEET		O .	K04 Sheet 2 of 2	
CO-ORDINATES 156,992.94 E 156,534.88 N RIG TYPE GROUND LEVEL (m AOD) 7.88 BOREHOLE								ETER (r		Sonic 140		DATE DRILLED DATE LOGGED			10/11/2009	
CLIENT ENGINEE	BOREHOL BORGINER Mouchel CASING D								10.00 10.00		BORED BY PROCESSED BY			Boart Longyear G. Thornton		
							•					nples				
Depth (m)			Descri	ption			Legend	Elevation		Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
10 11 11 12 13 14 15 16 17 18	TDATA D	OPING			Consent	FOR THE CONTROL	Lid Andre Legisland	-2.13	10.00						D STRIKE DET	All S
	Ta (22)	Time					Wate	r Ca	sing	Sealed	Ris	e 7	Time		R STRIKE DET	AILS
From (m)	To (m)	(h)	Con	mments			Strike		epth	At	To		min)	Comr	nents	
														Nov	vater strike	
														GROU	NDWATER DE	TAILS
INSTALL	ATION DI	ETAILS	;			Dat	е	Hole Depth	Casing Depth		pth to ater	Comm	ents			
Date	Tip De	pth RZ	Z Top F	RZ Base	Тур	e			<i>р</i> орит	Бериі	-	3.01				
REMAR	(S						ı		D - Smal B - Bulk	DIE Leger I Disturbed (tut Disturbed ge Bulk Disturb vironmental Sa	o) ed	+ Vial + Tub\	Sar	nple	ed 100mm Diameter	
									1		.p.0 (001	100)				

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

100	BSL	/			-00									144	63
СО	NTRAC	T Lime	erick Gas	works								BOREH	OLE N		1 of 1
CO-ORDINATES 156,984.92 E 156,529.10 N GROUND LEVEL (m AOD) 8.64 RIG TYP										Sonic	F	SHEET DATE D	DII I FI	Sheet	
								HOLE DIAMETER (mm) 140						10/11/2009 12/11/2009	
CLI	IENT	Bord	Gais			BOREH	OLE DEPT	H (m)		9.00		BORED	BY	Boart L	_ongyear
ENGINEER Mouchel CASING							DEPTH (m) 9.00					PROCE	SSEDI		
<u>_</u>								_			_	nples			φ
Depth (m)			De	scription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Tes Results	
0				rey gravel				8.44	0.20	1	ENV	0.25-0.7	5		
	occas	ional cobb	D: Stiff to	olack grave vegetation	Slight H	tn C impact.		0.11	0.20			0.20 0.71			
1	strong	between	1.25-1.5		gravelly o	clay. HC,		7.64	1.00	2	ENV	1.25-1.5	0		
2	MADE	e Groun	D: No re	covery.				7.14	1.50						
3	MADE	GROUN	D: Soft b	lack grave	lly clay. H	eavy HC.		5.64	3.00	, 1 ³ e· 3	ENV	3.00-3.5	0		
4								esonly lited for	(May	2 · 3	ENV	4.00-4.5	0		
5						For its of				5	ENV	5.50-6.00	0		
6	LIMES	STONE. S	Slight HC	sheen.	Conse	istic		2.64	6.00						
7	LIMES	STONE. N	IEC.					1.64	7.00						
8	Vonus	tiff black	R grov C	LAY. NEC				-0.06	8.70	6	ENV	8.70-9.0	0		
9		f Borehole			•			-0.36							\//\X
HA	ARD STI	RATA BOI		ISELLING			Wate) 	acina I	Sealed	Rise		ime	WATER STRIKI	E DETAILS
Fror	m (m) -	To (m)	Time (h)	Comments	:		Strik		asing epth	At	To		nin)	Comments	
														No water stri	ke
														GROUNDWATE	ER DETAILS
INS	STALLA	TION DET	AILS				Dat	te	Hole Depth	Casing Depth	Dej W	oth to ater	Comm	nents	
	Date			p RZ Bas		уре			Zopui	200011	1				
	-11-09 MARKS	6.00	1.00	6.00	50m	m SP			Sam	ple Leger	nd				
									B - Bulk	all Disturbed (tub Disturbed rge Bulk Disturb			Sar	Undisturbed 100mm Dia	
									Env - E	nvironmental Sa	mple (Jar +	+ Vial + Tub)	Р-	Undisturbed Piston Samp	ole

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GEOTECHNICAL BORING RECORD

00	BSL	/		GE	JIEG	ПИІСА	L DUK	IING	RECU	עא				14463	
CO	NTRAC	T Lime	rick Gas	works								BOREHO SHEET	OLE NO	D. K06 Sheet 1 of 1	1
CO-	-ORDIN	ATES	156,9 156,5	77.38 E 22.33 N		RIG TYP				Sonic		DATE DI			
GR	OUND I	LEVEL (m	AOD)	8.32		4	OLE DIAM			112	_	DATE LO	OGGED	10/11/2009	
	ENT		Gais				DEDTIL (**			7.50		BORED		Boart Longy	year
ENC	SINEER	Moud	nei			CASING	DEPTH (n	n)	<i>'</i>	7.50		PROCES	SED E	BY D. O'Shea	
(E)								5	(E)	<u></u>		İ	2	Field Test	ipe
Depth (m)			Des	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Results	Standpipe Details
							Le le	ă	ă	řź	Š ←	0.00-0.30	_		D W
- 0		E GROUNI ble HC.	D: Firm b	orown sandy	gravelly	clay.		8.02	0.30	╡ '	Liv	0.00-0.50			
: -	MADE	GROUNI	D: Stiff d	ark brown sa bles. Possib	andy grav	velly		0.02	0.50						
: - - 1	Clay W	niii occasii	Jilai CODI	11es. Fussio	ie no.					2	ENV	1.00-1.50	,		
: '										-		1.00 1.00			
	MADE	E GROUNI	D: Soft b	rown/black r	nottled, s	sandy		6.82	1.50						
:	grave	lly clay. H	eavy HC	impact.											
2															
-										2.2	END/	2.00.2.50			
- 3 -									, A	3. 3	ENV	3.00-3.50	'		
-								1	othe other						
	MADE	GROUNI	D: Firm b	olack (becon ay with woo	ning brow	n from		4,62	3.70	4	ENV	3.70-4.00)		
4	Possi	ble HC.						4.02 55 0 50 54.02							
:		GROUNI one. NEC		ar gravel - c	oncrete a	and		34 .02	4.30						
		.0110. 1120	•			G									
- 5 -						insp									
-						FOLDALI									
-						For inst									
- 6	MADE	GROUN	D: Grave	el - tarmacad	am. N	Č.		2.32	6.00						
-	LIMES	STONE. N	IFC		Colle			1.82	6.50						
	LIIVIL	31011 <u>2</u> . 11	0.												
- - 7															
	Fnd o	f Borehole	at 7 50 i	m				0.82	7.50						
:	Liid 0	1 201011010	ut 7.00 i												
- - 8															
:															
-															
9															
-															
-															
HΑ	RD ST	RATA BOF	RING/CHI	SELLING			Wate	r C	asing S	Sealed	Rise	. Ti	me V	VATER STRIKE DE	TAILS
Fror	n (m)	To (m)	(h)	Comments			Strike		epth	At	To	- 1	nin)	Comments	
														No water strike	
													G	GROUNDWATER DI	ETAILS
INS	TALLA	TION DET					Dat	e	Hole Depth	Casing Depth	Dej W	oth to ater	Comme	ents	
	Date	Tip Deptl	n RZ Top	RZ Base	Ту	ре									
PE	MADVO								Com-	lo Locar					
KEİ	MARKS	•							D - Small B - Bulk D	le Leger Disturbed (tub Disturbed	p)			Undisturbed 100mm Diameter	
REI									LB - Large	e Bulk Disturbi ironmental Sa	ed mple (Jar +	⊦ Vial + Tub)	Sam P - U	ple Indisturbed Piston Sample	

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CC	NTRA	CT Liı	merick	Gasw	orks								BOREH SHEET			7 et 1 of 1	
CO	-ORDI	NATES			9.48 E 7.09 N		RIG TYP	E			Sonic		DATE D	RILLE		11/2009	
GR	OUND	LEVEL (m AOE))	8.21		BOREHO	OLE DIAM	ETER (r	mm)	112		DATE L	.OGGE	12/	11/2009	
CL	IENT	Во	ord Gai	s			BOREHO	DLE DEPT	H (m)		9.00		BORED	BY	Boa	rt Longye	ear
EN	GINEE	R Mo	ouchel				CASING	DEPTH (n	n)		9.00		PROCE	SSED E	3Y G. 7	hornton	1
<u>_</u>									_	<u> </u>		_	nples				e
Depth (m)				Desc	ription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Resu		Standpipe Details
0	MAE sligh	DE GROU	IND: S	oft to	firm dark b ND. NEC	orown mot	tled,				1	ENV	0.00-0.5	50			
1	MAE		IND: S	oft to	firm orang	e/brown m	nottled,		7.71	0.50	2	ENV	1.00-1.5	50			
3	MAE cobb	DE GROL oly gravel	IND: D. . Heav	ark bro	own black	mottled sa	X		5.21	3.00	8. 3 4	ENV	2.90-3.0 3.00-6.0	000			
7	LIME	ESTONE	with cla	ay ban	nd 8.70-8.9	Om. He	for this		2.21	6.00							
											5	ENV	8.70-8.9	90			
9	End	of Boreh	ole at 9	9.00 m					-0.79	9.00							
Н	ARD S	TRATA B			ELLING					<u> </u>			<u> </u>		VATER STR	IKE DET	AILS
ro	m (m)	To (m)	Time (h)	e Co	omments			Wate Strike		asing epth	Sealed At	Rise To		Γime min)	Comments		
															No water	strike	
														(GROUNDWA	ATER DE	TAILS
INS	STALL Date	Tip De			RZ Base	Тур	pe	Dat	е	Hole Depth	Casing Depth		oth to ater	Comm	ents		
RE	MARK	S								B - Bulk LB - Lar	ple Leger III Disturbed (tub Disturbed ge Bulk Disturb	ed	+ Vial + Tub)	Sam	Undisturbed 100mn pple Undisturbed Piston		

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REPORT NUMBER

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00	BSL	/		-	0.201			•					1	14463	
СО	NTRAC	T Lime	rick Gas	sworks							BOREH SHEET			(08 heet 1 of 1	
	-ORDIN OUND I	ATES LEVEL (m	156,	961.12 E 510.40 N 7.90	RIG TYP BOREHO	E OLE DIAM	ETER (ı	mm)	Sonic 140		DATE D	RILLE	D 1	6/11/2009 6/11/2009	
	ENT GINEER		Gais			OLE DEPT DEPTH (r			2.00 2.00		BORED PROCE		Boart Longyear BY A. Mahony		ear
					-					San	nples			<u> </u>	
Depth (m)				scription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Fiel Re	d Test esults	Standpipe Details
1		STONE. S		m			5.90	2.000							
3 - 3 - 4 5 - 5					For its of Copyris	citod dude	st only.	any oth	5 VE.						
- 6 - 6 7 - 7 - 7					Consentale										
9															
HA	ARD ST			ISELLING		10/-4-			011	D:-			WATER S	TRIKE DET	AILS
Fror	m (m)	To (m)	Time (h)	Comments		Wate Strik		asing epth	Sealed At	Rise To		Γime min)	Commer	nts	
													No wate	er strike	
								-اما-	Cosin		-41-4			WATER DE	TAILS
	TALLA Date	TION DET		p RZ Base	Туре	Dat	te	Hole Depth	Casing Depth	Dej W	oth to ater	Comm	ents		
REI	MARKS							D - Sm B - Bul LB - La	nple Leger Iall Disturbed (tub k Disturbed Irge Bulk Disturb Environmental Sa	o) ed	⊦ Vial + <u>Tu</u> b)	San	Undisturbed 100 nple Undisturbed Pis		

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00	GSL)		GE	OTECHNICA	L BOR	ING I	KECO	אט				14463	
СО	NTRAC	T Lim	erick Ga	sworks							BOREH SHEET	OLE NO	D. K09 Sheet 1 of 1	
	-ORDIN		156	,955.17 E ,504.24 N	RIG TYP				Sonic	Ī	DATE D		16/11/2009	
GR	OUND	LEVEL (m	AOD)	7.60	BOREHO				140	Į.	DATE L	OGGED	16/11/2009	
1	IENT		d Gais		BOREHO				2.00		BORED		Boart Longyear	
EN	GINEER	R Mou	ıchel		CASING	DEPTH (r	n) 		2.00		PROCES	SSED B	A. Mahony	
Œ						_	5	Œ				2	— Field Teet	be
Depth (m)			D	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
- 0	LIME	STONE.	NEC.											
Ē							į							
Ė														
1														
Ė														
Ē														
2	End o	of Borehol	e at 2.00) m			5.60	2.00						
Ė														
Ē														
3								,	ve.					
Ė								other						
Ė					Consent of copyrish		Ald.	MY						
F ₄						عہ	es 2 toi							
Ė						ality	diffee							
Ė						tion is to	,							
5					, sol	COMIT								
E					tion with	Sic .								
Ė					£0083									
6					entor									
E					Cons									
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- 9														
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H/	ARD ST	RATA BO		HISELLING									 ATER STRIKE DET	AILS
	m (m)	To (m)	Time (h)	Comments		Wate Strike		sing s epth	Sealed At	Rise To		ime nin)	Comments	
									~				No water strike	
												G	ROUNDWATER DE	TAILS
INS		TION DE				Dat		Hole Depth	Casing Depth	Der W	oth to ater	Comme	ents	
	Date	Tip Dep	th RZ T	op RZ Base	Туре									
PE	MARKS	<u> </u>						Samn	le I egen	nd				
\\	WAKK	,						B - Bulk D	Disturbed (tub Disturbed			U - U Samı	Indisturbed 100mm Diameter	
INS								LB - Larg	e Bulk Disturbe vironmental Sa	ed mple (Jar +	· Vial + Tub)	P - U	Indisturbed Piston Sample	

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00	BSL)		GE	OTECHNICA	LBUK	ing i	KEUU	עאע				14463	
	NTRAC		erick Ga	sworks							BOREH SHEET	OLE N	D. K10 Sheet 1 of	1
	-ORDIN		156,	947.71 E 499.44 N	RIG TYP				Sonic		DATE D			
GR	OUND I	LEVEL (m	AOD)	7.53		DLE DIAM		,	140	Į.	DATE L	OGGE	D 16/11/2009	
	ENT		l Gais			DLE DEPT			2.00		BORED		Boart Longyear	
ENG	GINEER	R Mou	chel		CASING	DEPTH (n	n) 		2.00		PROCE ples	SSED E	A. Mahony	
Œ							<u>_</u>	(E)			ipies			be
Depth (m)			De	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
De						Leg	E	De	Ne Se	Sal		Rec		Sta
- 0	LIMES	STONE. N	NEC.											
- - 1														
:														
- - 2	End o	of Borehole	at 2 00	m			5.53	2.00						
	Liiu o	n Dorenoie	at 2.00											
-									2.					
3								~	1300					
								othe						
					For its of copyride		ould.	Mil						
4						l c	es gior							
						Sitte	diff							
						tion by to	ľ							
5					್ವರ್	CUMIL								
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E														
8														
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ŧ l														
- 9														
-														
		To (m)	Time	Comments		Wate	er Ca	sing	Sealed	Rise	e T	ime V	NATER STRIKE DE Comments	TAILS
101	11 (111)	10 (111)	(h)	Comments		Strike		epth	At	То	(1	min)	Comments	
													No water strike	
		TIO :: = =				+_		Hole	Casing	I Der	oth to		GROUNDWATER D	ETAILS
		Tip Dopt		n D7 Dags	Tuno	Dat		Depth	Depth		oth to ater	Comm	ents	
	Date	TIP Dept	II KZ 10	p RZ Base	Туре	\dashv								
REI	MARKS	<u> </u> 						Samp	l ole Leger	nd				
								D - Smal	I Disturbed (tub Disturbed ge Bulk Disturb	2)		San	Undisturbed 100mm Diameter nple	
								Env - En	ge Bulk Disturb vironmental Sa	eu mple (Jar +	Vial + Tub)	P - I	Undisturbed Piston Sample	

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00	BSL)		GE	OTECE	INICA	L BUR	ING	RECU	עאי				144	163	
СО	NTRAC	T Lime	erick Gas	sworks								BOREH(OLE NO		t 1 of 1	
CO	-ORDIN	ATES	156,9 156,4	939.61 E 492.66 N		RIG TYP	E		;	Sonic		DATE D	RILLE		/2009	
GR	OUND I	LEVEL (m	AOD)	7.41			LE DIAM			140		DATE LO	OGGE	04/11	/2009	
	ENT		d Gais				LE DEPT			3.80		BORED			Longye	ear
ENG	SINEER	Mou	chel			CASING	DEPTH (r	n)	;	3.80		PROCES	SSED E	3Y G. Th	ornton	
Œ							_	_ 	Œ			ipies		, Field Te		ibe
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Te Result		Standpipe Details
- 0	MADE	GROUN	D consis	ting of very	dense, gre	у			0.20	1	ENV	0.20-0.70				
-		ar limesto rown sligh		y, slightly gra	avelly CLA	Y.		7.21	0.20							
:	NEC.	stiff grov	cliabtly c	andy, slightl	v gravally (<u> </u>	6.71	0.70							
1	NEC.	still, gley,	Silgritiy S	andy, Silgini	y graveny v	OLAT.				2	ENV	1.00-1.50	0			
	LIMES	STONE. I	NFC					5.91	1.50							
:		o. o														
2																
3									, x	13°C.						
									Vother							
	End o	f Borehole	e at 3.80	m	Consent			361	3.80							
4							200	Sold of the								
							2 Pittle	Mil								
						0	ction net t									
5						insp	at or									
						FOLDALIS	9									
					¥	of co,										
- 6 -					ansen'											
-					Cox											
7																
-																
- 8 -																
- 9 -																
F																
<u>-</u>	ARD STI	ΡΑΤΑ ΒΟ	RING/CH	ISELLING										VATER STRIE	CE DET	AII S
		To (m)	Time	Comments			Wate			Sealed	Rise		ime	Comments	VE DE 17	AILO
	,	()	(h)				Strik	e D	epth	At	To	(r	min)			
														No water st	rike	
														GROUNDWAT	ER DF	TAILS
INS	TALLA	TION DET	AILS				Dat	e	Hole	Casing	I De	oth to ater	Comm		、	
	Date			p RZ Base	Тур	е			Depth	Depth	VV	alei				
									-	<u> </u>						
REI	MARKS	1							D - Small	Disturbed (tub	nd •)			Undisturbed 100mm D	iameter	
INS									B - Bulk I LB - Larg Env - Env	Disturbed e Bulk Disturb vironmental Sa	ed mple (Jar +	⊦ Vial + Tub)	Sam			

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REPORT NUMBER

14463

100	BSL			<u> </u>				0	0.12				14463	
СО	NTRAC	T Lime	erick Gas	sworks							BOREH SHEET	OLE NO	D. K12 Sheet 1 of	1
	-ordin Ound I	IATES LEVEL (m	156,	933.15 E 487.21 N 7.53	RIG TY BORE	/PE HOLE DIAI	METER	(mm)	Sonic 140		DATE D) 16/11/2009	1
CLI	ENT GINEER	Boro	l Gais			HOLE DEP			3.00 3.00		BORED PROCE		Boart Long A. Mahony	year
							Ì				nples			
Depth (m)			De	escription		Legend	: : :	Elevation Depth (m)	Ref. Number				Field Test Results	Standpipe Details
0	MADE grave	GROUN	D: Soft silt. NE(light brown, v C.	very sandy				1	ENV	0.00-0.5	50		
- . 1	\cobble	es. NEC.	_		sandy, gravel and	1000	6.73 6.53			ENV	1.20-1.3	60		
	NEC.	SE GRAVE		cal gravelly	sand 1.20-1.30m.	00.00	6.03	1.5			200			
_ - 2 -			0.											
-														
3	End o	f Borehole	e at 3.00				4.53		o ye.					
-							Only	A MIN OU						
- 4 - - -						THE	osited f							
- - - - - - 5						oetion Pr								
-					Foring	ight o								
6					Consent of cons									
- - -					Cours									
- - - 7														
- -														
8														
-														
- 9 - - - -														
: H/	ARD ST	RATA BOI	RING/CH	IISELLING								v	VATER STRIKE DE	TAILS
Fror	m (m)	To (m)	Time (h)	Comments		Wa Stri		Casing Depth	Sealed At	Ris To		ime	Comments	
													No water strike	
										<u> </u>		0	GROUNDWATER D	ETAILS
	TALLA Date	TION DET		p RZ Base	Туре	Di	ate	Hole Depth	Casing Depth	g De 1 W	pth to ater	Comme	ents	
	MARKS							800	nple Lege	nd				
, se								D - Sr B - Bu LB - L	mall Disturbed (tu ulk Disturbed arge Bulk Disturt Environmental S	ib) bed	+ Vial + Tub)	Sam	Undisturbed 100mm Diameter aple Undisturbed Piston Sample	

Color of the same	
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00	BSL	/		OL	.OILO		L DOI		\LU(14463	
СО	NTRAC	T Lim	erick Gas	sworks		1						BOREH SHEET	OLE N	0.	L02 Sheet 1 of 1	
	-ORDIN		156,	012.29 E 537.81 N		RIG TYP				Sonic		DATE D			18/11/2009	
		LEVEL (m		7.97		-	OLE DIAM			140 6.00	-	DATE LO		D	19/11/2009	
	IENT GINEER		d Gais ichel				OLE DEPT DEPTH (r			6.00		BORED PROCES		3Y	Boart Longye D. O'Shea	ear
		· WOO				OAGING		,		0.00		nples	JOLD .		D. O Onca	
Depth (m)			De	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
1 1 2 3 4 5 5 6 7 7 8 8 9	MADE grave NEC. MADE grave NEC.	E GROUN I with bric E GROUN	ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose ID: Loose	e brown/grey	y, gravelly y, clayey s yey 3.00-3	andy 3.50m).		7.77 6.47 4.47 2.97 2.47 1.97	1.50 1.50 5.00 5.50 6.00	3	ENV	1.00-1.5(4.50-5.0(0			
H/	ABD ST	RATA RO	RING/CL	IISELLING										MATE.	R STRIKE DET	VII 6
		To (m)	Time	Comments			Wate		asing	Sealed	Rise	- 1	ime		ments	AILU
	,	- ()	(h)				Strik	e D	epth	At	То	(r	nin)		water strike	
														140		
														GROU	JNDWATER DE	TAILS
i	Date	TION DET		p RZ Base	Ту	ре	Dat	te	Hole Depth	Casing Depth	De W	oth to ater	Comm			
REI	MARKS	<u> </u>							B - Bulk LB - Lar	ple Leger III Disturbed (tul Disturbed ge Bulk Disturb	ed		San	nple	ned 100mm Diameter	
:									Env - Er	vironmental Sa	ample (Jar +	Vial + Tub)	F -		/ Iotori Gampie	

00	BSL	/			OL.	OILOI				KLOO						14463	
СО	NTRAC	T Lin	nerick C	Gaswor	·ks								BOREH SHEET	OLE N	Ю.	L03 Sheet 1 of 1	
	-ORDIN		15	57,004. 56,534.	.30 N		RIG TYP				Sonic		DATE D			19/11/2009	
GR	OUND	LEVEL (r	n AOD)) 8	3.01			OLE DIAM			140		DATE L	OGGE	D	19/11/2009	
	IENT GINEER		rd Gais uchel	;				OLE DEPT DEPTH (r			7.50 7.50		BORED PROCE:		RY	Boart Longy D. O'Shea	ear
		· IVIO	ucrici				OAOIIIO		·· <i>y</i>		1.50		ples	OOLD	<u> </u>	D. O Olica	
Depth (m)				Descri	ption			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	CCCC y	Field Test Results	Standpipe Details
- 0	MADE	GROUI	ND: Lo	ose bla	ick/browr	n/grey clay	ey ey				1	ENV	0.00-0.5				
1	MADE	GROU	ND: So	ft, grey		andy grave ble HC.	elly		7.51	0.50	2	ENV	1.00-1.5	0			
2	NEC.					ery sandy	-		6.01	2.00	3	ENV	2.50-3.0	0			
- 3	MADE sandy	GROUI gravel v	ND: Loo vith occ	ose gre casiona	ey/brown Il cobbles	clayey ver s. NEC.	гу		5.01 Seconty	3.00 alter	4	ENV	4.00-4.5	0			
5	MADE grave	E GROUI	ND: Firi Strong I	m, grey HC - fre	y/brown/b ee phase		:08P		gifed 3.51	4.50	5	ENV	4.50-5.0	0			
6	LIMES	STONE.	NEC.			Consent	God Copy it's		2.51	5.50							
- 8	End o	f Boreho	le at 7.	50 m					0.51	7.50							
9																	
HA	ARD ST	RATA BO			LLING										WATI	ER STRIKE DET	TAILS
	m (m)	To (m)	Time (h)	Con	nments			Wate Strik		asing : epth	Sealed At	Rise To		ime min)	Con	nments	
															No	water strike	
										lle!-	0				GRO	UNDWATER DE	TAILS
INS		Tip De		Ton	D7 Page	Tun		Dat	e	Hole Depth	Casing Depth	Dej W	oth to ater	Comm	nents		
	Date		pui KZ	TOP I	RZ Base	Тур	ie			T-							
INS	MARKS	i 								B - Bulk I LB - Larg	Disturbed (tub Disturbed Disturbed e Bulk Disturber Pironmental Sa	ed	· Vial + Tub)	Sa	mple	rbed 100mm Diameter	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

14463

00	BSL			<u> </u>	.											14463	
CO	NTRAC	T Lime	erick Gas	sworks									BOREH SHEET	OLE N	Ο.	L04 Sheet 1 of 2	
	ORDIN	IATES LEVEL (m	156,	998.58 E 526.38 N 8.26		RIG TYPE BOREHOI		FTFR	(mr		Sonic 140		DATE D			19/11/2009 20/11/2009	
CLI	ENT	Bord	l Gais	0.20	E	BOREHOI	LE DEPT	'H (m)	•	. 1	10.00		BORED	BY		Boart Longye	ear
ENC	SINEER	. Mou	chel			CASING E	DEPTH (n	n)	_	1	10.00		PROCE	SSED	BY	G. Thornton	
$\overline{\mathbf{c}}$									_	<u> </u>			ples				ō
Depth (m)			De	escription			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
0				light brown to y. HC, high							1	ENV	0.50-1.0	00			
1											2	ENV	1.00-1.5	50			
- - - - - - - 2											3	ENV	1.50-3.0	00			
- 3	MADE	- GPOLIN	D: Soft	dark brown g	gravelly clave	HC		4 76		.3.50	Se. 4	ENV	3.00-3.5	50			
- 4 - 4 	MADE HC im	E GROUN npact.	D: Medi	ium dense, g	rey, clayey	sand.		4.76 only bired 3.76 3.36	5	4.50	5	ENV	4.50-4.9	90			
- - - - - - - - - 6	cobble	es and red	I brick. I	Pure Tar pro	duct presen						6	ENV	5.50-6.0	00			
- - - - - - - 7					Cons						7	ENV	6.50-7.0	00			
	grave	lly clay. H	C in bla	mottled brow ck mottling. e black sligh				0.96 0.76	3	7.30 7.50	8	ENV	7.50-7.9	90			
8	MADE	Tar produc ark grey/b	D: Loos ct preser	e black cobb		/⊨		-0.0 -0.2	4	7.90 8.30 8.50	9	ENV	8.00-8.3	30			
9	LIMES 9.00-1	STONE. 8	Sheen	Om gross pur (possible cro	re tar in rock oss contami	nation											
HA	RĐ ST	KATA: BOM	RINGACO	OSELLING											NAT	ER STRIKE DET	AILS
Fror	n (m)	To (m)	Time (h)	Comments			Wate Strike		Casi Dep	9	Sealed At	Rise To		Γime min)	Cor	mments	
			\.' <i>!</i>				Suik			-41	,	10			No	o water strike	
							-								CPC	OUNDWATER DE	ταιι ς
INS	TALLA	TION DET	AILS				Dat	e		lole epth	Casing Depth	De	oth to ater	Comm			IAILO
	Date	Tip Dept	h RZ To	p RZ Base	Туре)			יט	υριιι	Debiii		4.01				
REI	MARKS	Clean dr encounte		hnique used	l but no con	crete bas	e			D - Small B - Bulk D LB - Large	le Legen Disturbed (tub disturbed e Bulk Disturbe ironmental Sar) ed	· Vial + Tub)	Sar	nple	urbed 100mm Diameter urbed Piston Sample	

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GEOTECHNICAL BORING RECORD

REPORT NUMBER

14463

(ICS)												14403	
CONTRA	CT Lim	nerick Ga	asworks							OREHO	OLE NO		
CO-ORDI	NATES	156	6,998.58 E	RIG TYF)E			Sonic	 	HEET		Sheet 2 of 2	
	LEVEL (n	156	6,526.38 N 8.26		CLE DIAM	ETER (r	nm)	140		ATE DI			
CLIENT		rd Gais			OLE DEPT			10.00		BORED		Boart Longy	ear
ENGINEE		uchel		CASING	DEPTH (r	n)		10.00	P	ROCES			
<u>e</u>						_	l ê		Sam	oles			l g
Depth (m)		С	Description		pue	Elevation	Depth (m)	Ref. Number	Sample Type	£	Recovery	Field Test Results	didbir slis
Dec					Legend	 Ele√	Dep	Ref	San	Depth (m)	Reco	results	Standpipe Details
10						-1.74	10.00)			\dagger		
11													
12													
13								ve.					
							athe	5					
				For ites		914.	KIII						
14					_	es a for							
					ality	ditec							
					ion Prie	^							
15				S	owite of								
				COT IT	3/11								
				, coly									
16				entor									
				Consc									
17													
18													
19													
HVDD 6.	TDATA DO	DING/C	HISELLING		1						14	 VATER STRIKE DET	All C
From (m)	To (m)	Time	Comments		Wate			Sealed	Rise		ime	Comments	AILS
	()	(h)			Strik	e D	epth	At	То	(n	nin)		
												No water strike	
							11-1	10			G	ROUNDWATER DE	TAILS
	ATION DE			1 -	Dat	te	Hole Depth	Casing Depth	Dep Wa	th to ater	Comme	ents	
Date	Tip Dep	oth RZ 1	Top RZ Base	Туре									
REMARK	S Clean of encoun		echnique used	d but no concrete ba	ase		Sam D - Sma	ple Legen	ıd)		(J - I I	Indisturbed 100mm Diameter	
	250411						B - Bulk LB - Lar	Disturbed rge Bulk Disturbe nvironmental Sar	ed	√ial + Tub)	Sam		

0	68				OL	OILO				I LOC					1440	63
CC	NTRA	CT Lir	merick	Gaswo	orks								BOREH SHEET	OLE NO	D. L05 Sheet 1	1 of 1
CC)-ORDI	NATES		156,99 156,52			RIG TYP	E			Sonic		DATE D			
GR	ROUND	LEVEL (8.41		4	OLE DIAM	,	,	140		DATE L	OGGED	19/11/2	2009
	IENT		rd Ga	is				OLE DEPT			8.00		BORED			ongyear
EN	GINEE	R Mo	ouchel				CASING	DEPTH (r	n) 		8.00		PROCE:	SSED E	BY A. Mah	ony
Œ									 	(E)		_	ibies			be
Depth (m)				Desc	ription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Tes Results	Standpipe Details
0		E GROU	ND: S	oft bro	wn, sandy	gravelly	silt/clay.									
1	MAE	E GROU	ND: Metting s	/ledium stronge	dense, pa er with dep	ale brown oth.	/brown		7.91	0.50	1	ENV	0.50-1.0	0		
_2	MAE grav	DE GROU el. Stroi	ND: L	oose, t	olack, very phase oil.	silty, san	idy		6.91	1.50	2	ENV	2.00-2.5	0		
3	sand	DE GROU by gravelly ng HC - fr	y silt/cl	lay with	ck/brown/ occasion	grey mott al cobble	led, s.		5.61	2.80	75°. 3	ENV	3.00-3.5	0		
4									esonly.	any other	4	ENV	4.00-4.5	0		
5							For inspir				5	ENV	5.00-5.5	0		
6	Pulv dept		MEST	ONE. \$	Slight HC,	decreasi	ng with		2.41	6.00	6	ENV	6.50-7.0	0		
7	LIME	ESTONE.	NEC						1.41	7.00						
8	End	of Boreho	ole at 8	8.00 m					0.41	8.00						
9																
H/	ARD S	TRATA B	ORING	G/CHIS	ELLING										 VATER STRIKE	DETAILS
	m (m)	To (m)	Tim	ie C	omments			Wate			Sealed	Ris		ime	Comments	
	. 1	, ,	(h)	,				Strik	e D	epth	At	То	(1	min)	No water strik	ке
										Hole	Casing	l De	nth to		ROUNDWATE	R DETAILS
INS	STALL Date	Tip De			RZ Base	Ту	pe	Dat	te	Depth	Depth		pth to ater	Comme	ents	
RE	MARK	S			I			l		B - Bulk LB - Larg	DIE Leger I Disturbed (tul Disturbed ge Bulk Disturb	ed		Sam	Jndisturbed 100mm Dian ple Jndisturbed Piston Samp	
										I ⊏nv - En	vironmental Sa	iiipie (Jar -	r viai + IUD)			

(IC	SL	/															14463	
CON	ITRAC	T Lim	erick G	aswork	s									BOREH	OLE N	0.	L06	
	ORDIN	IATES	150	6,983.6	4 F		RIG TYP					onic		SHEET			Sheet 1 of 1	
		LEVEL (n	150	6,515.1				DLE DIAM	FTF	R (m		40		DATE D			19/11/2009 19/11/2009	
		`		0.	41			OLE DEPT		`	,	.00	-					
CLIE	:N I INEER		d Gais uchel					DEPTH (r	•	-,		.00		BORED PROCE:		ву	Boart Longye D. O'Shea	ear
T		11100	201101				0, 1010		,					nples			D. O Onou	
Depth (m)				Descript	tion			Legend		Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
0		E GROUN	ND: Soft	t, browr	n, sandy	gravelly of	clay.									<u> </u>		
1	MADE clay w	E GROUN	ND: Firm sional co	n, black obbles.	/brown Possib	sandy gra le HC.	avelly		7.9	91	0.50	1	ENV	0.50-0.8	0			
		I with occ				k, clayey s ng HC - fre			6.9 6.0	L	1.50	2	ENV	1.50-1.8	0			
2	MADE clay w	GROUN with occase GROUN	sional co ND: Soft	obbles. t, browr	Possib n/black,	sandy gra le HC. sandy gra HC - free	avelly		5.9	91	2.50	3	ENV	2.50-3.0	0			
3	oil. MADE	E GROUN	ND: Firm		J	andy sligh			4.5	14.	3.50	e.						
4		Ily clay. N		t brown	n/blook	sandy gra	nyolly.		of life 3.9	ol ol	4.50	4	ENV	4.50-5.0	0			
5	clay w oil. MADE	ith occas	sional co	obbles. t/firm, b	Strong	HC - free	phase		3.4	41	5.00							
6						gravelly ê phase oil			2.4	41	6.00	5	ENV	6.00-6.5	0			
7	clay w	ith occas	sional co	t, grey/b obbles.	orown, s Possib	sandy grav le HC.	velly		1.6		6.80	6	ENV	7.00-7.5	0			
8	LIME	STONE.	NEC.						0.9	91	7.50							
9	End o	f Boreho	le at 9.0	00 m					-0.	59	9.00							
HA	RD ST	RATA BO	RING/C	CHISEL	LING											NATE	R STRIKE DET	AILS
From		To (m)	Time (h)		ments			Wate Strik		Cas		ealed At	Ris To		ime min)		ments	
			(11)					Juik				,	10		1	No	water strike	
																GROL	JNDWATER DE	TAILS
INS	ΓALLA	TION DE	TAILS					Dat	te	_	Hole	Casing Depth	De	pth to	Comm			
	ate	Tip Dep		Top RZ	Z Base	Тур	oe			<u> </u>	epth	ъери	V	ui0i				
REM	IARKS	3									D - Small [B - Bulk Di LB - Large	e Legen Disturbed (tub sturbed Bulk Disturber conmental Sai) ed	+ Vial + Tuh\	San	nple	bed 100mm Diameter bed Piston Sample	

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(ICST)

REPORT NUMBER

14463

0	GSL	/		<u> </u>											14463	
СО	NTRAC	T Lime	erick Gas	works								BOREH	OLE NO		.07	
СО	-ORDIN	ATES	156,9	975.76 E	F	RIG TYP				Sonic	<u> </u>	SHEET	DII 1 EF		heet 1 of 1	
GR	OUND L	.EVEL (m	156,5	509.04 N 8.65			- DLE DIAM	ETER (ı		140		DATE D			9/11/2009 9/11/2009	
	IENT		l Gais				LE DEPT			4.50		BORED	BY	В	oart Longye	ear
EN	GINEER	Mou	chel		c	CASING	DEPTH (r	n)		4.50		PROCE	SSED E		. O'Shea	
Ē								_	E E			nples				e e
Depth (m)			De	scription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)		Fiel Re	d Test esults	Standpipe Details
- 0		GROUN			y gravelly cl	ay				1	ENV	0.00-0.5	50			
Ē					olack, slightl	у		8.15	0.50	2	ENV	0.50-0.8	80			
E 1		clay. Pos GROUN			gravelly cla	y. /		7.85 7.65	0.80	3	ENV	1.00-1.4	10			
- - -	NEC.	GROUN	D [.] Firm	arev/brown	sandy grave	ellv		7.25	1.40							
- E	∖\clay w	ith cobble	s. NEC.			//		7.15	1.50	_						
2				HC from 1.5	ossibe rock. 0-4.50m	NEC.										
-																
-																
3									.5	13°C.						
									othe	,						
								Only.	dily							
- 4 -								is diffe	Mily other							
	End o	f Borehole	at 4.50	m			an Pinger	4.15	4.50							<i>Y///</i>
5						S	citionner									
- 3					Consent	Corinsk	N.C.									
Ė					4	to by										
- 6					ent	35										
Ē					Conse											
7																
- - 8																
-																
9																
Ē																
Ē																
		RATA BOI	Time	Comments			Wate		sing	Sealed	Rise	- 1	ν Fime	VATER S Commer	TRIKE DET	AILS
-	()	10 (111)	(h)				Strik	e D	epth	At	To	(min)			
														No wat	er strike	
														GROUND	WATER DE	TAILS
INS	STALLA	TION DET	AILS				Dat	e	Hole Depth	Casing	De W	pth to ater	Comm			
	Date 0-11-09	Tip Dept	h RZ To 2.00	p RZ Base 3.50	Type 50mm S				_ 	Sopin	''					
				0.50					Com	olo l a===						
KE	MARKS								D - Sma	ple Leger II Disturbed (tub Disturbed	0)			Undisturbed 10	Omm Diameter	
INS									LB - Lan Env - Er	Disturbed ge Bulk Disturb ivironmental Sa	ed mple (Jar +	+ Vial + Tub)	Sam P - l	ple Indisturbed Pis	ton Sample	

CONTRACT	
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00	BSL			GE	OTECHNIC	AL DUR	ing r	KEUU	עאנ					14463	
СО	NTRAC	T Lir	merick Ga	asworks							BOREH SHEET	OLE N	O .	L08 Sheet 1 of 1	
СО	-ORDIN	IATES	156 156	6,963.39 E 6,505.90 N	RIG T	YPE			Sonic		DATE D	RILLE	D	23/11/2009	
GR	OUND	LEVEL (m AOD)	8.15	BORE	HOLE DIAM	ETER (n	nm)	140	Į.	DATE L	.OGGE	D	23/11/2009	
CL	IENT	Вс	ord Gais		BORE	HOLE DEPT	H (m)		2.00	Ī	BORED	BY		Boart Longy	ear
EN	GINEER	R Mo	ouchel		CASIN	IG DEPTH (r	n)		2.00		PROCE	SSED	BY	A. Mahony	
Ê							_) F			ples				e e
Depth (m)			D	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
1 2 2		STONE.	NEC.				6.15	2.00							0,1
5					Consent of copy	Section outgo	stred for	any other	18°.						
- 7 - 7 7 															
- 9 - -															
	NDD ST	DATAP	ODINO	HIGEL LING									A/A TE	ם פדפוער פרי	- A II C
		To (m)	Time	Comments		Wate	er Ca	sing	Sealed	Rise	9 7	Time		R STRIKE DET ments	AILS
	(111)	10 (111)	(h)	Comments		Strik	e De	epth	At	To	(min)		water strike	
													GBUI	JNDWATER DE	2 IIAT:
INIC	TAI! A	TION DI	FTAII C			Dat		Hole	Casing	Der	oth to ater	Comm		INDIVICE DE	IAILO
	Date			op RZ Base	Туре	Dat		Depth	Depth	W	ater	COITIIT	ICIIIS		
	Date	T IP DE	/PUT 114 1	סף ועב טמטכ	ı ypc										
P-	MARKS	<u> </u>						Com	olo L occio						
KE	WARK	,						D - Smal B - Bulk LB - Larg	DIE Legen I Disturbed (tub Disturbed ge Bulk Disturbe vironmental Sa	o) ed	Vial + Tub\	Sar	mple	ned 100mm Diameter	

CONTRACT	_	
IGSL)	CONTRACT	•
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00	BSL			GE	OTECHNICA	AL DUR	IING I	KECC	עאי					14463	
СО	NTRAC	T Lir	merick Ga	asworks							BOREH SHEET	OLE N	Ο.	L09 Sheet 1 of 1	
СО	-ORDIN	IATES	156	6,957.59 E 6,500.15 N	RIG TY	PE			Sonic	<u> </u>	DATE D	RILLE	D	23/11/2009	
GR	OUND	LEVEL (m AOD)	7.98	BOREH	OLE DIAM	ETER (n	nm)	112	ı	DATE L	.OGGE	D	23/11/2009	
CLI	ENT	Вс	ord Gais		BOREH	OLE DEPT	H (m)	;	2.00	ī	BORED	BY		Boart Longye	ear
EN	GINEER	R Mo	ouchel		CASING	G DEPTH (r	n)		2.00		PROCE	SSED	BY	A. Mahony	
<u>п</u>							_	<u> </u>		Sam	ples				υ
Depth (m)			D	escription		Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
1 2 2		STONE.	NEC.				5.98	2.00		87					80
5					for inst	stion purple	olly.	any other							
- 7 - 8 9	APN ST	DATA R	OPING/C										MATE	ED STRIKE DET	All S
			ORING/C Time	HISELLING		Wate	er Ca	sing	Sealed	Rise	9 1	Time		ER STRIKE DET	AILS
ror	m (m)	To (m)	(h)	Comments		Strik		epth	At	То		min)	Con	nments	
													No	water strike	
												(GRO	UNDWATER DE	TAILS
INS	TALLA	TION DI	ETAILS			Dat		Hole Depth	Casing Depth	Der W	oth to ater	Comm	ents		
	Date	Tip De	pth RZ T	op RZ Base	Туре			•							
RE	MARKS	3	1	, ,		1		D - Smal B - Bulk I LB - Larg	DIE Legen Disturbed (tub Disturbed Je Bulk Disturbed Vironmental Sal	o) ed	Vial + Tub\	Sar	mple	rbed 100mm Diameter	

6	1	GEO.	TECHNICA	I ROP	ING 5	PECC	חסת			F	REPORT NUMBER		
00	BSL	GEO	IECHNICA	LBOR	IING F	(ECC	עאע				14463		
СО	NTRACT	Limerick Gasworks							BOREHO	LE NO.			
СО	-ORDINAT	ES 156,952.16 E 156,494.45 N	RIG TYP	E			Sonic	ŀ	SHEET DATE DR	ILLED	Sheet 1 of 1 23/11/2009		
GR	OUND LEV	/EL (m AOD) 7.73		DLE DIAM			112		DATE LO		23/11/2009		
	ENT GINEER	Bord Gais Mouchel		DEPTH (r			2.00 2.00		BORED B		Boart Longye A. Mahony		
	SINLLIX	Woderie	CASINO	DEF III (I			2.00	Sar	nples	JED 01	A. Marioriy		
Depth (m)		Description		Legend	Elevation	Depth (m)	Ref. Number Sample Type				Field Test Results	Standpipe	
- 0	LIMESTO	ONE. NEC.										0,2	
1													
1													
-													
-	E . (B				F 70	2.00							
2	End of B	orehole at 2.00 m			5.73	2.00							
_ - 3							10°.						
-					. 43.	othe,							
- - 4				,	es office	dir.							
4			For its of copyright	DITTO	lited								
			-9	ction it is									
- 5 - 5 -			or inst	at O'									
-			of coby.										
_ - 6			asent o										
-			Cox										
- - - - - - 7													
- 8 -													
- - 9 -													
Ľ													

Water Strike Casing Depth Rise To Time Sealed Time From (m) To (m) Comments Comments (h) At (min) No water strike GROUNDWATER DETAILS Hole Depth Casing Depth Depth to Water **INSTALLATION DETAILS** Date Comments Date | Tip Depth RZ Top | RZ Base Type Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
En - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub) REMARKS

14463.GPJ IGSL.GDT 23/12/09

IGSL BH LOG

U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample

00	BSL			OL	OILOI		L DOI		ILOC					14463	
СО	NTRAC	CT Lime	erick Gas	sworks	1							BOREH SHEET	OLE NO	D. M03 Sheet 1 of 1	1
СО	-ORDIN	NATES	157, 156.	010.40 E 524.75 N		RIG TYP	E			Sonic		DATE D	RILLED		
GR	OUND	LEVEL (m		8.23			DLE DIAM		mm)	140		DATE L	OGGED	20/11/2009	
	ENT		d Gais				DLE DEPT			6.50		BORED		Boart Longy	year
ENG	GINEEF	R Mou	chel			CASING	DEPTH (r	n) 		6.50		PROCES	SSED B	D. O'Shea	1
<u>E</u>							_		(E)			· -	2	Field Test	ipe
Depth (m)			De	escription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Results	Standpipe Details
							, e	H H		Ϋ́Z	\s\ _{\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\}	25	Re		Sts
0	MAD cobbl	E GROUN ly gravel.	ID: Retur NEC.	ns of grey/br	rown, claye	y									
	MAD	E GROUN	ID: Soft,	black, sandy	gravelly cl	ay. /		7.73	0.50	1 2	ENV ENV	0.50-0.60			
1	1	ible HC. F GROUN	ID: Stiff	brown, sand	v gravelly c	lav /		7.63 7.23	0.60 1.00						
	\NEC.					/		1.23	1.00						
	MADI sand.	E GROUN . NEC.	ID: Loose	e, light browr	n, clayey gr	avelly				3	ENV	1.50-2.00	0		
2															
3										్లా.					
									nei	3 P					
								as only	any other	4	ENV	3.50-4.00	0		
4								65 07 100 114:03	5 8 C						
	MAD	E GROUN	ID: Loose	e brown clay	ey sandy			4.03	4.20						
		STONE. I		al cobbles. 1	NEC.	/	10 20 20 10 10 10 10 10 10 10 10 10 10 10 10 10	3.73	4.50						
5						-SP	0								
						For inspe									
						FOOD,									
6	No re	covery - o	bserved	by driller as	rock 💉	, O'		2.23	6.00						
					COUR			4 -70	0.50						
	End o	of Borehol	e at 6.50	m				1.73	6.50						
7															
8															
9															
ΗA			RING/CH Time	IISELLING			Wate	or C	asing	Sealed	Ris	·	ime	VATER STRIKE DE	TAILS
ror	m (m)	To (m)	(h)	Comments			Strik		epth	At	To		nin)	Comments	
														No water strike	
									Hole	Casing	1 Da	nth to		ROUNDWATER DE	ETAILS
		Tin Dan		D7 D			Dat	te	Depth	Depth	, De	pth to ater	Comme	ents	
	<u>Date</u> -11-09	5.00	th RZ To 5.00	•	Typ 50mm		\dashv								
SE:	MARKS	<u> </u>							Same	ole Leger	l nd				
اعد	WIALKING.	•							D - Sma B - Bulk	DIE Leger I Disturbed (tul Disturbed ge Bulk Disturb	b)		U - U Samı	Indisturbed 100mm Diameter	
									LB - Lar Env - En	ge Bulk Disturb vironmental Sa	ed ample (Jar +	+ Vial + Tub)	P - U	Indisturbed Piston Sample	

IGSL

GEOTECHNICAL BORING RECORD

REPORT NUMBER

14463

00	BSL	/		0 -	0.1201	0,								14463	
СО	NTRAC	T Lime	rick Gasv	vorks								BOREH(OLE NO	D. M04 Sheet 1 of 1	
	-ORDIN OUND L	ATES LEVEL (m /	156,5	04.19 E 19.92 N 8.09		G TYPE OREHO	E LE DIAM	ETER (I		Sonic 140		DATE D		23/11/2009	
CLI	ENT GINEER	Bord	Gais				LE DEPT DEPTH (n			6.50 6.50		BORED PROCES		Boart Longy	ear
											Sam	ples			
Depth (m)			Des	cription			Legend	Flevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	\gravel MADE \gravel	lly clay with GROUND lly sand. N	rootlets. D: Loose, IEC.	NEC. grey/browr	n, clayey silty	very		7.89 7.49	0.20	3	ENV ENV	0.00-0.20 0.20-0.60 0.60-1.30			
- - 1 - -	gravel MADE	lly clay with GROUNE	red brick D: Cobble	s. NEC.				6.79 6.59	1.30						
- - - 2 -	very g	ravelly cla	y with occ	ey/brown n casional col	nottled, sand bbles. NEC.	y			1.00	4	ENV	2.30-2.80			
- 3		E GROUNE Possible H		grey/black	gravelly cobb	oly		5.09	3.00	V 2. 2	ENV	3.00-3.50)		
- 4				eny silty sa	ndy gravelly			54.09°	3.00 A.00						
-	cobble	es. NEC. STONE. N						3.59	4.50						
5					Consent of	or insp									
6	End o	f Borehole	at 6.50 n	n	Consent			1.59	6.50						
- - 7 - -															
- - 8 -															
9															
Н/	RD ST	RATA BOR	ING/CHI	SELLING									14	 ATER STRIKE DET	ΔΙΙ ς
			Time	Comments			Wate		asing epth	Sealed At	Rise To		ime	Comments	0
			(11)				Suiki		chii.	Λι	10		nin)	No water strike	
1														ROUNDWATER DE	TAII S
		TION DETA		D7 Paga	Typo		Dat	e	Hole Depth	Casing Depth	Dej W	oth to ater	Comme		
	Date		1 NZ 10D	RZ Base	Туре										
INS	MARKS								D - Smal B - Bulk I LB - Larg	Disturbed (tub Disturbed Disturbed e Bulk Disturber vironmental Sa	o) ed	· <u>Vial</u> + <u>T</u> ub)	Samp	Indisturbed 100mm Diameter ple ndisturbed Piston Sample	

100	BSL																14463	
СО	NTRAC	T Lir	nerick	Gaswo	orks									BOREH	OLE N	О.	M05	
CO	-ORDIN	IATES		156,99	6 57 F		DIC TVD					`ania	-	SHEET			Sheet 1 of 2	
		LEVEL (1		156,51			RIG TYP	E DLE DIAM	FTFR	(mm)		Sonic 40		DATE D		_	20/11/2009 20/11/2009	
		`			0.33			OLE DEPT		` '		1.00	-					
	ENT GINEER		rd Ga uchel	IS				DEPTH (n				1.00		BORED PROCE		BY	Boart Longye G. Thornton	ear
													San	nples				
Depth (m)				Desc	ription			Legend	; i	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery	, cccotcly	Field Test Results	Standpipe Details
- 0	MADE clay v	E GROU	ND: F	irm bro	own sandy es. NEC.	slightly g	ravelly											
1	,	E GROU			own sandy	slightly g	ravelly		7.65	5 ().70	1	ENV	0.70-1.0	0			
												2	ENV	1.50-2.0	0			
2	MADE	E GROU	ND: F	Firm bro	own clay.	NEC.			6.35	5 2	2.00	3	ENV	2.00-2.5	0			
3											otheri	€. 4	ENV	3.50-4.0	0			
4	MADI veget NEC.	E GROU ative ma	ND: S tter (p	oft dar	k brown cl e original to	ay with	el). /		0435 114.25	2	I.00 I.10	5	ENV	4.50-5.0	0			
- - - - 5	MADI Slight	E GROU HC imp	ND: S act.	oft bro	wn slightly	gravelly	S					6	ENV	5.00-5.5				
							For inst											
- 6 	MADI 8.00n depth	n) slightly	ND: V / grav	elly cla	ft dark greg y. HC inci	to black reases wit	(at th		2.35		3.00	7	ENV	6.50-7.0	0			
												8	ENV	7.50-8.0	0			
8	MADI grave	E GROU I (possib	ND: V le cind	ery sof ders).	ft black slig HC.	jhtly claye	èу		0.35	5 8	3.00	9	ENV	8.50-9.0	0			
9	LIMESTONE. NEC.								-0.6	5 9	0.00							
HA	ARD ST	RATA B	ORING	G/CHIS	ELLING				l							WA	TER STRIKE DET	AILS
Fror	m (m)	To (m)	Tim (h)		omments			Wate Strike		Casin Depth		Sealed At	Ris To		ime min)	Со	mments	
										•						N	o water strike	
																GRO	DUNDWATER DE	TAILS
INS	TALLA	TION DE	TAILS	S				Dat	е	Ho Der		Casing Depth		oth to	Comm			
	Date	Tip De	pth R	Z Top	RZ Base	Тур	oe			⊔eţ	JUI I	Debin		uiGI				
REI	MARKS	<u> </u> 								E	- Small I	le Legen Disturbed (tub)			Undist	turbed 100mm Diameter	
										L	B - Large	Bulk Disturbe ronmental Sar	ed mple (Jar +	· Vial + Tub)	P -	Undist	turbed Piston Sample	

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	NTRAC		erick Ga	asworks								BOREH SHEET		О.	M05 Sheet 2 of 2	
	-ORDIN		156	5,996.57 E 5,512.02 N		RIG TYPI				Sonic		DATE D			20/11/2009	
GR	OUND	LEVEL (m	AOD)	8.35		BOREHO			,	140		DATE L	.OGGE	D	20/11/2009	
	ENT		d Gais			BOREHO				11.00		BORED			Boart Longye	ear
ENC	SINEER	R Mou	ıchel			CASING	DEPTH (r	n) 		11.00		PROCE	SSED	BY 	G. Thornton	
Ē								<u> </u>	(E)	_		ipies	2	-	-:	be
Depth (m)			D	escription			Legend	Elevation	Depth (m)	Ref. Number	Sample Type	Depth (m)	Recovery		Field Test Results	Standpipe Details
							Leć	Ele	De	R. Z.	Sa		Rec			Ste
10	LIME	STONE.	NEC. (c	ontinued)												
11	End o	of Borehol	e at 11.	00 m				-2.65	11.00							
12																
13									3	12°C.						
									other							
						For Help		Ouly.	any							
14							200	es of the								
							Dire	Alil								
							tion her to									
15						:1150	it ow,									
						fortig										
						of cold.										
16					ي	ent										
					Cons											
17																
18																
19																
HA	RD ST	RATA BO	RING/C	HISELLING										WAT	ER STRIKE DET	AILS
ror	m (m)	To (m)	Time (h)	Comment	S		Wate Strik		asing S epth	Sealed At	Rise To		Γime min)	Cor	mments	
														No	o water strike	
														GRO	UNDWATER DE	TAILS
		TION DE					Dat	te	Hole Depth	Casing Depth		oth to ater	Comm	ents	3	
	Date	Tip Dep	th RZ T	op RZ Bas	se Ty	ype										
REI	MARKS	<u> </u> 							Samp	le Leger	nd					
									D - Small	Disturbed (tub Disturbed e Bulk Disturb	2)		Sai	mple	urbed 100mm Diameter	
									Env - Env	rironmental Sa	imple (Jar +	⊦ Vial + Tub)	D	Undistu	urbed Piston Sample	

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100	38[-/															14403	
СО	NTRA	CT Lii	meric	k Gas	works									BOREH	OLE N	О.	M06	
	-ORDI	NATES		156 9	90.01 E	-	RIG TYPE				Sonic			SHEET			Sheet 1 of 2	
		LEVEL (m AC	156,5	06.74 N 8.35		OREHOL		FTFR	(mm)	140	;		DATE D DATE L			20/11/2009 23/11/2009	
	ENT				0.33		OREHOL			()	12.00)	-	BORED				
	IEN I GINEE		ord G ouche				ASING D				12.00			PROCE		BY	Boart Longye G. Thornton	aı
								,					Sam	ples				
Depth (m)				Des	scription			рu		Elevation Depth (m)	,	ber	ole	ح	20	Ş	Field Test	Standpipe Details
)ept								Legend	3	Sept Sept	. Je	Number	Sample Type	Depth (m)	Yaayooag	3	Results	stanc Jetai
0	MAD	E GROL	JND:	Soft b	rown slightl	y sandy, slig	ahtly	XXXX								-		000
	∖grav	elly clay v	wit ro	othairs	. NEC.		· /&		8.15		U	1	ENV	0.20-0.5	0			
	NEC	E GROU	:טאנ	Firm (ark brown (gravelly clay	′. /k		7.85	0.5	0							
1	CON		НС	odour	from water	used to drill												
	unoc	igii.					8											
							×											
2																		
							8											
							Š											
3	МАГ	F GROL	IND.	Stiff li	aht arev ver	y sandy gra	velly		5.35	3.0	0 e.							
	clay	with occa	asion	al cobb	oles. NEC.	y canay gra	,			3.0 3.0	eile							
							8		24	· Ma		2	ENV	3.50-4.0	0			
4							8		as one	31 M								
							X		itied									
									8			3	ENV	4.50-5.0	0			
5												4	ENV	5.00-5.5	0			
J							of its t											
	CON	ICRETE.	NEC	C.		Consent	\$000 XXX		2.85	5.5	0							
6						a de	5											
D						* Offsett	8											
						C	X											
							8											
7							8											
							X											
							8											
8							ķ.											
	LIMF	STONF	with	local s	oft grev clay	. NEC exce	ept for		-0.15	8.5	0							
	HC i	mpact at	8.90	m.			E					5	ENV	8.90-8.9	0			
9	LIME	STONE.	NE	C.					-0.65	9.0			• •					
							F											
H/	ARD S	TRATA B			SELLING		•	Moto	·	`aaina	Coole	- d	Diag	. T		WAT	TER STRIKE DET	AILS
ror	m (m)	To (m)		me h)	Comments			Wate Strike		asing Depth	Seale At		Rise To		ime min)	Со	mments	
																N	o water strike	
																GRO	DUNDWATER DE	TAILS
NS	TALL	ATION D	ETAII	LS				Date	e	Hole		sing	Dep	oth to ater	Comm			
	Date				RZ Base	Туре	!	+		Depth	De	epth	VV	atel				
₹E	MARK	S 0.0-2.	5m 20	0/11/09	9. 2.5-12m	23/11/09				Sar	nple Le	egeno	t					
										B - Bı LB - I	mall Disturb ulk Disturbe ∟arge Bulk D	d Disturbed	t		Sa	mple	turbed 100mm Diameter	
										Env -	Environmer	ntal Sam	ple (Jar +	Vial + Tub)	P-	unaist	turbed Piston Sample	

College College
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REPORT NUMBER

14463

100															14400	
CONTRA	ACT L	imer	ick Gas	works								BORE	HOLE N	NO.	M06 Sheet 2 of 2	
CO-ORD	INATES D LEVEL	(m A	156,5	90.01 E 06.74 N 8.35		RIG TYPE		ETER (mm)	Sonic 140		DATE	DRILLE		20/11/2009 23/11/2009	
CLIENT		ord (BOREHO				12.00 12.00		BORE	D BY ESSED	BY	Boart Longye G. Thornton	ear
							,				Sa	mples				
Depth (m)				scription			Legend	Flevation	Depth (m)	Ref.	Sample	Depth	E)	Kecovery	Field Test Results	Standpipe Details
11	d of Borel			m	Consent	For the of copyright of copyrig	iton Putto	-3.65								
HARD S	STRATA I	BOR	ING/CHI	SELLING										WΔ	TER STRIKE DET	AII S
From (m)		Т	ime	Comments			Wate		asing	Sealed	Ri		Time		omments	
	, ,		(h)				Strike		epth	At		O	(min)		lo water strike	
									امام	Cooin	na D	onth t-			OUNDWATER DE	TAILS
Date Date	Tip D			RZ Base	Тур	е	Dat	e	Hole Depth	Casin Dept		epth to Water	Comr	ment	is	
REMAR	K S 0.0-2	.5m :	20/11/09	9. 2.5-12m	23/11/09				D - Sr B - Bu I B - I	nple Lege nall Disturbed (filk Disturbed arge Bulk Distu Environmental	tub) irbed	r + Vial + Tub	Si	ample	sturbed 100mm Diameter sturbed Piston Sample	

Color of the color
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00	IGSL)												14463			
SHE												BOREH SHEET	OLE NO	D. M07 Sheet 1	I of 1	
CO-ORDINATES 156,981.49 E RIG TYPE						Sonic					DATE DRILLED					
GROUND LEVEL (m AOD) 8.26 BOREHO						DLE DIAMETER (mm) 140					DATE LOGGED		20/11/2009			
Dord Gale						LE DEPTH (m) 2.50					BORED BY			Boart Longyear		
ENGINEER Mouchel CASING						SING E	DEPTH (m) 2.50					PROCESSED BY		G. Thor	G. Thornton	
<u>E</u>								ء	: E			nples) e	
Depth (m)			De	escription			pue	in in	Depth (m)	l per	nple e	Ę	over	Field Tes Results	t lidbi	
Dep							Legend	Flevation	Dep	Ref. Number	Sample Type	Depth (m)	Recovery	results	Standpipe Details	
. 0	MAD	E GROUN	D: Firm	brown/grey	gravelly clay w	vith	$\stackrel{-}{\ggg}$			1	ENV	0.00-0.4	_			
		some plastic. NEC. LIMESTONE. NEC.							0.40							
	LIIVIE	LIMESTONE. NEC.						7.86	0.10							
1						F]								
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ł	End o	of Borehole	e at 2.50	m				5.76	2.50							
3	End of Borehole at 2.50 m															
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		To (m)	BORING/CHISELLING Time Comments				Wate		asing	Sealed	Rise		Γime	ATER STRIKE DETAILS Comments		
1 101	()	10 (111)	(h)	Oomments			Strik	e D	epth	<u>At</u>	То	(min)			
														No water strik	ке	
													GROUNDWATER DETAILS			
INSTALLATION DETAILS							Hole Depth	Hole Casing Depth V		oth to ater	oth to ater Comments					
	Date	Tip Dep	th RZ To	p RZ Base	Туре											
REI	MARKS	3		1	•		'		Sam	ple Leger	nd					
									B - Bulk LB - Lai	: Disturbed rge Bulk Disturb	ed		Sam	Undisturbed 100mm Diam uple		
									Env - E	nvironmental Sa	ample (Jar +	Vial + Tub)	۲-۱	Indisturbed Piston Sample	IE .	

Soakaway Design f -value from field tests Contract: Limerick Gas Works Contract No. Test No. Client **Bord Gais** Coordinates: E156981.454 N156536.878 Engineer Mouchel Elevation: 7.972 Date: 09/11/09 Summary of ground conditions from to Description Ground water 0.00 1.70 MADE GROUND: Brown slightly sandy gravelly clay with No groundwater many red brick, steel and concrete fragments encountered 1.70 2.10 MADE GROUND: Firm blue slightly sandy clay with suspected blue billy. Notes: Pit walls stable. Pit extended due to obstruction and brick wall. Test left overnight - pit dry after 1140mins Field Data Field Test Depth of Pit (D) Depth to Elapsed 2.10 m Water Width of Pit (B) 1.00 Time m Length of Pit (L) 3.00 (m) (min) 1.65 0.00 Initial depth to Water = 1.65 m 1.65 5.00 Final depth to water = 2.10 m 1.65 10.00 Elapsed time (mins)= 1140.00 1.65 15.00 Top of permeable soil 1.65 30.00 0.00 1.65 60.00 Base of permeable soil 2,10 m 1.65 120.00 180.00 1.75 Base area= 3 m2 *Av. side area of permeable stratum over test period= m2 Total Exposed area = 4.8 m2 Volume of water used/unit exposed area / unit time Infiltration rate (f) = f= 0.00025 m/min 4.112E-06 m/sec Depth of water vs Elapsed Time (mins) 200.00 180.00 160.00 Elapsed Time(mins) 140.00 120.00 100.00 80.00 60.00 40.00 20.00 0.00 1.64 1.66 1.68 1.70 1.72 1.74 1.76 Depth to Water (m)



TP1_a.JPG

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TP1_b.JPG



TP1_d.JPG





TP2 i.JPG



TP2ii.JPG



TP2iii.JPG



TP2iv.JPG



TP3_i.JPG



TP3_ii.JPG



TP3_iii.JPG



TP3_iv.JPG

TP3_iv.JPG

TP3_iv.JPG

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D12WS_handpit_b.JPG



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E12WS_handpit_b.JPG



F10WS.JPG



F12WS.JPG



F12WS_handpit_a.JPG



F12WS_handpit_b.JPG



F9WS.JPG



L11WS.JPG



L12WS.JPG



L1WS.JPG





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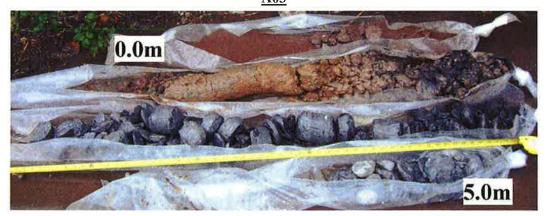
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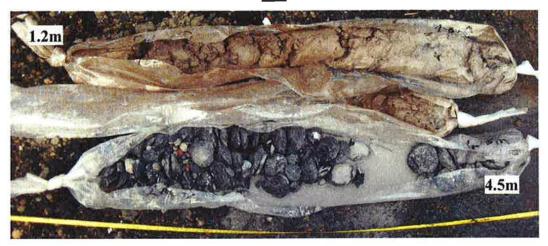
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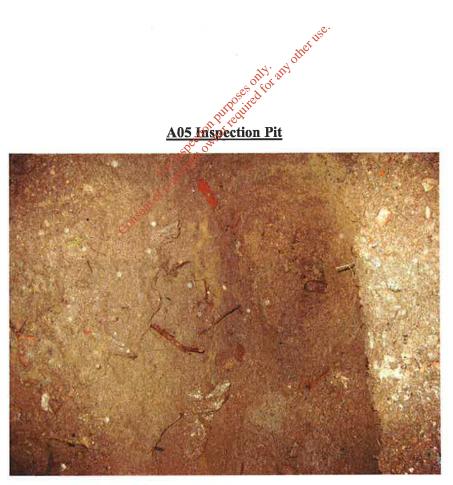


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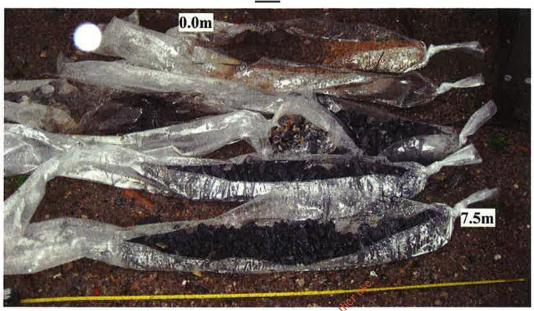
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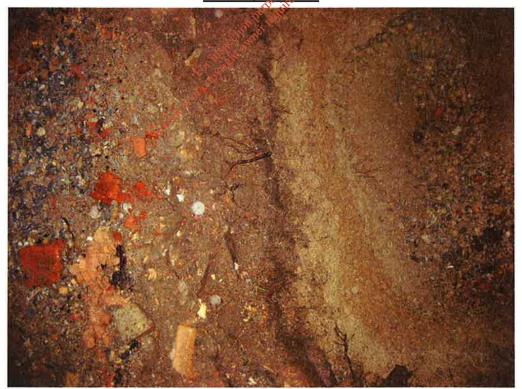


IGSL Ltd

<u>A05</u>

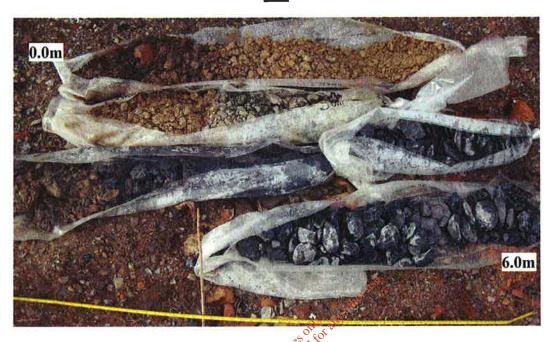


A06 Inspection Pit



IGSL Ltd

<u>A06</u>

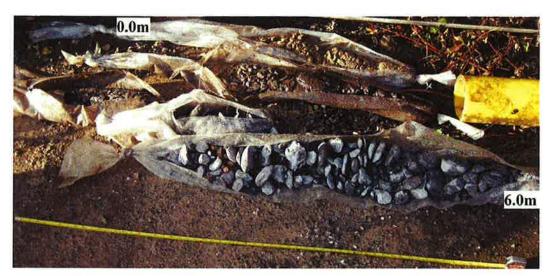


A07 Inspection Pit



IGSL Ltd

<u>A07</u>

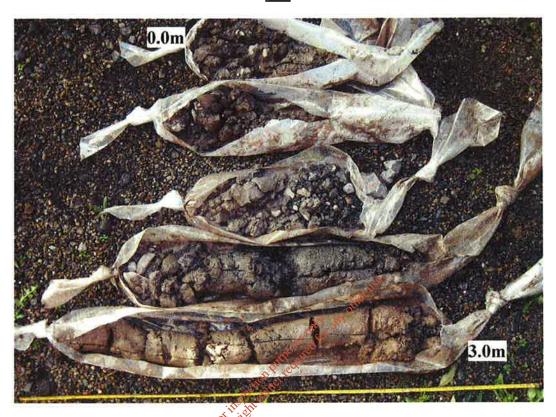


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<u>A11</u>

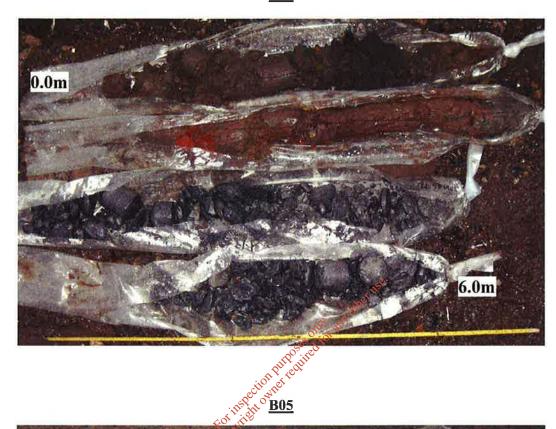


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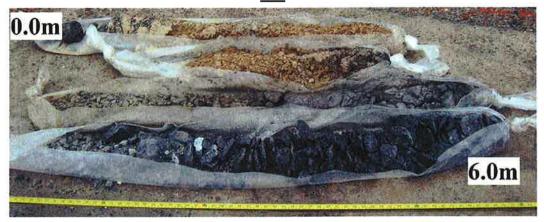
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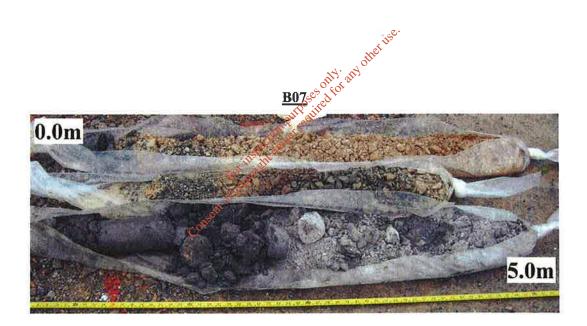




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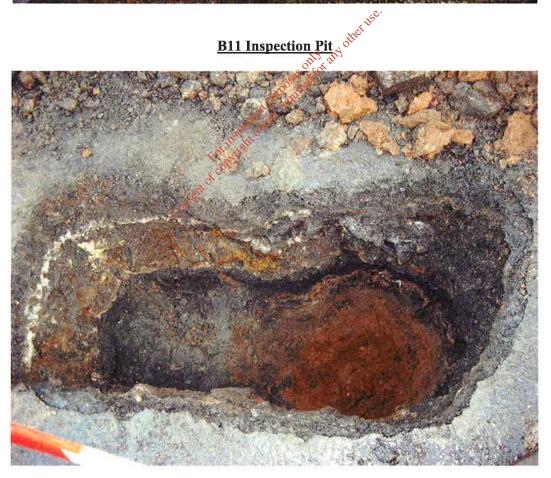
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<u>B08</u>



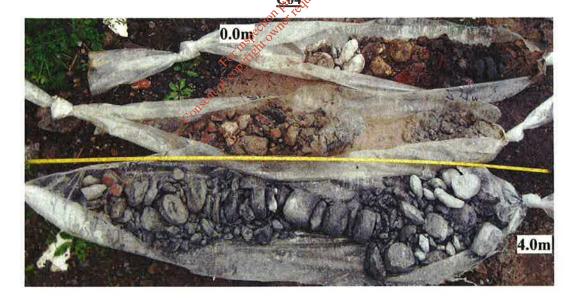


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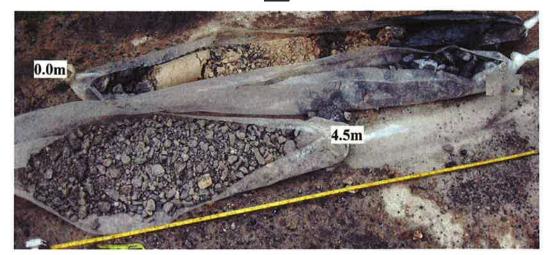
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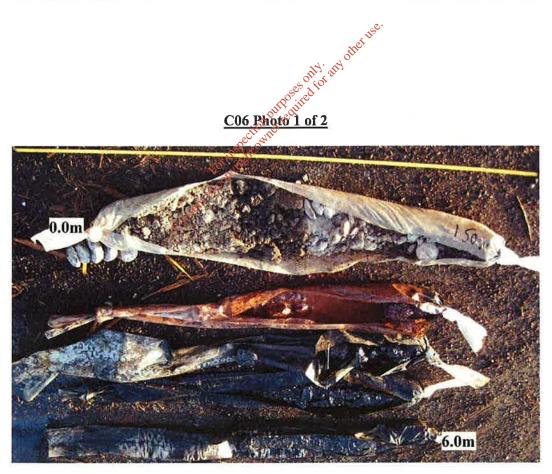


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C06 Photo 2 of 2



C07 Photo 1 of 2

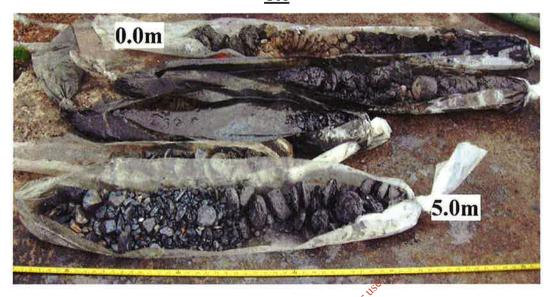


C07 Photo 2 of 2



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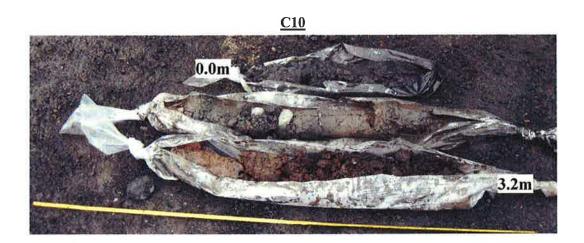


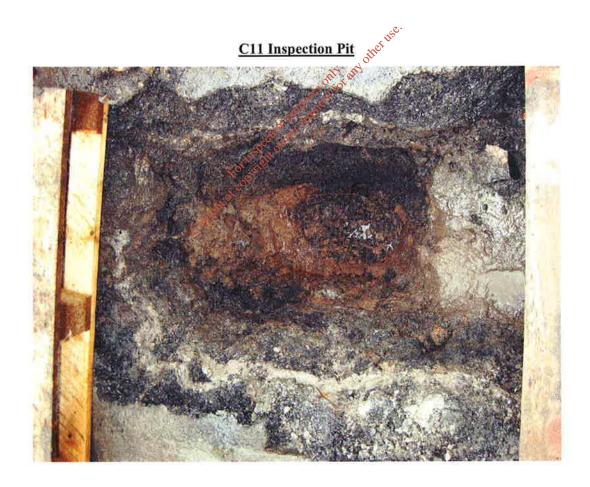
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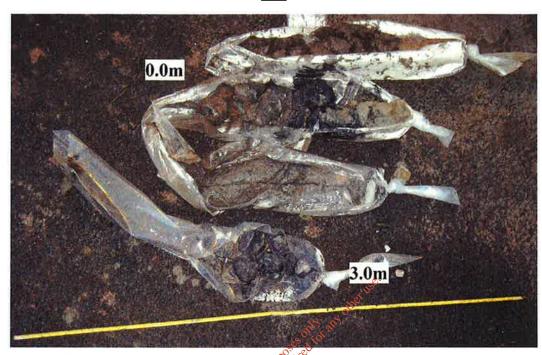
Limerick Gasworks - Core Photography





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<u>C11</u>



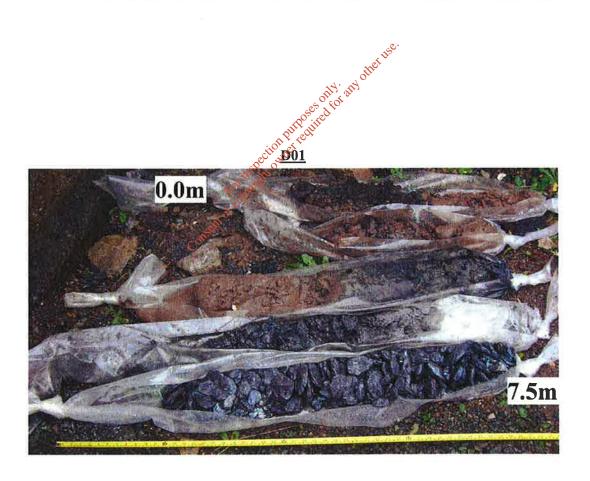
C12 Inspection Pit



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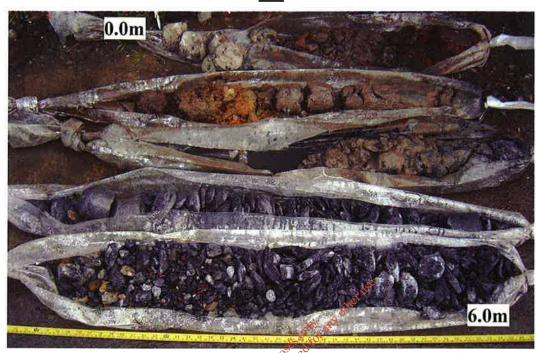
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IGSL Ltd

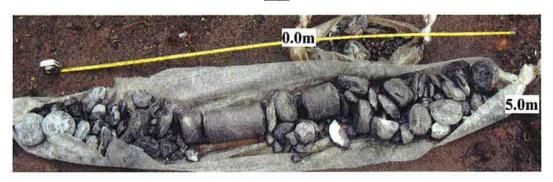
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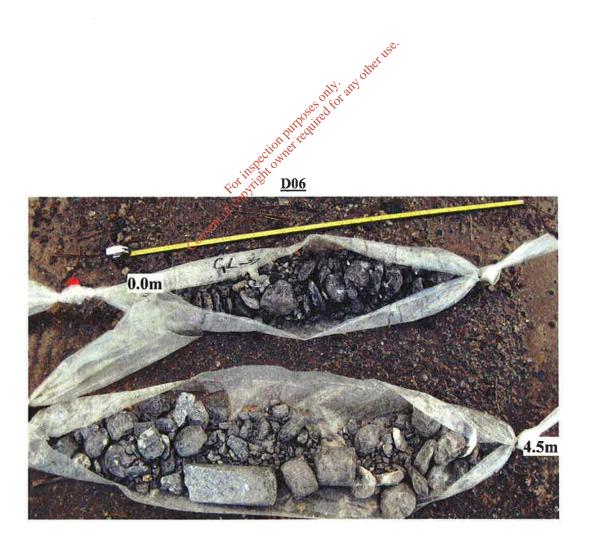


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<u>D07</u>

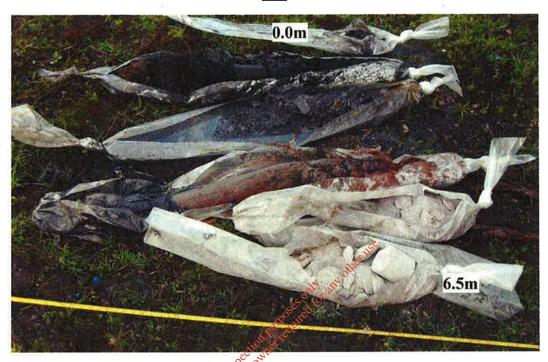


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<u>D09</u>



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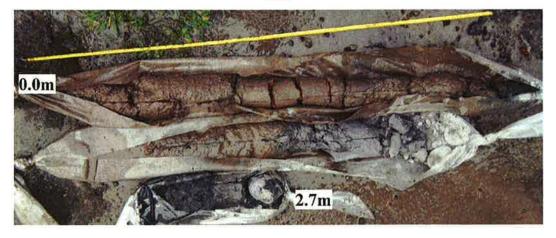


IGSL Ltd

D11 Inspection Pit



D11

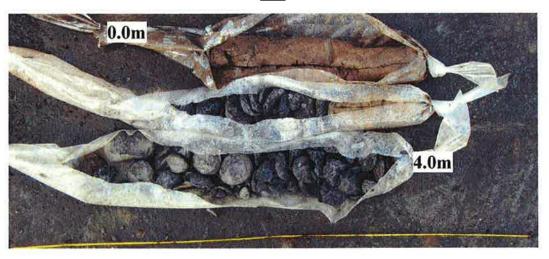


IGSL Ltd

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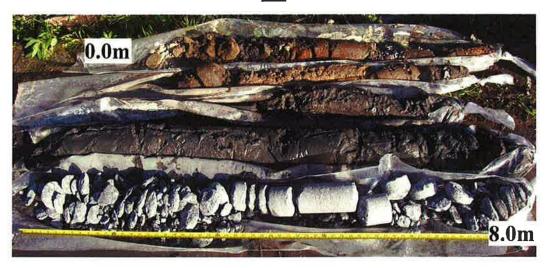


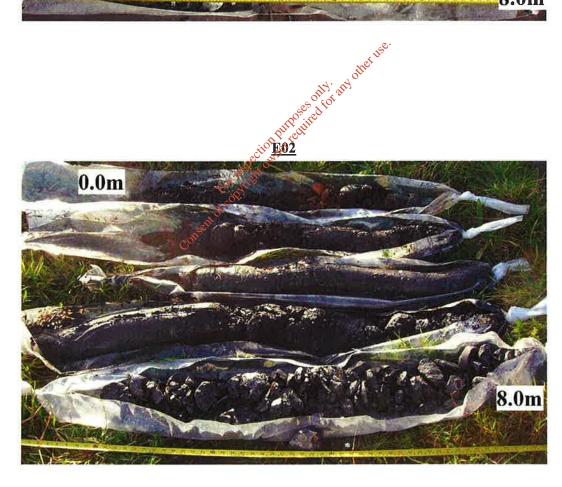
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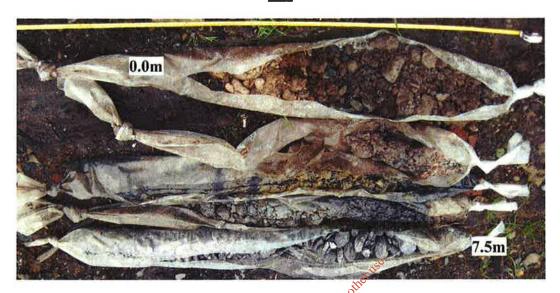
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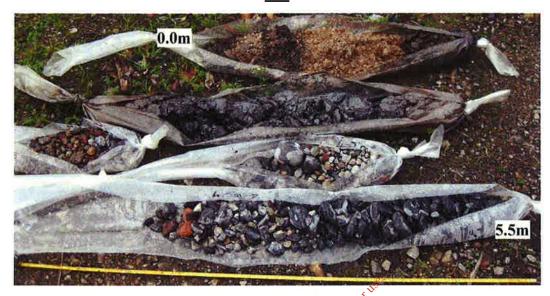
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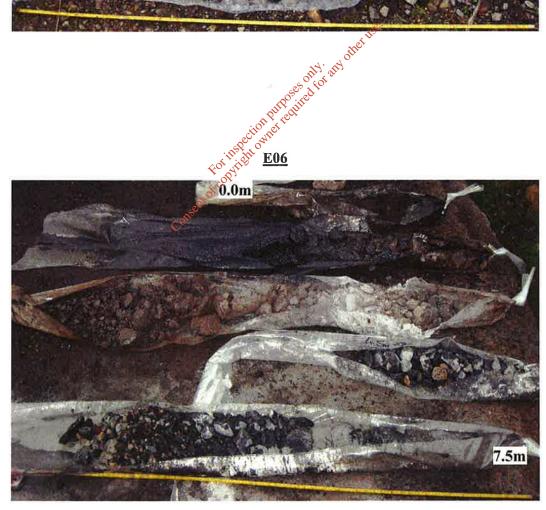


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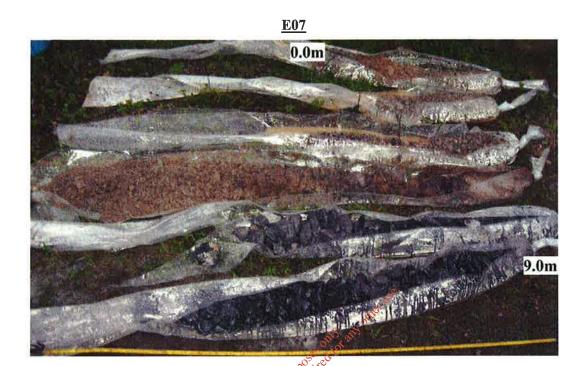


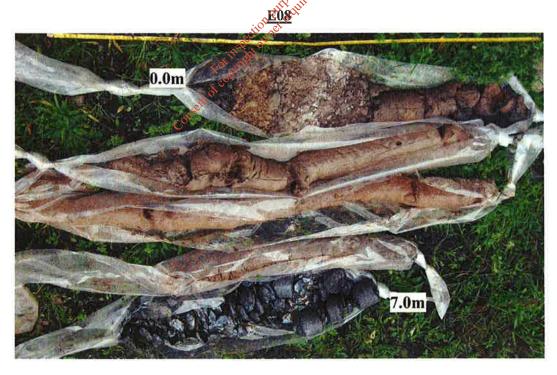
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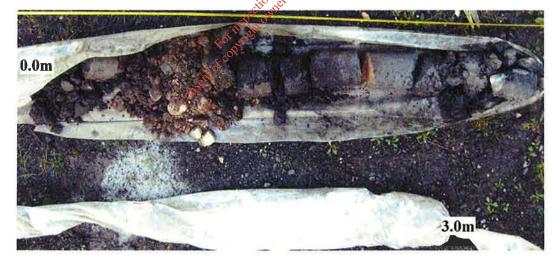


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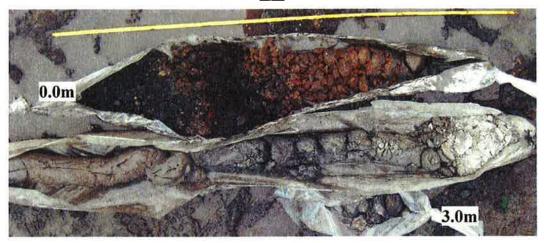
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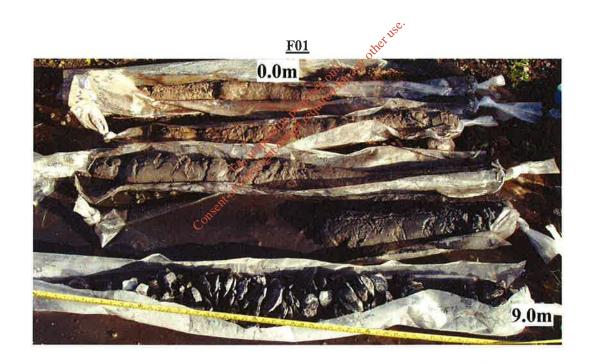




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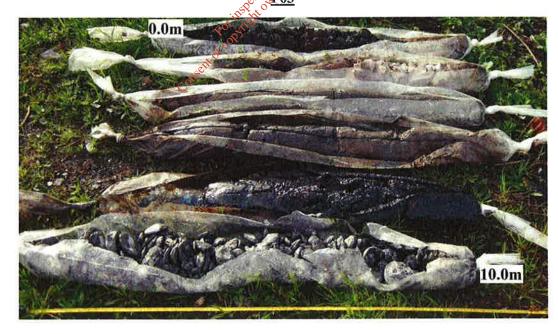




<u>F02</u>



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<u>F04</u>



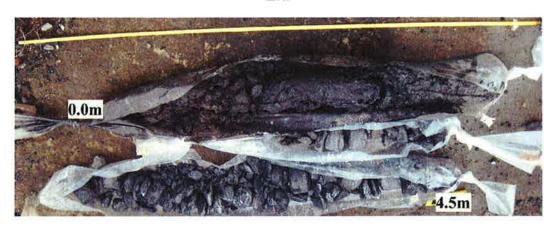
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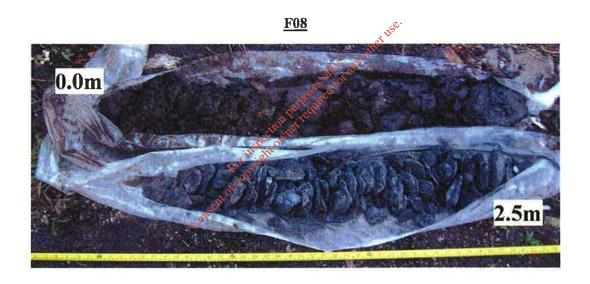
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IGSL Ltd

<u>F07</u>



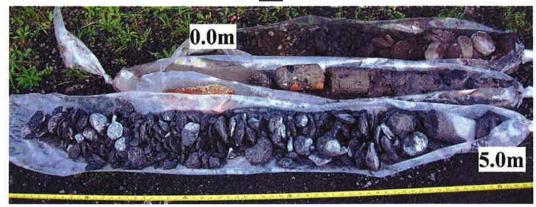






IGSL Ltd

<u>F11</u>



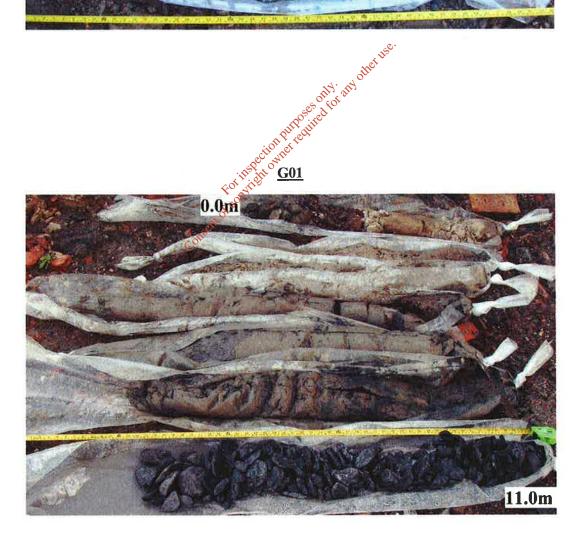
F12 Inspection Pit



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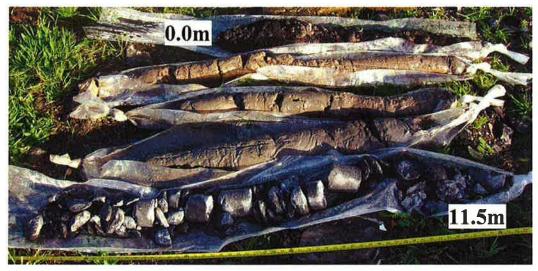
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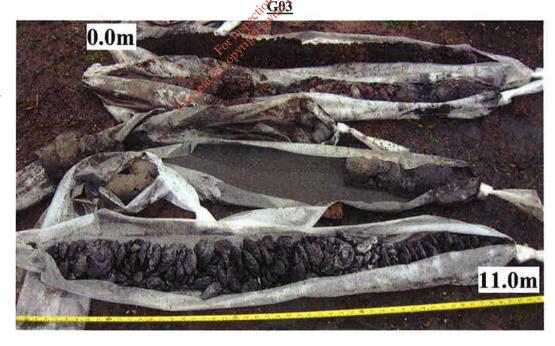


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<u>G02</u>



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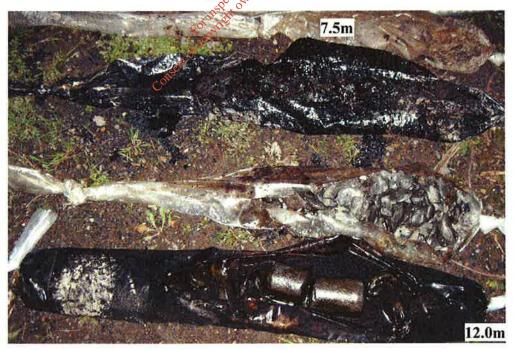


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G04 Photo 1 of 2



G04 Photo 2 of 2

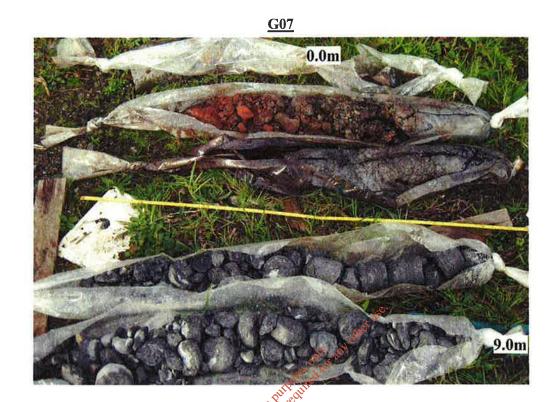


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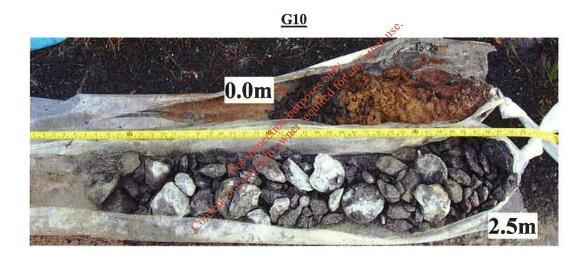


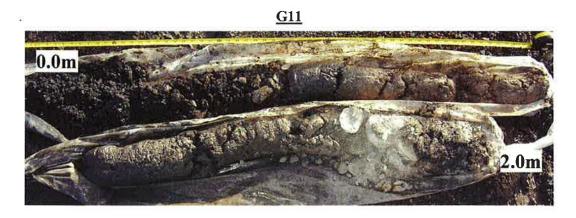


IGSL Ltd

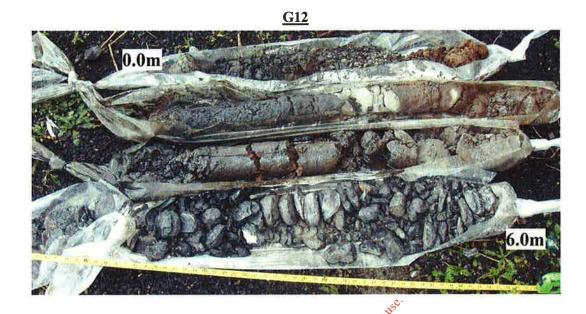


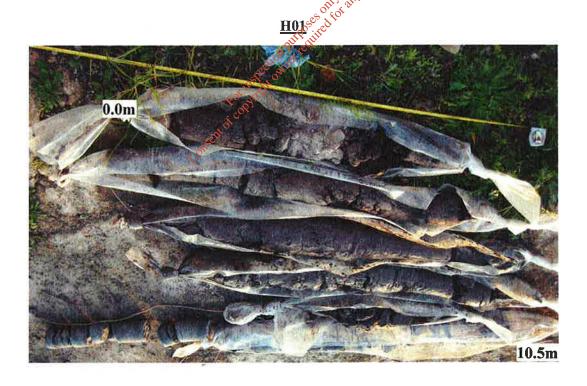






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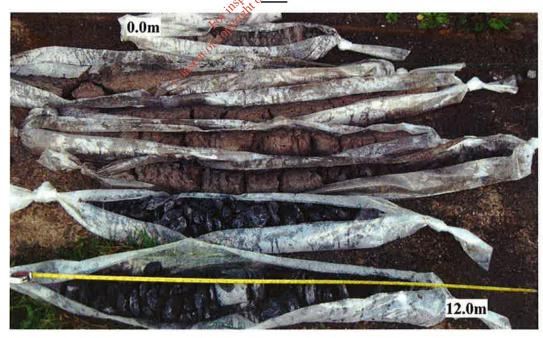


IGSL Ltd



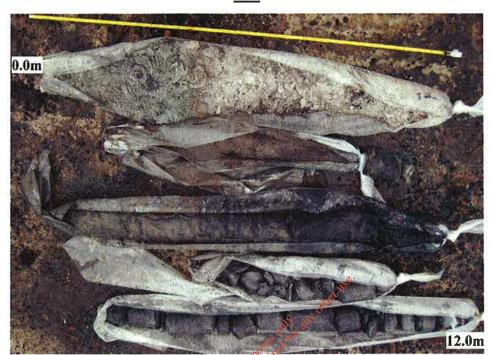


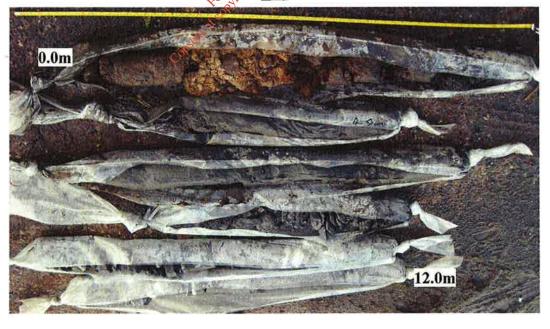
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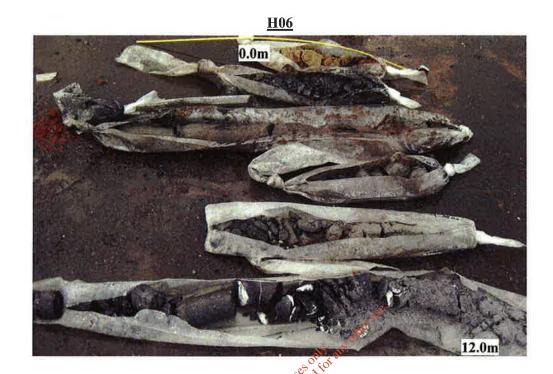
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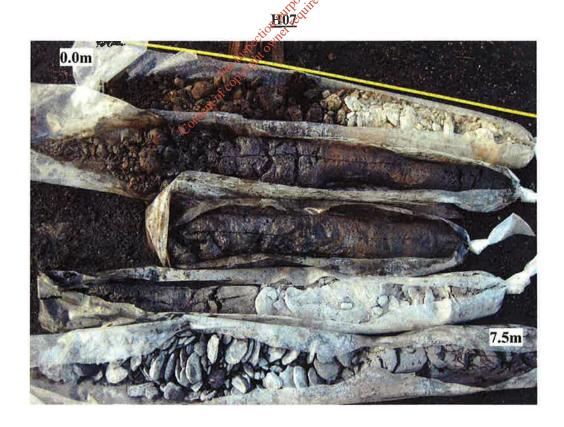
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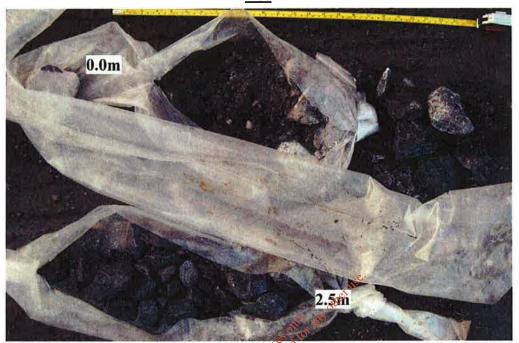
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<u>H08</u>

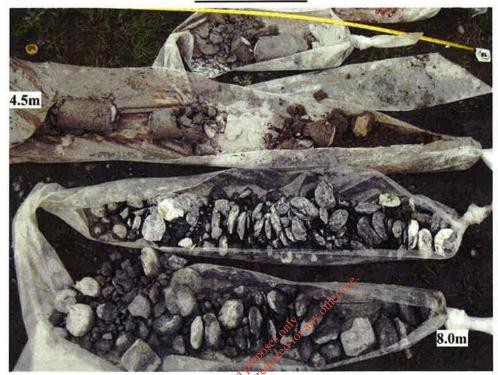


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H09 Picture 2 of 2



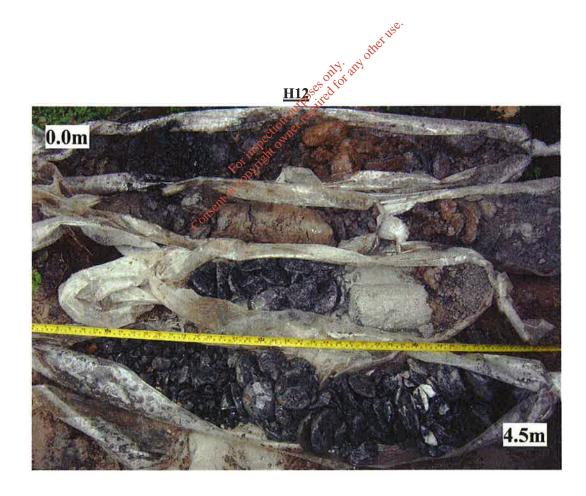
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IGSL Ltd

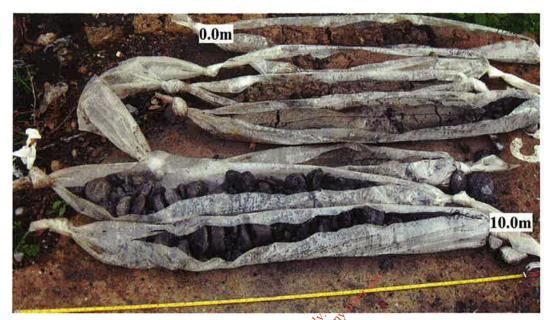
<u>H11</u>





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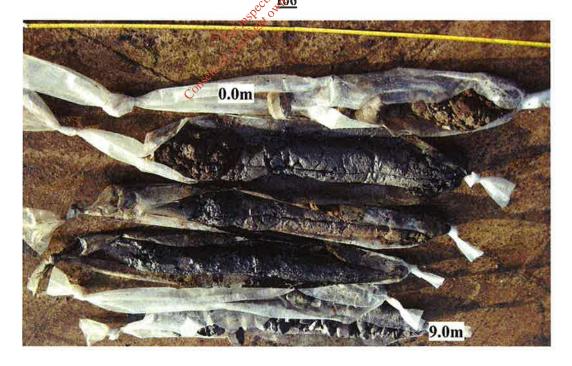


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<u>105</u>

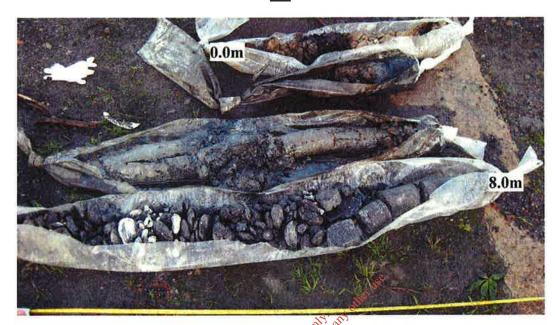


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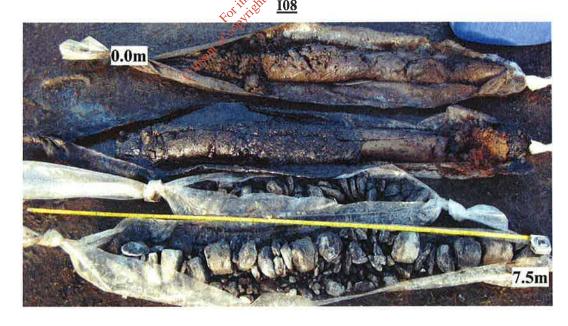


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<u> 107</u>

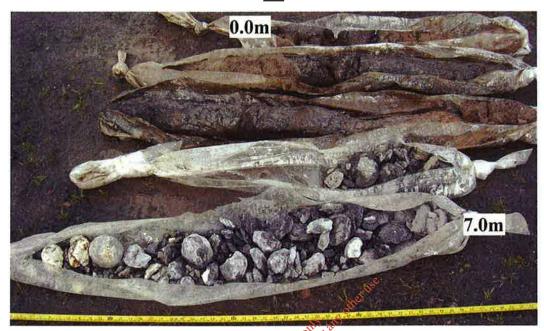


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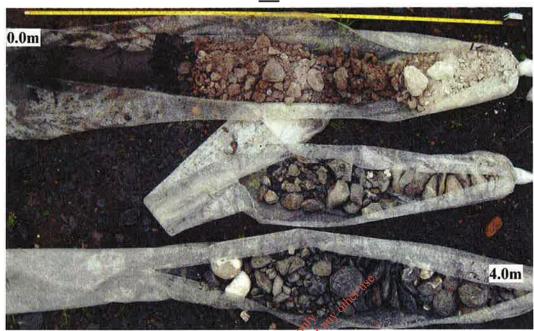


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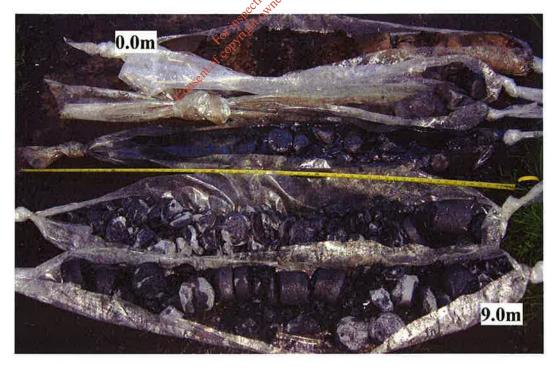


IGSL Ltd

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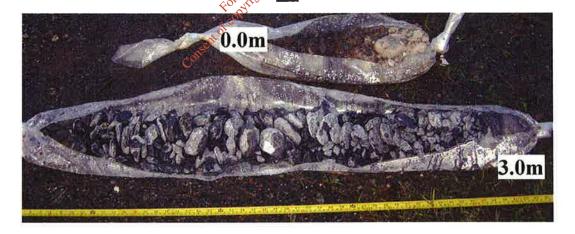


IGSL Ltd

<u>J07</u>



18 Pection Purposes of For



<u>J09</u>



<u>J10</u>



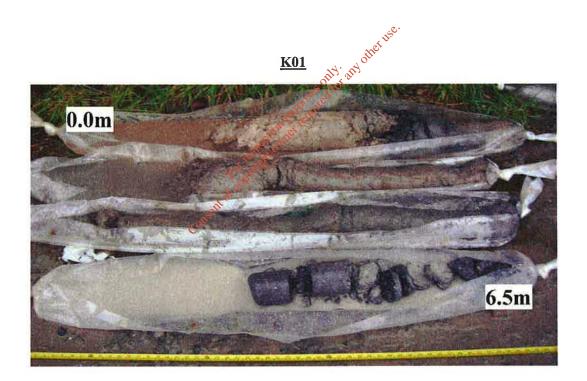
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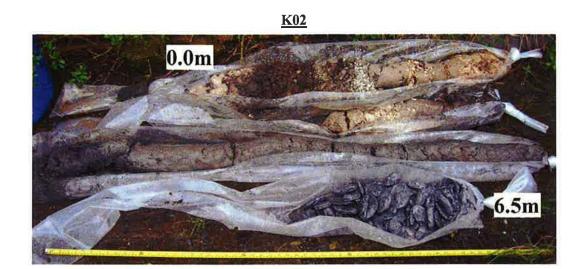


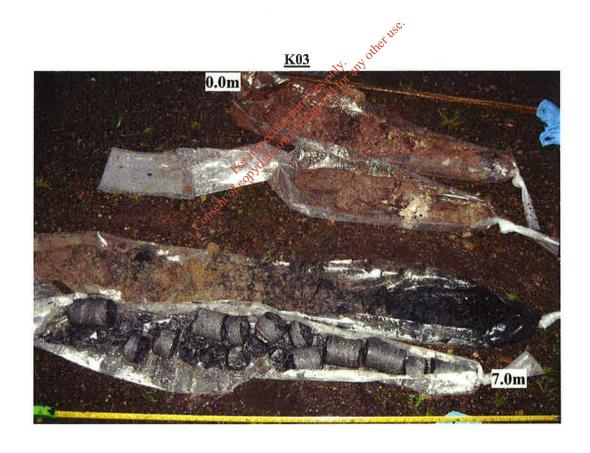
IGSL Ltd

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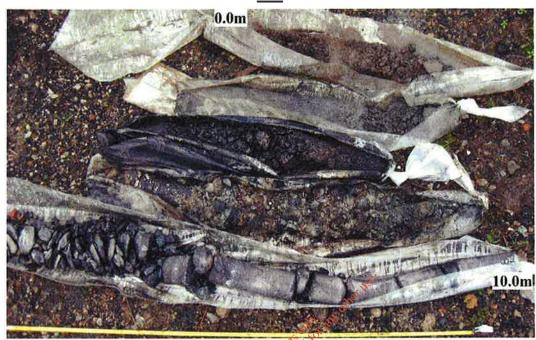






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<u>K04</u>



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IGSL Ltd

<u>K06</u>



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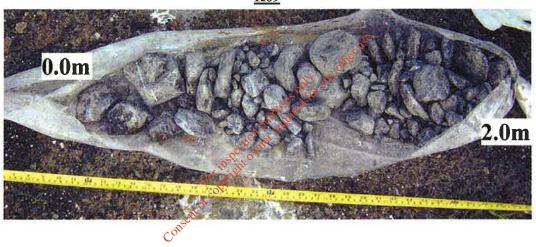


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<u>K09</u>



<u>K10</u>



IGSL Ltd





<u>K12</u>

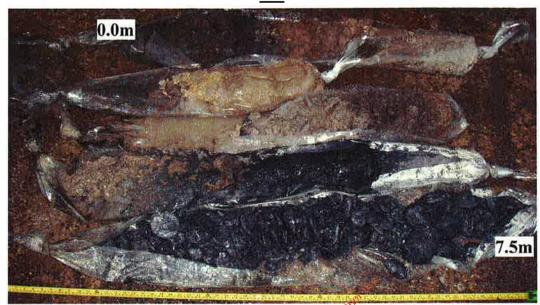


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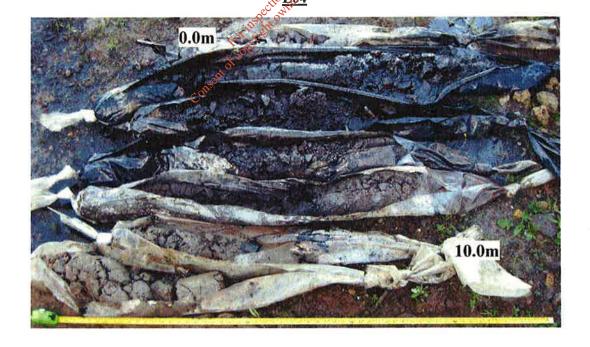


IGSL Ltd

<u>L03</u>



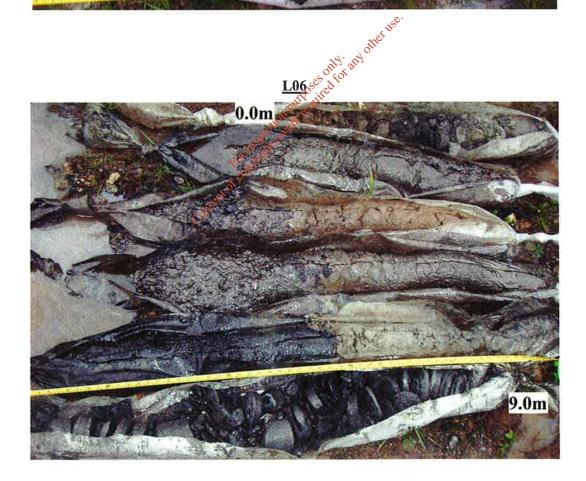
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<u>L07</u>



L08 es ally any other use.



L09



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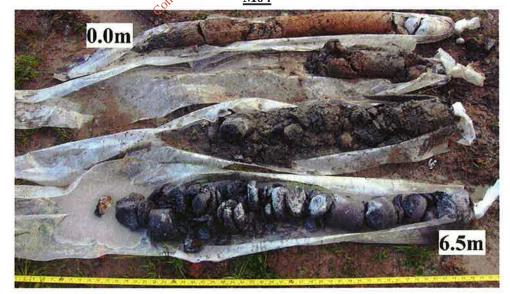




<u>M03</u>



<u>M04</u>



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<u>M05</u>



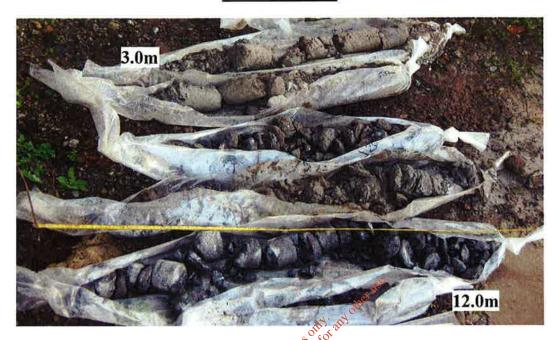
For its pectount

M06 Picture 1 of 2

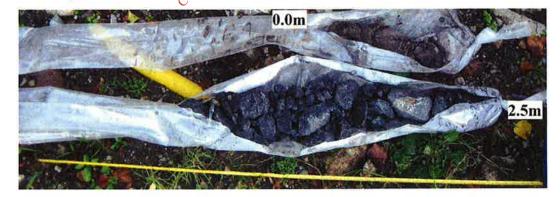


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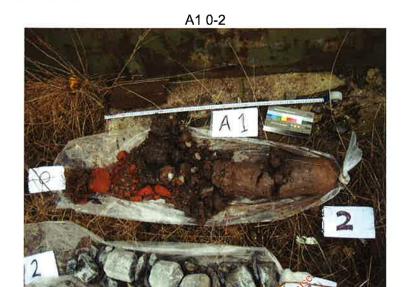
M06 Picture 2 of 2

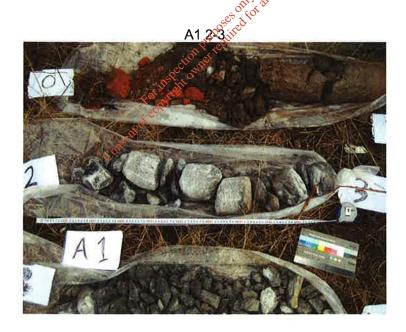


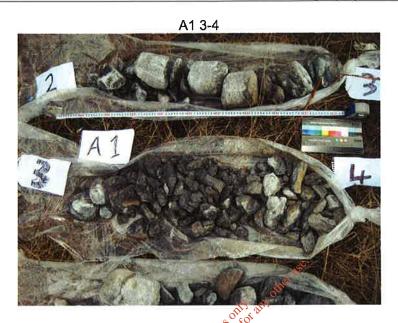
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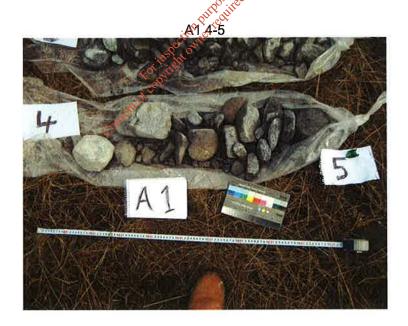


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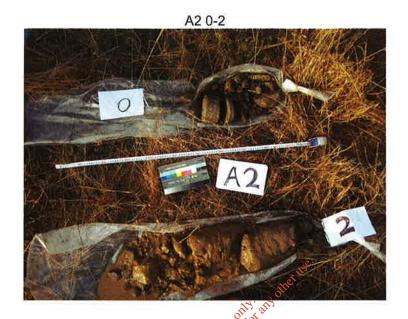
IGSL Project No. 16033



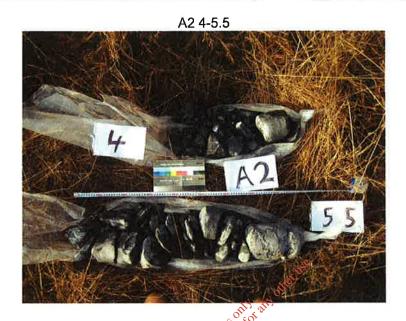


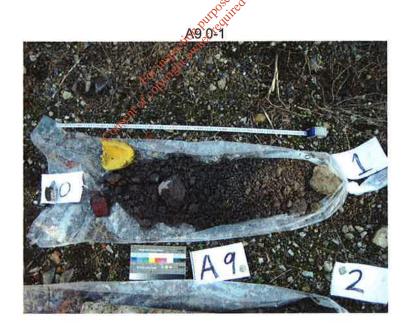
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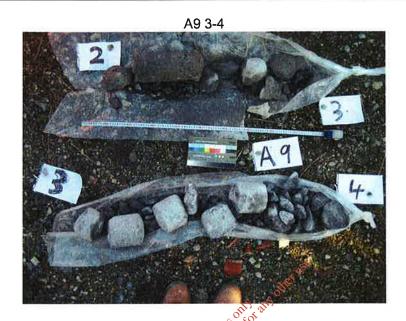


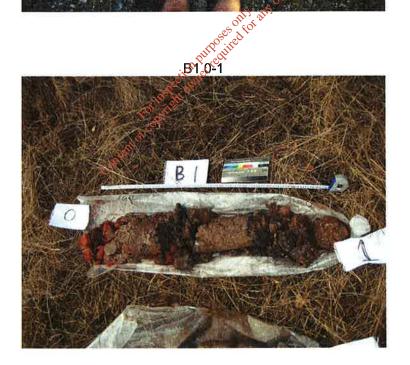


IGSL Project No. 16033

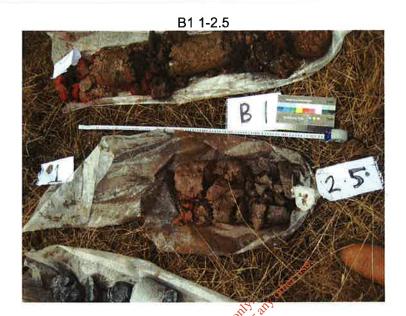






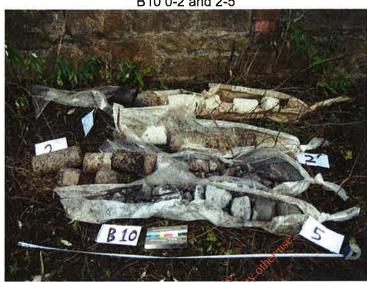


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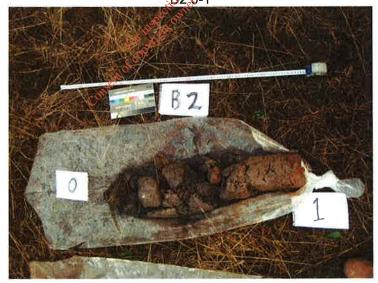




B10 0-2 and 2-5



B2 0-20 Port B2 10 Por



B2 1-2

















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D2 2.5-3.5



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