S.I. Ltd Contract No: 5769

Client: Cairn Homes PLC
Engineer: Waterman Moylan
Contractor: Site Investigations Ltd

# Hollybank, Swords, Co. Dublin Site Investigation Report

Prepared by:	
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#### 1. Introduction

In 2017, on the instructions of Waterman Moylan, Site Investigations Ltd (SIL) was appointed to complete a ground investigation at Hollybank, Swords, Co. Dublin. The investigation was completed for a proposed residential development on the site and following the subsequent planning application, the plan for the development was revised. Subsequently, SIL were requested to complete an additional investigation to this new design layout and this report covers that investigation. It was completed on behalf of the Client, Cairn Homes PLC in October 2020.

This report presents the factual geotechnical data obtained from the field and laboratory testing with interpretation of the ground conditions discussed.

#### 2. Site Location

The site is bordered by Glen Ellan Road and Jugback Lane to the north of Swords town centre in north Co. Dublin. The map on the left shows the location of Swords in Dublin and the location of the site to the north of Swords is shown on the right.





#### 3. Fieldwork

The fieldworks comprised a programme of cable percussive borehole logs, trial pits and dynamic probes. All fieldwork was carried out in accordance with Eurocode 7: Geotechnical Design and IEI Specification & Related Documents for Ground Investigation in Ireland (2006).

The fieldworks comprised the following:

6 No. cable percussive borehole logs

- 8 No. trial pits
- 143 No. dynamic probes

#### 3.1. Cable Percussive Borehole Logs

Cable percussion boring was undertaken at 6 No. locations using a Dando 150 rig and constructed 200mm diameter boreholes. The boreholes were completed at the southern part of the site where the proposed development is for multi-storey apartment blocks. The boreholes all terminated at the scheduled depth of 8.00mbgl. It was not possible to collect undisturbed samples due to the granular soils encountered so bulk disturbed samples were recovered at regular intervals.

To test the strength of the stratum, Standard Penetration Tests (SPT's) were performed at 1.00m intervals in accordance with BS 1377 (1990). In soils with high gravel and cobble content it is appropriate to use a solid cone (60°) (CPT) instead of the split spoon and this was used throughout the testing. The test is completed over 450mm and the cone is driven 150mm into the stratum to ensure that the test is conducted over an undisturbed zone. The cone is then driven the remaining 300mm and the blows recorded to report the N-Value. The report shows the N-Value with the 75mm incremental blows listed in brackets (e.g. BH101 at 1.00mbgl where N=14-(3,3/3,4,3,4)). Where refusal of 50 blows across the test zone was encountered was achieved during testing, the penetration depth is also reported (e.g. BH103 at 6.00mbgl where N=50-(6,6/50 for 240mm)).

At BH101 and BH106, groundwater standpipes were installed to allow for long term monitoring. These are formed of a slotted standpipe with a gravel pack surround to allow for the groundwater to ingress into the pipe and stabilise. Bentonite seals were placed above the pipes to ensure that water does not migrate into the hole from the surface.

The logs are presented in Appendix 1.

#### 3.2. Trial Pits

8 No. trial pits were excavated using a wheeled excavator. The pits were logged and photographed by SIL geotechnical engineer and representative disturbed bulk samples were recovered as the pits were excavated, which were returned to the laboratory for geotechnical testing.

The trial pit logs and photographs are presented in Appendix 2.

#### 3.3. Dynamic Probes

With the adjusted plan for the site, 143 No. dynamic probes were completed using a track mounted Competitor 130 machine. The testing complies with the requirements of BS1377: Part

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9 (1990) and Eurocode 7: Part 3. The configuration utilised standard DPH (Heavy) probing

method comprising a 50kg weight, 500mm drop height and a 50mm diameter (90°) cone. The

number of blows required to drive the cone each 100mm increment into the sub soil is recorded

in accordance with the standards. The dynamic probe provides no information regarding soil

type or groundwater conditions.

The dynamic probe results can be used to analyse the strength of the soil strata encountered

by the probe. 'Proceedings of the Trinity College Dublin Symposium of Field and Laboratory

Testing of Soils for Foundations and Embankments' presents a paper by Foirbart that is most

relevant to Irish soil conditions and within this paper the following equations were included:

Granular Soils: DPH N<sub>100</sub> x 2.5 = SPT N value

Cohesive Soils:  $C_u = 15 \times DPH N_{100} + 30 \text{ kN/m}^2$ 

These equations present a relationship between the probe N<sub>100</sub> value and the SPT N value

for granular soils and the undrained shear strength of cohesive soils.

The dynamic probe logs are presented in Appendix 3.

3.4. Surveying

Following completion of all the fieldworks, a survey of the exploratory hole locations was

completed using a GeoMax GPS Rover. The data is supplied on each individual log and along

with a site plan in Appendix 6.

4. Laboratory Testing

Geotechnical laboratory testing was completed on representative soil samples in accordance

with BS 1377 (1990). Testing included:

4 No. Moisture contents

4 No. Atterberg limits

4 No. Particle size gradings

4 No. pH values

4 No. sulphate content

4 No. chloride content

Environmental laboratory testing was completed by ALS Environmental Ltd, and consisted of:

2 No. Suite I Analysis

4 No. Loss on ignition

3

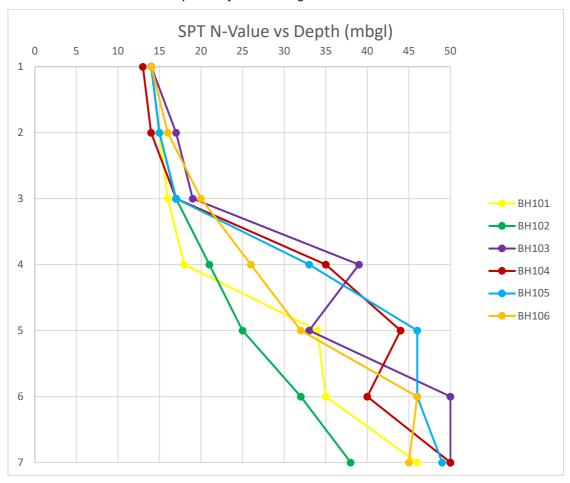
The geotechnical laboratory test results are presented in Appendix 4 with the environmental results in Appendix 5.

#### **5. Ground Conditions**

#### 5.1. Overburden

The natural ground conditions are dominated by brown and brown grey slightly sandy slightly gravelly silty CLAY with cobbles and boulders overlying black slightly sandy slightly gravelly silty CLAY with cobbles and boulders. The natural soils consist of over-consolidated lodgement till which is encountered across the North Dublin region with several papers discussing the engineering characteristics of the soil. The brown soils are the weathered surface of the underlying black clays and the gravel and cobbles are generally subrounded to subangular and predominantly limestone in origin. The underlying black soil across the site is between 1.80mbgl (TP08) in the north east of the site and 4.90mbgl (BH01) in the south west.

The SPT blow counts are consistent as the graph below shows. The N-values range from 13 to 14 at 1.00mbgl and then increase to between 14 and 17 and then 16 to 20 at 2.00mbgl and 3.00mbgl respectively. There is a notable increase in BH103 to BH106 when the black boulder CLAY was encountered with values of 26 to 39 recorded whereas BH101 and BH102 recorded lower values of 18 and 21 respectively at 4.00mbgl in the brown boulder CLAY.



The laboratory tests of the cohesive soils confirm that CLAY soils dominate the site with low to intermediate plasticity indexes of 12 to 15% recorded. The particle size distribution curves show poorly sorted straight-line curves with 53% to 66% fines content.

#### 5.2. Groundwater

Groundwater details in the boreholes and trial pits during the fieldworks are noted on the logs in Appendices 1 and 2. Two groundwater ingresses were recorded during the fieldworks period in BH101 at 3.80mbgl and TP103 at 2.90mbgl with a slow ingress rate. The remaining investigation locations remained dry during the fieldworks.

#### 6. Recommendations and Conclusions

Please note the following caveats:

The recommendations given, and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between the exploratory hole locations or below the final level of excavation, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for adjacent unexpected conditions that have not been revealed by the exploratory holes.

Excavated surfaces in clay strata should be kept dry to avoid softening prior to foundation placement. Foundations should always be taken to a minimum depth of 0.50mBGL to avoid the effects of frost action and possible seasonal shrinkage/swelling.

If it is intended that on-site materials are to be used as fill, then the necessary laboratory testing should be specified by the Client to confirm the suitability. Also, relevant lab testing should be specified where stability of side slopes to excavations is a concern, or where contamination may be an issue.

#### 6.1. Foundations

Due to the unknown depth of foundation and no longer-term groundwater information, this analysis assumes the groundwater will not influence the construction or performance of these foundations. It is further recommended that all bearing surfaces when excavated should be inspected by a suitably qualified Engineer to verify the information given in this report.

#### 6.1.1. Apartment Blocks

The designed development includes for multi-storey apartment blocks to the south of the site and this is where the boreholes were completed. For this report, bearing capacities will be provided at 1.00mbgl, 2.00mbgl, 3.00mbgl and 4.00mbgl for each borehole to assist with the design.

Using a correlation proposed by Stroud and Butler between SPT N-values and plasticity indices, the SPT N-value can be used to calculate the undrained shear strength and for the soils encountered on site, this is Cu=6N. This can be used to calculate the ultimate bearing capacity, and finally, a factor of safety of 3 is applied to calculate the allowable bearing capacity (ABC) of the soils at these depths.

Depth/	ВН	101	ВН	102	BH103		BH104		BH105		ВН	106
mbgl	SPT	ABC	SPT	ABC	SPT	ABC	SPT	ABC	SPT	ABC	SPT	ABC
1.00	14	150	14	150	14	150	13	140	14	150	14	150
2.00	15	160	15	160	17	180	14	150	15	160	16	160
3.00	16	160	17	180	19	200	17	180	17	180	20	210
4.00	18	190	21	220	39	400	35	365	33	340	26	270

All capacities are kN/m² and are calculated with 1.00m of soil overburden, i.e. capacities at 4.00mbgl assume 3.00m of soil removed and foundations 1.00m below basement level.

The black boulder CLAY recorded higher SPT N-values as would be anticipated and therefore offers higher bearing capacities.

#### 6.1.2. Dynamic Probes

For analysis of bearing capacities from the dynamic probes, the  $N_{100}$  values are used as follows in cohesive soils. The undrained shear strength ( $C_u$ ) is calculated using the  $N_{100}$  value as per the equation in Section 3.3. This can then be used in calculations to work out the ultimate bearing capacity (ULS) and when a factor of safety of 3 is applied, the allowable bearing capacity (ABC) can be provided. The table below shows the allowable bearing capacities for  $N_{100}$  values 1 to 10 at 1.00mbgl with all values in kN/m².

N <sub>100</sub> Value	Cu	ULS	ABC
1	45	250	85
2	60	330	110
3	75	400	135
4	90	480	160
5	105	555	185
6	120	630	210
7	135	705	235
8	150	780	260
9	165	855	285
10	180	930	310

The probe  $N_{100}$  values are generally good at 1.00mbgl with only 7 No. probes recording values of 1 and 35 No. probes recording values of 2. However, there are areas where values of 0 and 1 were recorded as deep as 2.40mbgl and 2.80mbgl respectively and therefore, each probe should be analysed and foundations lowered if soft spots are encountered on site.

The following assumptions were made as part of these analyses. If any of these assumptions are not in accordance with detailed design or observations made during construction these recommendations should be re-evaluated.

- Foundations are to be constructed on a level formation of uniform material type (described above).
- The bulk unit weight of the material in this stratum has a minimum density of 19kN/m³.
- All bearing capacity calculations allow for a settlement of 25mm.

The trial pits indicate that excavations in the cohesive soils should be stable for a short while at least. However, regular inspection of temporary excavations should be completed during construction to ensure that all slopes are stable. Temporary support should be used on any excavation that will be left open for an extended period.

#### 6.2. Groundwater

The caveats below relating to interpretation of groundwater levels should be noted:

There is always considerable uncertainty as to the likely rates of water ingress into excavations in clayey soil sites due to the possibility of localised unforeseen sand and gravel lenses acting as permeable conduits for unknown volumes of water.

Furthermore, water levels noted on the borehole and trial pit logs do not generally give an accurate indication of the actual groundwater conditions as the borehole or trial pit is rarely left open for sufficient time for the water level to reach equilibrium.

Also, during boring procedures, a permeable stratum may have been sealed off by the borehole casing, or water may have been added to aid drilling. Therefore, an extended period of groundwater monitoring using any constructed standpipes is required to provide more accurate information regarding groundwater conditions. Finally, groundwater levels vary with time of year, rainfall, nearby construction and tides.

Pumping tests would be required to determine likely seepage rates and persistence into excavations taken below the groundwater level. Deep trial pits also aid estimation of seepage rates.

As discussed previously, groundwater was only encountered in BH101 at 3.80mbgl and a slow ingress in TP103 at 2.90mbgl.

There is always considerable uncertainty as to the likely rates of water ingress into excavations in cohesive soil sites due to the possibility of localised unforeseen sand and gravel lenses acting as permeable conduits for unknown volumes of water. However, based on this information at the exploratory hole locations to date, it is considered likely that any shallow ingress into excavations of the CLAY will be slow. If localised granular soils are encountered in shallow excavations, then the possibility of water ingressing into an excavation increase.

If groundwater is encountered during excavations then mechanical pumps will be required to remove the groundwater from sumps. Sumps should be carefully located and constructed to ensure that groundwater is efficiently removed from excavations and trenches.

#### 6.3. Contamination

Environmental testing was carried out on two samples from the investigation and the results are shown in Appendix 5. For material to be removed from site, Suite I testing was carried out to determine if the material is hazardous or non-hazardous and then the leachate results were compared with the published waste acceptance limits of BS EN 12457-2 to determine whether the material on the site could be accepted as 'inert material' by an Irish landfill.

The Waste Classification report created using HazWasteOnline™ software shows that the material tested can be classified as non-hazardous material.

Following this analysis of the solid test results, the leachate disposal suite results indicate that the soils tested would be able to be treated as Inert Waste.

Two samples were tested for analysis but it cannot be discounted that any localised contamination may have been missed. Any MADE GROUND excavated on site should be stockpiled separately to natural soils to avoid any potential cross contamination of the soils. Additional testing of these soils may be requested by the individual landfill before acceptance and a testing regime designed by an environmental engineer would be recommended to satisfy the landfill.

#### 6.4. Aggressive Ground Conditions

The chemical test results in Appendix 4 indicate a general pH value between 8.30 and 8.40, which is close to neutral and below the level of 9, therefore no special precautions are required.

The maximum value obtained for water soluble sulphate was 131mg/l as SO<sub>3</sub>. The BRE Special Digest 1:2005 – 'Concrete in Aggressive Ground' guidelines require SO<sub>4</sub> values and after

conversion (SO<sub>4</sub> = SO<sub>3</sub> x 1.2), the maximum value of 157mg/l shows Class 1 conditions and no special precautions are required.

# Appendix 1 Cable Percussive Borehole Logs

Contra		Cable Percussio	n Bo	orel	nole	Lo	g			orehole	
Contra	ct:	Hollybank	Easting	):	717699	9.038		Date Started:	05/10	)/2020	
Locatio	n:	Swords, Co. Dublin	Northin	g:	748009	9.013		Date Completed: 05/10		05/10/2020	
Client:		Cairn Homes PLC	Elevation	on:	13.31					Г. Tindall	
Engine	er:	Waterman Moylan	Boreho		200mm			Status: FINA		L	
Dept	h (m)	Stratum Description	Legend Level (mOD) Samples a		and Insitu Tes	sts	Water	Backfill			
Scale	Depth	·	20g011d	Scale	Depth	Depth	Туре	Result		Strike	Buoitiiii
0.5	0.20	TOPSOIL.  Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content.	X X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X	13.0 — 	13.11	0.50	ES	TT01			
1.0 —				12.0		1.00 1.00	B C	TT02 N=14 (3,3/3,	4,3,4)		
2.0				11.5 -		2.00 2.00	B C	TT03 N=15 (3,4/4,	4,3,4)		
3.0				10.5 -		3.00 3.00	B C	TT04 N=16 (3,3/4,	4,4,4)		
4.0 —				9.5	-	4.00 4.00	B C	TT05 N=18 (3,3/4,	5,5,4)		
5.0 —	4.90	Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		8.5 — - - 8.0 —	8.41	5.00 5.00	B C	TT06 N=34 (4,6/6,8,9	,11)		
6.0 —				7.5		6.00 6.00	B C	TT07 N=35 (5,5/6,8,8,	,13)		
7.0 —				6.5		7.00 7.00	B C	TT08 N=46 (4,6/8,11,13	3,14)		
-			× × 0 · ×	5.5							
8.0 — - - -	8.00	End of Borehole at 8.00m		5.0	5.31						
8.5				4.5 —							
9.0				-							
9.5				4.0 —							
_				3.5 -							
		3.80 2.80 4.90 05/10 8.00 Dry	Install From: To 0.00 1.5 1.50 8.0	o: Pipe	e: From: -	Backfill: To: Typ .00 Bent .00 Gra	onite	Remarks:		Legend: B: Bulk D: Disturb U: Undist ES: Envir W: Water C: Cone S S: Split s	urbed onmental

Contra		Cable Percussio	n Bo	orel	nole	Lo	g			orehole	
Contra	ct:	Hollybank	Easting	j:	717739	9.775		Date Started:	07/10	)/2020	
Locatio	n:	Swords, Co. Dublin	Northin	g:	747995	5.675		Date Completed:	07/10	07/10/2020	
Client:		Cairn Homes PLC	Elevation	on:	12.84			Drilled By:	T. Tin	Tindall	
Engine	er:	Waterman Moylan	Boreho		200mm			Status: FINAl		L	
Dept	h (m)	Stratum Description	Legend		(mOD)	Sa	mples	and Insitu Tests		Water	
Scale	Depth	·	Scale		Depth	Depth Type		Result		Strike	Duokiiii
0.5	0.20	TOPSOIL.  Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with low cobble content.		12.5 — 12.0 —	12.64	0.50	ES	TT17			
1.0 —				11.5	- - - - -	1.00 1.00	B C	TT18 N=14 (3,3/3,	3,4,4)		
2.0 —				11.0		2.00	B C	TT19 N=15 (3,3/4,	4,3,4)		
3.0				10.0 — - - - 9.5 —	-	3.00 3.00	B C	TT20 N=17 (3,4/4,	4,4,5)		
4.0 — 4.5 —	4.40	Stiff becoming very stiff black slightly sandy slightly		9.0 —	8.44	4.00 4.00	B C	TT21 N=21 (3,3/4,	4,6,7)		
5.0 —		gravelly silty CLAY with low cobble content.		8.0 — 		5.00 5.00	B C	TT22 N=25 (5,4/5,	5,7,8)		
6.0 — 6.5 —				7.0 —		6.00 6.00	B C	TT23 N=32 (4,5/5,7,9	,11)		
7.0 — 7.5 —				6.0 —		7.00 7.00	B C	TT24 N=38 (5,5/6,8,11	,13)		
8.0—	8.00		× × × × × × × × × × × × × × × × × × ×	5.0 —	4.84						
_ _ _	5.00	End of Borehole at 8.00m		4.5	7.04						
8.5 — — —				4.0 —							
9.0				- - -	-						
9.5 —				3.5 — - - -							
=				3.0 —							
		Chiselling: Water Strikes: Water Details:  From: To: Time: Strike: Rose: Depth Sealed Date: Hole Depth: Depth: Depth Depth: Dept	Install From: To		_	Backfill: To: Typ  .00 Arisi		Remarks:		Legend: B: Bulk D: Disturb U: Undist ES: Envir W: Water C: Cone S S: Split sp	urbed onmental

Contract No: 5769	Cable Percussion	n Bo	orel	nole	Lo	g		Borehole No: BH103		
Contract:	Hollybank	Easting	<b>j</b> :	71777	7.734		Date Started:	06/10	/2020	
Location:	Swords, Co. Dublin	Northin	g:	748014	4.477		Date Completed:	06/10	06/10/2020	
Client:	Cairn Homes PLC	Elevati	on:	13.64			Drilled By: T. Ti		T. Tindall	
Engineer:	Waterman Moylan	Boreho		200mn	า		Status: FIN		FINAL	
Depth (m)	Stratum Description	Legend	Level	(mOD)			and Insitu Tes		Water Strike	
Scale Depth - 0.20	OPSOIL.		Scale 13.5 –	Depth 13.44	Depth	Туре	Result		Strike	
0.20	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with low cobble content.		13.0 —	13.44	0.50	ES	ТТ09			
1.0		× × · ·	12.5	-	1.00 1.00	B C	TT10 N=14 (3,3/3,	3,4,4)		
1.5		× × · ·	12.0	-						
2.0 —		× · · · · · · · · · · · · · · · · · · ·	11.5		2.00 2.00	B C	TT11 N=17 (3,3/4,	4,4,5)		
2.5 -		× × · · · · ×	11.0							
3.0			10.5	-	3.00 3.00	B C	TT12 N=19 (3,4/4,	4,5,6)		
3.5 = 3.70	Very stiff black slightly sandy slightly gravelly silty	× × · · · · ×	10.0	9.94						
4.0 —	CLAY with low cobble content.	× × · · · × · · · × · · · · × · · · · × · · · · × · · · · · × · · · · · × · · · · · × · · · · · · × · · · · · · · × ·	9.5 -		4.00 4.00	B C	TT13 N=39 (5,5/7,9,13	5,10)		
4.5 —		× × · · · ×	9.0	-						
5.0 —			8.5 -		5.00 5.00	B C	TT14 N=33 (4,6/6,8,8,	,11)		
5.5 -		x x x x x x x x	8.0 —		6.00	В	TT15			
6.5		X - 0 - X	7.5 -		6.00	С	N=50 (6,6/5 240mm	50 for )		
7.0		× × · ·	7.0		7.00	В	TT16			
7.5		× × · · · × · · · × · · · × · · · ×	6.5 — - -	-	7.00	С	N=50 (5,7/5 235mm			
8.00	End of Borehole at 8.00m	× × · · · ×	6.0 —	5.64						
8.5			5.5 — - - -	-						
9.0			5.0 — - - - 4.5 —							
9.5 —			4.5 — - - 4.0 —							
			4.0 -							
	Chiselling: Water Strikes: Water Details:	Install			Backfill:		Remarks:		Legend: B: Bulk	<u> </u>
	From: To: Time: Strike: Rose: Depth Sealed Date: Hole Depth: Water Depth: 06/10 8.00 Dry	From: To	o: Pipe	9: From: 0.00 8	To: Typ 3.00 Arisi				D: Disturb U: Undist ES: Envir W: Water C: Cone S	urbed onmenta SPT

Contract No 5769	Cable Percussion	n Bo	orel	nole	Lo	g			orehole BH10	
Contract:	Hollybank	Easting	j:	717818	3.977		Date Started:	12/10	/2020	
Location:	Swords, Co. Dublin	Northin	g:	74803	1.269		Date Completed:	12/10	/2020	
Client:	Cairn Homes PLC	Elevati	on:	12.94			Drilled By:	T. Tin	ndall	
Engineer:	Waterman Moylan	Boreho		200mn	1		Status:	FINAL		
Depth (m)	Stratum Description	Legend	Level	(mOD)			and Insitu Tes		Water Strike	Backfil
Scale Depth	TOPSOIL.	\(\lambda\)\(\lambda\)	Scale	Depth	Depth	Туре	Result		Strike	X///X//
0.20	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with low cobble content.	× · · · · ×	12.5 —	12.74	0.50	ES	TT41			
1.0			12.0		1.00 1.00	B C	TT42 N=13 (2,3/3,	3,4,3)		
1.5 -			11.5 — - - - 11.0 —							
2.0 —		x 0 x 0 x 0 x 0 x 0 x 0 x 0 x 0 x 0 x 0	10.5	-	2.00	B C	TT43 N=14 (3,4/3,	4,4,3)		
3.0			10.0		3.00 3.00	B C	TT44 N=17 (3,3/4,	4,4,5)		
3.5 = 3.70	Very stiff black slightly sandy slightly gravelly silty		9.5 -	9.24						
4.0	CLAY with low cobble content.		9.0 — - - 8.5 —		4.00 4.00	B C	TT45 N=35 (5,7/8,7,9	,11)		
5.0			8.0		5.00	В	TT46			
5.5 -		**************************************	7.5 — 		5.00	С	N=44 (5,5/8,10,13	3,13)		
6.0		× × · ·	7.0 <del>-</del> - - - 6.5 -	-	6.00 6.00	B C	TT47 N=40 (6,7/9,9,10	,12)		
6.5 — - - - 7.0 —			6.0		7.00	В	TT48			
7.5			5.5	-	7.00	С	N=50 (8,9/5 275mm	60 for )		
8.00	End of Borehole at 8.00m	<u> </u>	5.0 —	4.94						
8.5 —			4.5							
9.0 —			3.5							
			-	-						
	Chiselling:     Water Strikes:     Water Details:       From:     To:     Time:     Strike:     Rose:     Depth Sealed     Date:     Hole Depth:     Water Details:       12/10     8.00     Dry	Install From: To					Remarks:		Legend: B: Bulk D: Disturb U: Undistr ES: Enviro W: Water C: Cone S	urbed onmental

Contract No: 5769	Cable Percussion	n Bo	orel	nole	Lo	g			orehole BH10	
Contract:	Hollybank	Easting	j:	717867	7.506		Date Started:	09/10	/2020	
Location:	Swords, Co. Dublin	Northin	g:	748009	9.768		Date Completed:	09/10	09/10/2020	
Client:	Cairn Homes PLC	Elevati	on:	12.68			Drilled By:	T. Tin	T. Tindall	
Engineer:	Waterman Moylan	Boreho		200mn	1		Status:	FINAL		
Depth (m)	Stratum Description	Legend	Level	(mOD)			and Insitu Tes		Water Strike	Backfil
Scale Depth	TOPSOIL.		Scale	Depth	Depth	Туре	Result		Slike	
0.20	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with low cobble content.	× × · ·	12.5 — - - - 12.0 —	12.48	0.50	ES	TT33			
1.0			11.5		1.00 1.00	B C	TT34 N=14 (3,3/3,	3,4,4)		
1.5 -		× 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0	11.0		2.00	В	TT35			
2.5 —		0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 ×	10.5 -		2.00	Ċ	N=15 (3,3/4,	3,4,4)		
3.0		× 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0	9.5		3.00 3.00	B C	TT36 N=17 (3,4/4,	5,4,4)		
3.5 - 3.50	Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.	X 0 - X	9.0	9.18	4.00	-				
4.0 —			8.5 — -		4.00 4.00	B C	TT37 N=33 (4,6/7,7,8,	,11)		
5.0 —			8.0 — - - 7.5 —	-	5.00 5.00	B C	TT38 N=46			
5.5 <del>-</del> -		x 0 x 0 x	7.0				N=46 (5,7/9,13,1	1,13)		
6.0 —		0 × 0 €	6.5		6.00 6.00	B C	TT39 N=46 (7,8/10,11,1	3,12)		
7.0		0 X 0 X 0 X 0 X	6.0		7.00 7.00	B C	TT40 N=49			
7.5 —		x - 0 - × x - 0 - × x - 0 - × x - 0 - ×	5.0		7.00	C	(8,8/11,12,1	2,14)		
8.00	End of Borehole at 8.00m		4.5 —	4.68						
8.5 — — — — 9.0 —			4.0							
9.5 —			3.5							
			- - -							
	Chiselling: Water Strikes: Water Details: From: To: Time: Strike: Rose: Depth Sealed Date: Hole Depth: Depth: Depth: O9/10 8.00 Dry	Install From: To					Remarks:		Legend: B: Bulk D: Disturb U: Undisto ES: Envin W: Water C: Cone S S: Split sp	urbed onmental SPT

Contra		Cable Percussio	n Bo	orel	nole	Lo	g			orehole	
Contra	ct:	Hollybank	Easting	<b>j</b> :	717863	3.616		Date Started:	08/10	)/2020	
Locatio	n:	Swords, Co. Dublin	Northin	g:	748048	3.217		Date Completed:	08/10/2020		
Client:		Cairn Homes PLC	Elevation	on:	12.83			Drilled By:	Drilled By: T. Tin		
Engine	er:	Waterman Moylan	Boreho Diamet		200mm			Status: FINA		L	
Dept		Stratum Description	Legend		` '		and Insitu Tes		Water		
Scale	Depth	TOPSOIL.	V///////	Scale	Depth	Depth	Туре	Result		Strike	
0.5 —	0.20	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with low cobble content.		12.5	12.63	0.50	ES B	TT25			* • • • • • • • • • • • • • • • • • • •
1.5 —				11.5 -		2.00	C B C	N=14 (2,3/3, TT27			
2.5 —				10.5		3.00 3.00 3.00	ВС	N=16 (3,3/4, TT28 N=20 (3,4/4,			
3.5 —	3.70	Stiff becoming very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		9.5	9.13	4.00	В	TT29	0,0,0)		
4.5				8.5 — 	-	4.00	С	N=26 (4,4/6,	6,6,8)		
5.0 —				7.5 -		5.00 5.00	B C	TT30 N=32 (5,5/5,7,9,	,11)		
6.0 —				7.0 — - - - 6.5 —		6.00 6.00	B C	TT31 N=46 (6,8/9,13,13	3,11)		
7.0 — 				6.0 — - - - 5.5 —		7.00 7.00	B C	TT32 N=45 (7,7/10,11,1	1,13)		
8.0 —	8.00	End of Borehole at 8.00m	X X 0 X	5.0	4.83						
8.5 —		End of Dotellule at 0.00111		4.5							
-				4.0							
9.0				3.5							
9.5 —				3.0	-						
		Obia-Nia-n. W. L. Oliffer D. W. C. W.	I	_4:	<u> </u>	)! f:::				l accord	
		Chiselling: Water Strikes: Water Details:  From: To: Time: Strike: Rose: Depth Sealed Date: Hole Depth: Dep	Install   From:   To   0.00   1.50   8.0	o: Pipe	e: From: -	Backfill: To: Typ .00 Bento 6.00 Gra	onite	Remarks:		Legend: B: Bulk D: Disturb U: Undist ES: Envir W: Water C: Cone S	urbed onmental

# Appendix 2 Trial Pit Logs and Photographs

Contra 57	ct No: '69	Trial Pit Log										Trial Pit No:		
Contra	ct:	Hollybank			Easting:		717594	.205		Date:	0	5/10/2020		
Locatio	on:	Swords, Co. Dublin			Northing	:	748257	7.711		Excavato	r: J	JCB 3CX		
Client:		Cairn Homes PLC			Elevation	n:	9.20		Logged By:		y: P	: P. McGonagle		
Engine	er:	Waterman Moylan			Dimension (LxWxD)		3.00 x	0.60 x	3.00	Status:		FINAL		
Level (			Stratum Description	on			Legend	Level				ield Tests	Water Strike	
Scale: I	Depth	TOPSOIL.						Scale:	Depth	: Depth	Туре	Result	Ollike	
-		Firm brown slightly sa					0 8 0 5 0 20	9.0 —	9.00					
0.5 —	f k	ine to coarse, subang coulders are angular f diameter).	gular to subrounded o	of limestone. (	Cobbles a			-						
- - -			**************************************		8.5 —									
1.0 —			1, 12 °01, 12		-		1.00	В	PM10					
1.5 —	( (	CLAY with medium co coarse. Gravel is fine imestone. Cobbles ar	ecoming stiff grey brown slightly sandy slightly gravelly silty vith medium cobble and low boulder content. Sand is fine to Gravel is fine to coarse, subangular to subrounded of ne. Cobbles and boulders are angular to subrounded of ne (up to 300mm diameter).					8.0 —	8.00					
-						1981년 에 년 에 년 에 년 에		7.5 —						
2.0 —						191719171917		7.0 —		2.00	В	PM11		
-	0.50					1981,1981,1981		-						
2.5 —	f k	Stiff black slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded of limestone. Cobbles and boulders are angular to subrounded of limestone (up to 300mm diameter).						6.5 —	6.70					
-	3.00		Distance			1011011011		-	6.20	2.80	В	PM12		
	3.30	Termination:	Pit terminated at 3.00 Pit Wall Stability:	1	Rate: F	Remar	rks <sup>.</sup>		5.20	Key:				
		Termination: Pit Wall Stability: Groundwater Rate: Rem Scheduled depth. Pit walls stable. Dry -				Cilial	NO.			B = D = CBR :	Small = Undis	isturbed disturbed sturbed CBR nmental		

	act No: 769		-	Trial Pit L	.og						Trial Pi	
Contr	act:	Hollybank		Eas	ting:	717636	6.728		Date:		05/10/2020	)
Locat	ion:	Swords, Co. Dublin	ı	Nor	thing:	748329	9.938		Excavator:		JCB 3CX	
Client	t:	Cairn Homes PLC		Elev	/ation:	8.52			Logged B	By:	P. McGona	gle
Engin	neer:	Waterman Moylan			ensions	3.00 x	0.60 x	3.00	Status:		FINAL	
	(mbgl)		Otraction December	1.	VxD) (m)		Level	(mOD	) Samp	oles /	Field Tests	Water
	Depth	TOPSOIL.	Stratum Descript	ion		Legend	Scale:					
1.5 —	1.20	Firm brown slightly sa cobble and low bould fine to coarse, suban boulders are angular diameter).  Grey silty very sandy GRAVEL of limestone coarse. Cobbles are	ler content. Sand is figular to subrounded to subrounded of lime to coarse, subate with high cobble co	ine to coarse. Gravor ilmestone. Cobbestone (up to 300)  ngular to subround intent. Sand is fine	rel is ples and mm		7.5 —  7.5 —  6.5 —  -  -  -  -  -  -  -  -  -  -  -  -  -	7.32	1.00	В		
2.5 —	3.00					Shie × she	6.0 —	- 5.52				
	0.00	Termination:	Pit terminated at 3.00 Pit Wall Stability:	Groundwater Rat	e: Rema	arks:		0.02	Key:			
		Scheduled depth.	Pit walls stable.	Dry	-	AI NJ.			B = D = CBR	Bulk Sma	disturbed all disturbed disturbed CB onmental	R

	act No: 769		-	Trial Pit	Log						Trial Pit	
Contr	act:	Hollybank		Ea	asting:	717671	.220		Date:		05/10/2020	
Locat	ion:	Swords, Co. Dublin		No	orthing:	748198	3.270		Excavato	r:	JCB 3CX	
Client	t:	Cairn Homes PLC		EI	evation:	9.73 Lo			Logged By:		P. McGonaç	gle
Engin	eer:	Waterman Moylan			imensions xWxD) (m):	3.00 x 0.60 x 3.00			Status:		FINAL	
Level	(mbgl)		Stratum Descripti	1.		Legend	Level (mOD)		) Samp	oles / F	Field Tests	Water
Scale:	Depth	TOPSOIL.					Scale:	Depth	: Depth	Тур	e Result	Strike
0.5 —		Firm becoming stiff b with medium cobble a Gravel is fine to coars Cobbles and boulders 300mm diameter).	and low boulder cont se, subangular to sub	ent. Sand is fine brounded of lime	to coarse. stone.	: 아마스러 아버스러 아버스러 아버스러 아버스러 아버스러 아버스러 아버스러 아버	9.5	9.33	1.00	В	PM06	
2.0 —		Stiff grey brown sligh medium cobble and le Gravel is fine to coars Cobbles and boulders 300mm diameter).	low boulder content. S se, subangular to sub	Sand is fine to co brounded of limes rounded of limest	oarse. stone.		7.5 -	7.83	2.50	В	PM07	•
		Termination:	Pit Wall Stability:	Groundwater R	ate: Rema	rks:			Key:			
		Scheduled depth.	Pit walls stable.	2.90 Slow	-				B = D = CBR	Bulk Smal	disturbed Il disturbed isturbed CBF onmental	₹

	act No: 769		7	Trial Pi	t Lo	g						Trial Pit <b>TP10</b>			
Contr	act:	Hollybank			Easting:		717725	5.647		Date:	0	5/10/2020			
Locat	ion:	Swords, Co. Dublin			Northing	:	748194	1.038		Excavato	r: J	JCB 3CX			
Client	t:	Cairn Homes PLC			Elevation	n:	8.86			Logged By:		P. McGonagle			
Engin	ieer:	Waterman Moylan			Dimension (LxWxD)		3.00 x	0.60 x	3.00	Status:	Status: FINAL				
	(mbgl)		Stratum Description	on	,		Legend		(mOD	· .		ield Tests	Water		
Scale:		TOPSOIL.	-					Scale:	Depth	: Depth	Туре	Result	Strike		
0.5 —	(	Firm becoming stiff br with medium cobble a Gravel is fine to coars Cobbles and boulders 800mm diameter).	and low boulder conte se, subangular to sub	ent. Sand is fir rounded of lin	ne to coal nestone.	rse.		- - 8.5 - - -	8.56						
1.0 —						에 나 에 나 에 나 에 나 에 나 에 나 에 나 에 나 에 나 에 나		- 8.0 — - - -		1.00	В	PM03			
1.5 —	1.70							7.5 — - -	7.16						
2.0 —	r	Stiff grey brown slight medium cobble and lo Gravel is fine to coars Cobbles and boulders 300mm diameter).	ow boulder content. S se, subangular to sub	Sand is fine to rounded of lin	coarse. nestone.	p to		7.0 — - - -	7.10	2.00	В	PM04			
2.5 —	f k	Stiff black slightly san cobble and low bould ine to coarse, subang coulders are angular diameter).	er content. Sand is fir gular to subrounded o	ne to coarse. of limestone. (	Gravel is Cobbles a			6.5	6.36	2.80	В	PM05			
	3.00	T	Pit terminated at 3.00		Dati D		<u> </u>		5.86						
		Termination: Scheduled depth.	Pit Wall Stability: Pit walls stable.	Groundwater Dry	- Kate:	Remai	rks:			I	Bulk d Small = Undis	listurbed disturbed sturbed CBR nmental			

	act No: 769		7	Trial Pit	Log							Trial Pit	
Contr	act:	Hollybank		Ea	sting:	717699	9.425		Date:		05/	10/2020	
Locat	ion:	Swords, Co. Dublin		No	rthing:	748083	3.810		Excavato	or:	JCE	JCB 3CX	
Client	i:	Cairn Homes PLC		Ele	evation:	14.45 Lo			Logged	Logged By:		/lcGonag	le
Engin	eer:	Waterman Moylan			mensions (WxD) (m):	3.00 x	0.60 x	3.00	Status:		FINAL		
Level	(mbgl)		Stratum Descripti	,		Legend	Level (mOE		) Sam	Samples /		d Tests	Water
Scale:	Depth	TOPSOIL.				<b>_</b>	Scale:	Depth	n: Depth	Ту	ре	Result	Strike
1.5 —	0.30	Firm becoming stiff br with medium cobble a Gravel is fine to coars Cobbles and boulders 300mm diameter).	and low boulder conte se, subangular to sub	ent. Sand is fine t prounded of limes	o coarse. tone.	: 나는 얼마	14.0 —  14.0 —  13.5 —  13.0 —  -	14.15	1.00	E	3	PM01	
2.0 —	3.00		Pit terminated at 3.00				12.5 - - - - 12.0 - - - - 11.5 -	11.45	2.50	E	3	PM02	
		Termination:	Pit Wall Stability:	Groundwater Ra	ate: Remai	rks:		<u> </u>	Key	:			
		Scheduled depth.	Pit walls stable.	Dry	-				B = D = CBR	Bulk	all di: distu	turbed sturbed rbed CBR eental	

	act No: 769		-	Trial Pit	Log							Trial Pit					
Contr	act:	Hollybank		Ea	asting:	717805	5.064		Date:		05/	10/2020					
Locat	ion:	Swords, Co. Dublin		No	orthing:	748123	748123.603 E			r:	JCB 3CX						
Client	t:	Cairn Homes PLC		Ele	evation:	13.59 L			Logged By:		P. McGonagle		le				
Engin	neer:	Waterman Moylan			mensions xWxD) (m):	3.00 x	3.00 x 0.60 x 3.00				FINAL						
Level	(mbgl)		Stratum Descripti	1.		Legend	Level	(mOD	) Samp	oles /	Field	d Tests	Water				
Scale:	Depth	TOPSOIL.				<b>3</b>	Scale:	Depth	n: Depth	Тур	ре	Result	Strike				
0.5 —	0.40	Firm brown slightly sa cobble and low bould fine to coarse, suban boulders are angular diameter).	ler content. Sand is fi gular to subrounded	ine to coarse. Gra of limestone. Col	avel is obles and	**(**)*(**)*(**	13.5 - - - - 13.0 - -	13.19	0.80	В	3	PM18					
1.5 —		CLAY with medium co coarse. Gravel is fine limestone. Cobbles a	Firm becoming stiff grey brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded of mestone. Cobbles and boulders are angular to subrounded of mestone (up to 300mm diameter).						AY with medium cobble and low boulder content. Sand is fine to arse. Gravel is fine to coarse, subangular to subrounded of estone. Cobbles and boulders are angular to subrounded of	: 040/10/10/10/10/10/10/10/10/10/10/10/10/10	12.5	12.59					
2.0 —							11.5 -		2.00	В	3	PM19					
-	3.00		Pit terminated at 3.00	)m			11.0 —	10.59									
		Termination:	Pit Wall Stability:	Groundwater R	ate: Rema	rks:			Key:								
		Scheduled depth.	Pit walls stable.	Dry	-				B = D =	Bulk Sma	all dis distu	curbed sturbed rbed CBR ental					

Contract No: 5769		1	rial Pi	t Log						Trial Pit I	
Contract:	Hollybank			Easting:	717849	9.251		Date:	0	5/10/2020	
Location:	Swords, Co. Dublin			Northing:	74818	7.314		Excavator	: J	CB 3CX	
Client:	Cairn Homes PLC			Elevation:	8.68			Logged B	y: P	. McGonagl	е
Engineer:	Waterman Moylan			Dimensions (LxWxD) (m		0.60	3.00	Status:	F	INAL	
Level (mbgl)		Stratum Description	on		Legend		(mOD	· .		ield Tests	Water Strike
Scale: Depth	TOPSOIL.					Scale:	Depth	: Depth	Туре	Result	Otrino
-						8.5 -					
0.40	Firm becoming stiff br with medium cobble a Gravel is fine to coars Cobbles and boulders 300mm diameter).	<u> </u>	- - 8.0 —	8.28							
1.0 —						7.5 -		1.00	В	PM16	
1.5 1.80 -	Grey silty very sandy GRAVEL of limestone coarse. Cobbles are s	with high cobble cor	ntent. Sand is	fine to		7.0—	6.88				
2.0 —					246 × 246 ×	6.5 -					
2.5 -					Max	6.0 —		2.50	В	PM17	
3.00	Townsie -4:	Pit terminated at 3.00		Detail D	norte-		5.68	17			
	Termination: Scheduled depth.	Pit Wall Stability: Pit walls stable.	Groundwater Dry	Kate: Ken	narks:				Small Undis	listurbed disturbed sturbed CBR nmental	

	act No: 769		-	Trial Pit	t Log	J							Trial Pit	
Contr	act:	Hollybank			Easting:	7	17873	.490		Date:		05	/10/2020	
Locat	ion:	Swords, Co. Dublin			Northing:	7	48253	.099		Excava	itor:	JCB 3CX		
Client	t:	Cairn Homes PLC			Elevation:	: 5	5.99 L			Logged By:		P.	P. McGonagle	
Engin	ieer:	Waterman Moylan			Dimension (LxWxD)		3.00 x	0.60 x	3.00	Status:		FII	NAL	
	(mbgl)		Stratum Descripti	ion		Le	gend	Level (mOD					eld Tests	Water
Scale:	Depth	TOPSOIL.						Scale:	Depth	n: Dept	th T	ype	Result	Strike
0.5 —		Firm brown slightly sa cobble and low bould fine to coarse, suban boulders are angular diameter).	ler content. Sand is fi gular to subrounded	ine to coarse. ( of limestone. C	Gravel is Cobbles ar	<u>×</u> °0		5.5 —	5.69	1.00		В	PM13	
- 1.5 — - -	1.90	Stiff grey brown sligh medium cobble and I Gravel is fine to coars. Cobbles and boulder 300mm diameter).	ow boulder content. Se, subangular to sub se, subangular to sub s are angular to subr	Sand is fine to prounded of lime ounded of lime	coarse. nestone. estone (up	\$\frac{1}{2}.sQ\.sQ\.sQ\.sQ\.sQ\.sQ\.sQ\.sQ\.sQ\.sQ\		- 4.5 — - -	4.19	1.50	)	В	PM14	
2.0 —		Stiff black slightly sar cobble and low bould fine to coarse, suban boulders are angular diameter).	Gravel is Cobbles ar			4.0 — - - - 3.5 — - -		2.50	)	В	PM15			
	3.00	I+ · ··	Pit terminated at 3.00		D . I_	L	-A		2.99	1, .				
		Termination: Scheduled depth.	Pit Wall Stability: Pit walls stable.	Groundwater Dry	Rate: Re	emarks	S: 				= Bu = Sr = U	nall c ndist	sturbed listurbed urbed CBR mental	:

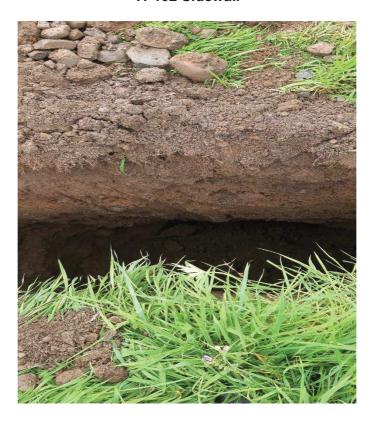
# **TP101 Sidewall**



TP101 Spoil



# **TP102 Sidewall**



TP102 Spoil



# **TP103 Sidewall**



TP103 Spoil



# **TP104 Sidewall**



TP104 Spoil



# **TP105 Sidewall**



TP105 Spoil



# **TP106 Sidewall**



TP106 Spoil



# **TP107 Sidewall**



TP107 Spoil



# **TP108 Sidewall**



TP108 Spoil



# Appendix 3 Dynamic Probe Logs

Contract No: 5769			Dyn	am	ic P	robe L	og			Probe N	
Contract:	Hollybank					Easting:	717531.5	98	Date Started:	09/10/2020	
Location:	Swords, Co. Du	ublin				Northing:	748355.3	36	Logged By:	G. Macken	
Client:	Cairn Homes P	LC				Elevation:	8.93		Scale:	1:25	
Engineer:	Waterman Moy	lan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		10	15	_		obe					Level (mOD)
1.5 - 2.0 - 2.5 - 3.0 -	5 2 3 3 3 3 3 4 4 5 4 3 3 3 3 6 6 6 7	8	13	15 15	18		25	30	35		8.5
3.5					16				35	i	
4.0											5.0 —
-											
- - 4.5 — -											4.5 -
=											
-											4.0 —
	Danth	Termination				Probe Details		Remarks:			
	Depth: 3.60m		leason: ion - boulders	S.	Type: DPH	Mass 50kg	Drop: 500mm	] <del>-</del>			

Contract No: 5769		Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717541.2	12	Date Started:	09/10/2020	
Location:	Swords, Co. Dubli	n		Northing:	748340.6	69	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.71		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40 45		obe	25	20	25		Level (mOD)
1	5	10 15		0	25	30	35		(11100)
1.0 — 2	3 3 3 3 3 3 4 7								8.5 - 8.0 - 7.5 -
2.0 — 2	3 5 6 6 7								6.5 -
3.5		9 9 11 13 15	16 19	20			35	i .	5.5 - - - - - - 5.0 -
4.5									4.5 — - - - - 4.0 —
		rmination:		Probe Details		Remarks			
<b>(§</b> )	Depth: 3.90m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	ļ <b>-</b>			

Contract No: 5769			Dyna	mic Pı	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717548.0	02	Date Started:	09/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748324.7	24	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	8.44		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	-1				obe	I				Level
(m)	5	10	15	2	0	25	30	35		(mOD
1.0	2 3 3 2 4 4 3 3 5 6 5 6 5 6 6	7 7 7 7 10								7.5 7.0 -
3.0		8 9	12	19						5.5
3.5						25		35		5.0 - 4.5
4.5 —										4.0 -
-										3.5
		Termination:			I Probe Detail	s:	Remarks:			
	Depth: 3.60m	Rea	ason: n - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	mic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717560.1	12	Date Started:	09/10/2020	
Location:	Swords, Co. Dublin			Northing:	748312.4	57	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.30		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		10 45		obe	0.5	20	25		Level (mOD
	5	10 15		20	25	30	35		(IIIOD
	3 3								
	2								8.0 —
0.5	3								
	3								7.5 -
1.0	3								
1.0	5								
	5								7.0 —
1.5	3								
	3 3								
	3								6.5 -
2.0	3								
	2								
	5								6.0 —
2.5	5								
	7								
		10							5.5 -
3.0	8								
	9	11							
		13							5.0 —
3.5		14					25		
							35	•	4.5 -
4.0									
4.0									
1									4.0 —
- 4.5 —									
-									
-									3.5 -
(A)	Termina Depth:	ation: Reason:	Type:	Probe Details Mass	s: Drop:	Remarks:			
		ruction - boulders.	DPH	50kg	500mm	1			

Contract No: 5769		Dyr	namic F	Probe L	.og			Probe N	
Contract:	Hollybank			Easting:	717568.5	68	Date Started:	08/10/2020	
Location:	Swords, Co. D	Dublin		Northing:	748326.1	23	Logged By:	G. Macken	
Client:	Cairn Homes	PLC		Elevation:	8.22		Scale:	1:25	
Engineer:	Waterman Mo	pylan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				Probe				1	Level
(m)	2	10	15	20	25	30	35		(mOD)
	2								8.0 —
0.5	5	10							-
		7 13							7.5 -
1.0	4 3 3								- -
4.5	3 3								7.0 —
1.5	4 4 5	7							6.5 -
2.0		12 13 14 9							- - 6.0 —
2.5		9 11 9 11							5.5 —
3.0		9 11 9 8							5.0
3.5		10	18						-
						28	35		4.5 -
4.0									4.0 —
4.5									-
									3.5 -
	I	Termination:		Probe Detail	S:	Remarks:			
	Depth: 3.90m	Reason: Obstruction - boulde	Type:	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynar	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717580.0	59	Date Started:	09/10/2020	
Location:	Swords, Co. Dublin			Northing:	748332.5	28	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	7.93		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		40		obe	0.5	00	05	1	Level (mOD)
(m)  1  2  2  1.0  2.0  2.5  3.0	5 3 3 3 4 4 4 2 2 2 3 3 3 7 7	10 15 13 13 12 12 14 14 14 13			25	30	35		7.5
3.5		13	19	23		28			4.5
4.0							35		4.0 -
4.5									3.5 -
		nation:		Probe Details		Remarks			
	Depth: 3.80m Obs	Reason: struction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	nan	nic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717590.2	63	Date Started:	09/10/2020	
Location:	Swords, Co. Du	ıblin			Northing:	748339.9	46	Logged By:	G. Macken	
Client:	Cairn Homes Pl	LC			Elevation:	7.98		Scale:	1:25	
Engineer:	Waterman Moyl	lan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Level
(m)	5	10	15		20	25	30	35		(mOD)
1.5	3 3 2 2 2 2 3 3 4 4 4 4 5 5 4 4 5 7 6 5 7 6 5 7									7.5 - 7.0 - 6.5 -
2.5	7	11	15 4	18						5.5 -
3.5 -			16	8				35		4.5 -
4.5 -										3.5 -
		Termination:			Probe Details		Remarks:			
(\$)	Depth: 3.40m	Reason: Obstruction - bould	ers.	Type: DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769		Dyna	amic P	robe L	.og		Probe No: <b>DP008</b>
Contract:	Hollybank			Easting:	717603.5	27 Date Started	d: 09/10/2020
Location:	Swords, Co. D	Dublin		Northing:	748347.8	95 Logged By:	G. Macken
Client:	Cairn Homes	PLC		Elevation:	7.91	Scale:	1:25
Engineer:	Waterman Mo	ylan		Rig Type:	Competito	or 130 Sheet No:	Sheet 1 of 1
Depth				robe		<b>-</b>	Leve
(m)  1.0  1.5  2.0  2.5  1.1	5 3 2 4 3 3 3 2 2 5 5 4 4 6	10 15  8 12 11 12 12 12 13 13 10 10 13		20	25	30 3	7.5 7.0 6.5 6.0
3.5		12 14 11 9	5 18	22	24		4.5
4.0							3.5
_							3.0
		Termination:		Probe Detail		Remarks:	
	Depth: 3.90m	Reason: Obstruction - boulders	Type: . DPH	Mass 50kg	Drop: 500mm	-	

Contract No: 5769		Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717611.08	35	Date Started:	09/10/2020	
Location:	Swords, Co. Dublin			Northing:	748380.9	92	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	6.56		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe					Level
(m)	5	10 15		20	25	30	35		(mOD 6.5 -
0.5	2 3 3 3 3 2								6.0 —
1.0	5 4 3 3								5.5 -
1.5	3	15							5.0 —
2.0	4 5 5 5	11							4.5 -
2.5	9	10 10 11 12							4.0
3.0	7 7 9	12							3.5 -
3.5		14	16 18				35	;	3.0 -
4.0									2.5 -
4.5 -									2.0 -
-									
15	Termin			Probe Details		Remarks:			
$(\S)$	Depth: 3.70m Obst	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	am	ic P	robe L	og			Probe N	
Contract:	Hollybank					Easting:	717629.7	21	Date Started:	09/10/2020	
Location:	Swords, Co. D	ublin				Northing:	748375.1	99	Logged By:	G. Macken	
Client:	Cairn Homes I	PLC				Elevation:	6.48		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	_					obe				1	Level
(m)  1  1  1.0  1.5  2.0  3.0	3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3 3 8	0 11 11 10	5			25	30	35		(mOD) 6.0 - 5.5 - 5.0 - 74 4.0 -
3.5		9	13	16 16 15	18	23		_	35	5	3.0 -
4.0											2.0 -
		Termina				Probe Details		Remarks			
<b>(§</b> )	Depth: 3.80m	Obstri	Reason: uction - boulders	5.	Type: DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769		Dyna	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717628.2	43	Date Started:	09/10/2020	
Location:	Swords, Co. Dub	blin		Northing:	748358.4	76	Logged By:	G. Macken	
Client:	Cairn Homes PL	.C		Elevation:	6.96		Scale:	1:25	
Engineer:	Waterman Moyla	an		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40 45		obe	25	20	25	1	Level (mOD
1.0 - 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 2 3 3 3 2 2 2 2 3 3 4 4 4 4 5 5 5 6 7	10 15		20	25	30	35		6.5 - 6.0 - 6
3.5	7	10 14	16 17						3.5
4.0				21			35		3.0 -
4.5 —									2.5 -
(In)	Depth:	Termination: Reason:	Type:	Probe Details Mass	S: Drop:	Remarks:			·
(1)	3.90m	Obstruction - boulders.		50kg	500mm	_			

Contract No: 5769		Dyna	mic P	robe L	.og		Probe No: <b>DP012</b>
Contract:	Hollybank			Easting:	717629.2	34 Date Started	: 08/10/2020
Location:	Swords, Co.	Dublin		Northing:	748348.8	75 Logged By:	G. Macken
Client:	Cairn Homes	PLC		Elevation:	7.53	Scale:	1:25
Engineer:	Waterman Mo	oylan		Rig Type:	Competito	or 130 Sheet No:	Sheet 1 of 1
Depth	1			obe			Leve
(m)	5	10 15	2	20	25	30 35	(mOl
0.5 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 3 3 3 4 4 4 6 6 5 6 6 5	8 8 11 13					6.5
3.0	5	7 7 11 12 13					4.5
3.5		11 12 14	17 17				4.0
4.0							3.5
4.5							3.0
-							
		Termination:		Probe Detail	s:	Remarks:	
	Depth: 3.90m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-	

Contract No: 5769			Dyna	am	ic P	robe L	.og			Probe <b>DP0</b>	
Contract:	Hollybank					Easting:	717563.5	55	Date Started:	08/10/2020	
Location:	Swords, Co.	Dublin				Northing:	748281.4	25	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	9.01		Scale:	1:25	
Engineer:	Waterman M	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe				I	Leve
(m)	5	10	15	5		20	25	30	35		(mOE
	2										
	2										
0.5	3										8.5
	2										
	4 4										
1.0	3										8.0 -
	5										
			13	16							
1.5		11	12								7.5
		7									
	4	8									
2.0		7									7.0
	p p	10	0								
			12								
2.5			14								6.5
			14								
				16	18						
3.0					1.0	20					6.0
		-	13	16							
				15 15							
3.5						23					5.5
									35	5	3.5
1											
4.0											5.0
-											5.0
1											
4.5 —											
-											4.5
-											
-											
	<u> </u>	Terminati				Probe Detail		Remarks	S:		
	Depth:		Reason:		Type:	Mass	Drop:	-			_
	3.60m	Opstru	ction - boulders		DPH	50kg	500mm				

Contract No: 5769			Dyna	amic	Probe	Log			Probe N	
Contract:	Hollybank				Easting:	717587.1	106	Date Started:	09/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748267.5	596	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.05		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competit	or 130	Sheet No:	Sheet 1 of 1	
Depth					Probe					Leve
(m)	5	1	0 15		20	25	30	35		9.0
	2									
	2 2									
0.5	2									8.5
1										0.0
	2									
1.0	2 4									8.0
	<b>5</b>									0.0
			14	16						
1.5		9	12	_						7.5
		9								7.5
	5	7								
2.0	4	7								7.0
	6	<u>'</u>								7.0
		7 9								
2.5		9								6.5
		9	13							0.5
			12 12							
3.0			12 12							6.0
			12	18	3					6.0
						26		35	i	
3.5										
_										5.5
_										
4.0										
_										5.0
]										
4.5 —										
+										4.5
]										
	D	Termina		-	Probe Deta		Remarks	:		
$(\P)$	Depth: 3.40m	Obstr	Reason: uction - boulders	Typ . DF		Drop: 500mm	-			
			5510		559					

Contract No: 5769		Dyn	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717583.2	22	Date Started:	09/10/2020	
Location:	Swords, Co. Dubl	lin		Northing:	748287.8	00	Logged By:	G. Macken	
Client:	Cairn Homes PLO			Elevation:	8.64		Scale:	1:25	
Engineer:	Waterman Moylar	n		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		10		robe	05			1	Level (mOD
(m)	5	10 15	<u> </u>	20	25	30	35		(IIIOD
0.5 - 2	3 3 2 2 2 3 4 2 2								8.5 -
1.5	4 3 4 6								7.5 -
2.0 —	5 5 5 4 4	8 8							6.5 -
3.0		10 12 14 13	16						6.0 —
			18	20					5.5 -
			18		25				-
3.5					26		35		5.0 —
4.0									4.5 -
- - - -									4.0 —
13	Depth:	ermination: Reason:	Type:	Probe Details Mass	s: Drop:	Remarks:			
	3.60m	Obstruction - boulders		50kg	500mm				

Contract No: 5769		Dyna	amic P	robe L	og			Probe N DP01	
Contract:	Hollybank			Easting:	717591.1	37	Date Started:	09/10/2020	
Location:	Swords, Co. Dublin			Northing:	748291.5	65	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.50		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	I			obe	1				Level
(m)	5	15		20	25	30	35		(mOD
2 2 2 2 2 2 2 2 2									8.0
2 2	3 3								0.0
1.0	4								7.5 -
	3								
1.5	5								7.0 —
	4								
	3								
2.0	4								6.5 -
	7								
2.5	9	13							6.0 —
	8	10							
3.0		14	5						5.5 -
3.0		14	16						5.5
			18	21					
3.5				23		29			5.0 —
							35	i	
4.0									4.5 -
-									
- 4.5 —									4.0 —
-									
-									
	Termina			Probe Details		Remarks	:		
	Depth: 3.70m Obstr	Reason: ruction - boulders	Type: DPH	Mass 50kg	Drop: 500mm	]- 			

Contract No: 5769			Dyn	am	nic P	robe L	.og			Probe N DP01	
Contract:	Hollybank					Easting:	717602.6	02	Date Started:	09/10/2020	
Location:	Swords, Co. D	Oublin				Northing:	748293.8	39	Logged By:	G. Macken	
Client:	Cairn Homes I	PLC				Elevation:	8.83		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		-		obe	05	00	05		Level (mOD)
1	5	10	1:	5		20	25	30	35		(IIIOD)
0.5	3 3 3 3 4 4 4 2										8.5 - 8.0 -
1.5	3 3 2 4 3 2 2 2										7.5 - - - - - - 7.0 -
2.5	5		0 11 14 0 12								6.5 -
3.0		9 9	0 11	15							6.0 -
3.5					17				35	5	5.5 -
4.0											4.5 -
4.5 — - - - -											4.0 -
	Donth	Terminat				Probe Details		Remarks:			
$(\S)$	Depth: 3.60m	Obstru	Reason: ction - boulders	S.	Type: DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769		Dyna	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717608.3	94	Date Started:	08/10/2020	
Location:	Swords, Co. Du	ublin		Northing:	748311.9	13	Logged By:	G. Macken	
Client:	Cairn Homes P	LC		Elevation:	9.08		Scale:	1:25	
Engineer:	Waterman Moy	lan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40.		obe	25	20	25		Level (mOD)
0	5	10 15		0	25	30	35		9.0 —
2	3								
	2								
0.5	2								8.5 -
2	2								
	3								
1.0									8.0 —
1									
2	2								
1.5	2								7.5 -
	4								
2.0	7								
-	7	12							7.0 —
		12							-
2.5		8							-
	/	10							6.5 -
		9 12							
3.0	7	10							
		12							6.0 —
		14					35	i	
3.5 —									5.5 -
-									
-									
4.0									5.0 —
-									
-									
4.5 — -									4.5 -
_									
-									-
		Termination:		Probe Details		Remarks:			
	Depth: 3.40m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			
	0.10.11	222.23ddi Dodidold.	2,11	351.9	550				

Contract No: 5769			Dyn	amic	Probe L	.og			Probe f	
Contract:	Hollybank				Easting:	717624.1	48	Date Started:	08/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748314.0	52	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.17		Scale:	1:25	
Engineer:	Waterman M	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	-1				Probe				1	Leve
(m)	5	10	15	5	20	25	30	35		(mOD
0.5	2 4 3 2 2 2 3 3 3 4 4 4 4									9.0 - 8.5
1.5	4 2 2 3 4 5									7.5
2.0		8 8 9	0 14							7.0 -
3.0		9	12 13	15						6.5
3.5			11 13	18				35		6.0 -
4.0										5.5
4.0										5.0 -
+.0 — - - -										4.5
		Terminati			Probe Detai		Remarks	:		
	Depth: 3.50m		Reason: ction - boulders	Type . DPF		Drop: 500mm	-			

Contract No: 5769			Dyn	amic I	Probe L	.og			Probe <b>DP0</b> 2	
Contract:	Hollybank				Easting:	717587.4	20	Date Started:	08/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748252.3	54	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.31		Scale:	1:25	
Engineer:	Waterman M	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				Probe				1	Level
(m)	5	1	0 15	1	20	25	30	35		(mOD
	2									
	2									9.0 -
0.5	2									
	2									
	3									8.5
1.0	3									
	3									
	4									8.0 -
1.5	6									
		8								
		9								7.5
2.0	6									
		8	12							
			12							7.0 -
2.5			14							
			11 12							
				16 18						6.5
3.0				18	23					
0.0					21	26				
								35	5	6.0 -
- 3.5 —										
-										
-										5.5
-										
4.0										
										5.0 -
4.5										0.0
4.5 <del>-</del> -										
_										4.5
-										4.5
$\overline{}$		Termina	ition:		Probe Detail	s:	Remarks	s:		
	Depth:		Reason:	Туре	: Mass	Drop:	-			
	3.30m	Obstr	uction - boulders	. DPH	50kg	500mm				

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717595.0	69	Date Started:	09/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748253.3	67	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.24		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe					Leve
(m)	5	10	15	2	20	25	30	35		(mOD
1	2									9.0 -
0.5	5		13							
1.0	4 3	7								8.5
1.0	3 4									8.0 -
1.5	4 4	7								
			12 14 13							7.5
2.0		9	14							7.0 -
2.5		1	11							
		9	11							6.5
3.0		1	0							6.0 -
3.5		9	12	19						6.0
				ļī.			28	35	i	5.5
4.0										
- - -										5.0 -
4.5 —										4.5
-										
		Terminat			Probe Detail		Remarks	::		
	Depth: 3.80m		Reason: action - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717611.72	26	Date Started:	09/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748263.5	40	Logged By:	G. Macken	
Client:	Cairn Homes I	PLC			Elevation:	9.30		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Level
(m)	5	10	15 4		20	25	30	35		(mOD)
1	2									9.0 —
0.5	:									-
	2									-
2	3 3									8.5 -
1.0	4	7								-
		7 10								8.0 —
1.5		10 10								-
			4							
				17						7.5 -
2.0			16							-
		10		19						7.0 —
2.5		12								-
					22 23					-
					20		28			6.5 -
3.0						24		31		
								35	5	-
-										6.0 —
3.5 —										-
_										5.5 -
4.0										
-										-
-										5.0 —
4.5										-
-										-
-										4.5 -
		Termination:			Probe Details	:	Remarks	<u> </u>		<u> </u>
	Depth: 3.20m	Reason: Obstruction - bould	ers	Type: DPH	Mass 50kg	Drop: 500mm	-			
	3.2011	Obstruction - bould	UI3.	טרח	JUNG	JUUIIIII				

Contract No: 5769		Dyı	namic	Pr	obe L	og			Probe N	
Contract:	Hollybank			E	Easting:	717619.1	73	Date Started:	08/10/2020	
Location:	Swords, Co. D	Dublin		1	Northing:	748267.6	76	Logged By:	G. Macken	
Client:	Cairn Homes I	PLC		E	Elevation:	9.31		Scale:	1:25	
Engineer:	Waterman Mo	ylan		F	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)				Pro					1	Level (mOD)
1.0	5 2 3 3 2 3 4 4 4 5 5	7 9 12 11 13	15	20		25	30	35		9.0 —  9.0 —  8.5 —  8.0 —  7.5 —
2.5		12	17 16 17	18	22 23 20	24				7.0 —
3.0						24		35		6.0 —
4.0										5.0 —
		Termination:			Probe Details		Remarks			4.5 -
	Depth: 3.10m	Reason: Obstruction - boulde		ype: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717632.4	45	Date Started:	08/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748275.4	24	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.29		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe			1	I	Leve
(m)	5	10	15		20	25	30	35		(mOD
	3									9.0 -
0.5	3									3.0
0.5	3									
	2									8.5
1.0	3		12							-
		10	15							
		11								8.0 -
1.5		10								96
	5	8								7.5
2.0	5	8								
2.0	5	8								
	5	11								7.0 -
2.5	6									
		7								
	6									6.5
3.0		10								
		9 11								6.0 -
0.5		10 11								0.0
3.5			15 14							
				19	23					5.5
4.0					20			35	5	_
=										
										5.0 -
4.5										
-										4.5
=										4.5
$\overline{}$		Termination:		L	Probe Details	s:	Remarks:	:		
	Depth:	Reas		Type:	Mass	Drop:	-			
	4.00m	Obstruction	- poulders.	DPH	50kg	500mm				

Contract No: 5769			Dyna	amic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717643.9	85 Dat	e Started:	08/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748285.4	11 Log	ged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.28	Sca	ale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130 She	eet No:	Sheet 1 of 1	
Depth					robe		I		ı	Leve
(m)	5	10	15		20	25	30	35		(mOD
0.5	2									9.0
1.5	3 3 2 2 3 3 3 2 3 3 3 3 3 3 3 3 3 3 3 3									7.5
2.5		9	13	17	21					7.0
3.0			11 11 13 12	5						6.5
3.5		9	14 1 13	17						6.0 -
4.0			14		21	24				5.5
4.5 -								35	i	5.0 -
	Depth: 4.20m		on: Reason: ction - boulders	Type: DPH	Probe Detail Mass 50kg	S: Drop: 500mm	Remarks: -			

Contract No: 5769		Dyna	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717655.7	75	Date Started:	08/10/2020	
Location:	Swords, Co. Dublin			Northing:	748332.8	78	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	7.68		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		10 45		robe	25	20	25		Level (mOD)
1	5	10 15		20	25	30	35		(IIIOD
1.5 -	3 3 3 4 4 5 5 6 8 8 8								7.5 - 7.0 - 6.5 -
2.5 -		10 12 9 11 11 13 13 14 14	16 5						5.0 –
3.5 -		14	17	21	26	_	35	;	4.5 -
4.5 -									3.5 -
		mination:		Probe Details		Remarks			
	Depth: 3.70m C	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyn	amic P	robe L	og			Probe N DP02	
Contract:	Hollybank			Easting:	717660.7	42	Date Started:	08/10/2020	
Location:	Swords, Co. Dublin			Northing:	748323.3	52	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.12		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	_			robe					Level
(m)	5 3 3 3 3 3 4 4 4 4 5 5 5 5 6 7 6 6 8	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5	20	25	30	35		7.5 - 7.0 - 6.5 - 5.5 -
3.0		14	15	23					5.0 –
			19			28			4.5 -
							35	i	
4.0									
-									4.0 —
4.5									
1									3.5 -
_									
(A)	Termin Depth:	ation: Reason:	Туре:	Probe Details Mass	S: Drop:	Remarks:			
		ruction - boulders		50kg	500mm				

Contract No: 5769		D	ynar	nic Pı	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717667.8	37	Date Started:	08/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748310.3	81	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	8.77		Scale:	1:25	
Engineer:	Waterman M	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	-1				obe	I		1	-1	Leve
(m)	5	10	15	2	0	25	30	35		(mOE
0.5	2 2 3 2 4 3 3 2 2									8.5
1.5	5	7 8 10								7.5
2.0		9 8 8 111	14	17						7.0
2.5		9 13	14	17						6.5
3.0		11 11 10 12	14	6						5.5
4.0								35		5.0
4.5										4.5
- - -										4.0
(As)	Depth:	Termination:  Reason:		Type:	Probe Detail Mass	s: Drop:	Remarks:	:		
$(\S)$	3.60m	Obstruction - bou	lders.	DPH	50kg	500mm	-			

Contract No: 5769		D	ynar	nic Pı	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717607.8	87	Date Started:	06/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748184.9	15	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	10.63	;	Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1			Pro	obe					Level
(m)	5	10	15	2	0	25	30	35		(mOD
1.0	2 2 2 2 2 2 3 3 3 3 2 2 3 4 4 4 4	7								10.5
2.0	2 2 3 3 2 2 2 2 3									9.0 -
2.5	6	7 8 8 11 10								8.0
3.5		10 10 12	14	19	20			35	i	7.5
4.0										6.5
										<u> </u>
	· ·	Termination:			Probe Detail		Remarks:			
	Depth: 3.80m	Reason: Obstruction - bou	lders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	nar	nic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717601.3	56	Date Started:	06/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748197.4	70	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	10.30		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Level
(m)	5	10	15	2	0	25	30	35		(mOD
0.5	2 3 3 3 3 3 3 3 4 3 3 4 3 3 2 2									10.0 ·
1.5	4 4 4 4 5 5 6 5 6	8								9.0 -
2.5		9 10 11 9 7 7								8.0 -
3.0		9 12 8 11 9 12								7.5
3.5		13		19		24		35	·	7.0 -
4.0										6.0 -
4.5										5.5
	D4	Termination:			Probe Detail		Remarks	3:		
(\$)	Depth: 3.60m	Reason: Obstruction - bould	lers.	Type: DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769		Dyna	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717620.5	92	Date Started:	06/10/2020	
Location:	Swords, Co. Dublin			Northing:	748207.9	62	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.83		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	_			obe				1	Level (mOD
(m) 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 7 7 6 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	10 15		20	25	30	35		9.5 - 9.0 - 8.5 - 7.5 -
3.0	6	12	19 19		pe pe				7.0 - - 6.5 ·
					26		35	i	
4.0									6.0 —
_									
]									5.5
4.5									
_									
									5.0 -
(A)	Termir Depth:	nation: Reason:	Type:	Probe Details Mass	s: Drop:	Remarks:			
(\$\)		truction - boulders.		50kg	500mm	-			

Contract No: 5769			Dynar	nic Pı	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717633.3	67	Date Started:	06/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748211.64	47	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.79		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40	45		obe	05	00	05	•	Level (mOD)
1	5	10	15	2	0	25	30	35		(IIIOD
0.5	3 3									9.5 -
2	3									9.0 —
1.0	6									
2	3									8.5 -
1.5	3									-
2	3									8.0 —
2.0 2										
	5	7								7.5 -
2.5		8 8								
		9 7								7.0 —
3.0		9								
		9 8								6.5 -
3.5		9 9	2							
		7		19						6.0 —
4.0								35	i	-
-										-
-										5.5 -
4.5 —										-
										5.0 —
		Termination:			Probe Details	3:	Remarks:			-
	Depth: 3.90m	Reason Obstruction -		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank			Easting:	717647.4	98	Date Started:	07/10/2020	
Location:	Swords, Co. [	Dublin		Northing:	748214.0	32	Logged By:	G. Macken	
Client:	Cairn Homes	PLC		Elevation:	9.65		Scale:	1:25	
Engineer:	Waterman Mo	pylan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1			obe				1	Level
(m)	5	10 15	2	20	25	30	35		(mOD
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4								9.5
1.0	5	7 8 7							8.5 -
2.0	6 5 6 5								8.0 -
2.5	5 4 4 5	13							7.5
3.0	5 5 6	7							6.5
	5	10							
3.5				20		29	35	i	6.0 -
4.0									
									5.5 -
4.5 — — — — — — — —									5.0 -
		Termination:		Probe Detail	ls:	Remarks	::		
	Depth: 3.70m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynar	nic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717657.1	72	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748217.3	11	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.66		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		40.		obe	05	00	05		Level (mOD)
(m)	5	10 15	2	20	25	30	35		(IIIOD)
0.5 - 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 3 3 2 2 2 2 2								9.5
1.5	5 5 5 5								8.5 - - - - - 8.0 -
2.0	5 7 4 4 4 3 3 2 2								7.5 -
2.5 - 2	3 4 4 7								7.0 -
3.0	5 5 5 5 6								6.5 -
4.0	7	1	6			28	35	5	6.0 —
- - - - 4.5 —									5.5 -
-  - - -									5.0 —
	Termina			Probe Details		Remarks			
$(\S)$	Depth: 3.90m Obst	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	ļ- 			

Contract No: 5769		Dynar	nic Pı	robe L	og			Probe N DP03	
Contract:	Hollybank			Easting:	717671.90	00	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748222.89	99	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.56		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	_			obe				1	Level
1.0 — 2.0 — 2.5 — 3.0 — 3.0	5 2 3 3 3 3 4 4 4 5 6 5 7 5 4 4 4 7 4 6 5 6 5	10 15	2	0	25	30	35		(mOD 9.5 - 9.0 - 8.5 - 7.5 -
3.0	7	þ							6.5 -
3.5		10	6 18				35		6.0 —
4.0									5.5 -
	Torm	nination:		Probe Details	,.	Domarks			
	Depth:	Reason: ostruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	Remarks: -			

Contract No: 5769			Dyn	amic l	Probe L	.og			Probe N	
Contract:	Hollybank				Easting:	717674.2	36	Date Started:	07/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748205.1	65	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.61		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	_				Probe				1	Level
(m)	5	10	15		20	25	30	35		(mOD
1.0	3 6	9 9 9	10							9.5 · · · · · · · · · · · · · · · · · · ·
3.0			12	40						_
				18 17						6.5
				18		25				
3.5					19 20					
								35	5	6.0 -
-										,
4.0										5.5
-										0.0
]										
4.5 —										5.0 -
_										
-										
		Termina			Probe Details		Remarks:			
	Depth: 3.70m	Obstru	Reason: uction - boulders	Type 5. DPH	: Mass	Drop: 500mm	-			

Contract No: 5769		Dynar	nic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717623.6	08	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748169.1	60	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	10.66		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		40.		obe	05	202	05		Level (mOD
(m)		10 15	2	0	25	30	35		(IIIOD
0.5	3 2 2 2 2 2 4 4 4 4 4 6 6 4 1 6 6								10.5
1.5	5 5 5 7								9.5 - 9.0 -
2.0	5 3 3 4 4								8.5 -
3.0	5 7 7 5 5 5								8.0 -
3.5	5 6 6	12		21					7.5
4.0			18	20	25		35		7.0 -
4.5 —									6.5 -
- - - -									6.0 -
	Termina			Probe Details		Remarks:			
	Depth: 4.10m Obst	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717637.4	22	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748171.2	38	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	10.31		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40. 45.		obe		00	05		Level (mOD)
1.0 - 2 2 2 2 2 2 2 2 2 2 2 5 - 2 2 5 - 2 2 2 2	5 3 3 3 3 4 4 4 5 4 4 5 4 4 5 4 5 6 5 6 6	11		20	25	30	35		9.5 -
3.0		13 15	17	21					7.5 -
3.5		11					35	5	6.5 -
4.0									6.0 –
-									5.5
	Termin	ation:		Probe Details	S:	Remarks			
	Depth:	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	/nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717655.4	66	Date Started:	07/10/2020	
Location:	Swords, Co. D	ublin			Northing:	748175.2	78	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC			Elevation:	10.04		Scale:	1:25	
Engineer:	Waterman Moy	/lan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe				1	Level (mOD
(m)	5	10	15		20	25	30	35		10.0 —
	3 3 2									
0.5	2									9.5 -
0										
1.0	4 4									9.0 —
1.5	3 4 4									
1.5	6 6 5									8.5 -
2.0	2 3									8.0 —
	7	7 8								
2.5		3 13								7.5 -
		13	14	18						
3.0							28			7.0 —
								31		
- 3.5 —										
-										6.5 -
1										
4.0										
+										6.0 —
]										
- 4.5 —										
-										5.5 -
_										
-										
	<u> </u>	Termination:			Probe Details	3:	Remarks	<u> </u>		
	Depth:	Reason:		Type:	Mass	Drop:	-	•		
	3.30m	Obstruction - boul	ders.	DPH	50kg	500mm				

Contract No: 5769		Dyr	ami	c Pr	obe L	og			Probe N	
Contract:	Hollybank			E	Easting:	717665.4	10	Date Started:	07/10/2020	
Location:	Swords, Co. Di	ublin		1	Northing:	748176.9	93	Logged By:	G. Macken	
Client:	Cairn Homes P	PLC		E	Elevation:	9.94		Scale:	1:25	
Engineer:	Waterman Moy	·lan		F	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)					obe					Level (mOD)
	5	10	15	20	Ÿ	25	30	35		9.5 —
0.5	4									9.0 —
1.5	5									8.5 —
2.0	3 3 5 5	,								8.0 — - - -
2.5	5 4	8 8								7.5 -
3.0		12 14 14	15							7.0 —
3.5		13 14	15					35	;	6.5 -
4.0										6.0
4.5 —										5.5
		T			David Diri		<u> </u>			5.0 —
	Depth: 3.80m	Termination:  Reason:  Obstruction - boulder		Type: DPH	Probe Details Mass 50kg	Drop: 500mm	Remarks: -			

Contract No: 5769		Dyna	amic P	robe L	.og		Probe N DP04	
Contract:	Hollybank			Easting:	717678.472	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748181.942	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.63	Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1	
Depth (m)				robe				Level (mOD
	5 1	15	)	20	25 30	35		-
	3 2							9.5 -
	2							-
0.5								9.0 —
1								-
1.0	3							-
1.0	4							8.5 -
	4							-
1.5	5							-
	6							8.0 —
1	3							-
2.0	2							-
	6							7.5 -
	9	11						-
2.5		11 12						-
		14	5					7.0 —
			18 18					-
3.0			10	21	25			6.5 -
					25	35	5	-
3.5 —								
3.5								6.0 —
-								-
4.0								-
_								5.5 -
-								
4.5								-
								5.0 —
_								
	Termina	ation:		Probe Detail	s: Remark	Ve:		-
(I)	Depth:	Reason:	Type:	Mass	Drop: -	<b>\5.</b>		
	3.30m Obstr	ruction - boulders	. DPH	50kg	500mm			

Contract No: 5769		Dynar	nic P	robe L	og			Probe N DP04	
Contract:	Hollybank			Easting:	717693.8	30	Date Started:	07/10/2020	
Location:	Swords, Co. Dubli	n		Northing:	748222.3	44	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.35		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)				obe					Level (mOD
1	5	10 15		0	25	30	35		(IIIOD
2	2								
2	?								9.0 —
0.5	2								
1	5								
1.0	2								8.5 -
1.0	3								
		12							8.0 —
1.5		15							0.0
			18 6						
		13							7.5 -
2.0	4								.
	3								
	4								7.0 —
2.5	4								
	6	11							-
				23		29			6.5 -
3.0							35	i	
-									
- 3.5 —									6.0 —
-									-
-									5.5 -
4.0									
-									
									5.0 —
4.5									-
-									-
-									4.5 -
	Te	rmination:		Probe Details	:	Remarks			
	Depth:	Reason:	Type:	Mass	Drop:	-			
	3.10m	Obstruction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dynar	nic Pı	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717706.9	74	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin	n		Northing:	748222.2	84	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.21		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		40		obe	05	00	05		Level (mOD)
(m)	5	10 15	2	0	25	30	35		(IIIOD)
1.5	3 4 4 4 4 5 5 5 5	10							9.0 - 8.5 - 8.0 -
2.5		9 13 10 11 13 14 14 14	<b>1</b> 7 19			28			7.0 -
3.0							35	i	
-									6.0 —
- 3.5 — -									-
-									5.5 -
4.0									-
-									-
-									5.0 —
4.5 —									-
-									4.5 -
-									-
	Tot	rmination:		Probe Details	<u> </u>	Remarks:			
(In	Depth:	Reason:	Type:	Mass	Drop:	-			
	3.10m	Obstruction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dynar	nic Pı	obe L	og			Probe N	
Contract:	Hollybank			Easting:	717721.2	94	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748217.9	27	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.07		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	40		obe	25	20	25		Level
(m)  1  0.5	5 3 3 3 2 2 2 3 4 7 7 7 5 6	10 15 15 13 12 16	6	20	25	30	35		(mOD 9.0 – 8.5 – 8.0 – 7.5 – 7.0 –
3.0									6.0 -
3.5									5.5 -
									5.0 -
-									4.5
(As)	Termin Depth:	ation: Reason:	Type:	Probe Details Mass	Drop:	Remarks:			
		truction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717738.1	74	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748214.0	72	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.81		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		10		obe	05	00	05		Level (mOD
(111)	5	15		20	25	30	35		(IIIOD)
0.5									8.5 -
1.0	3								8.0 —
1.5	5 5 7								7.5 - -
2.0	5 8 7	10							7.0 —
	3 5								6.5 -
2.5		11 10 10 10							6.0 —
3.0		13		21					
		13	16	ŕ	24				5.5 -
3.5			17		25				-
4.0							35	5	5.0 —
-									4.5 -
4.5 — — — — — — — — — — — — — — — — — — —									4.0 —
									<u> </u>
(As)	Termina Depth:	ation: Reason:	Type:	Probe Details Mass	: Drop:	Remarks:			
<b>(§</b> )		ruction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dynai	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717738.2	49	Date Started:	07/10/2020	
Location:	Swords, Co. Dublin			Northing:	748204.8	09	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.81		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe	ı				Level
(m)	5	10 15		20	25	30	35		(mOD)
0.5 - 1	6								8.5 - 8.5 - 8.0 -
1.0	3 2 2 2								7.5 - - - - - - - -
2.0 —		13	16 17 18	22	25				6.5 -
3.0			18	23 22 21 20 21					6.0 —
3.5 -							35	i I	5.5 - - - - - 5.0 -
4.0									4.5 - -
	Termin	nation:		Probe Details	:	Remarks:			4.0 —
	Depth:	Reason: struction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	am	ic P	robe L	og			Probe N	
Contract:	Hollybank					Easting:	717729.4	64	Date Started:	07/10/2020	
Location:	Swords, Co. D	ublin				Northing:	748189.5	21	Logged By:	G. Macken	
Client:	Cairn Homes I	PLC				Elevation:	8.75		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe				1	Level (mOD)
(m)	5	1	0 1	5		20	25	30	35		(IIIOD)
0.5 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0	2										8.5 - 8.0 -
1.0											
1.5	2 5										7.5 - - -
2.0	5	8	10								7.0 —
2.5 —	4 2 3 3	ľ									6.5 -
	5 6	9	10								6.0 —
3.0			10		18	20					5.5 -
3.5			14	16 16							-
4.0							25		35	5	5.0 —
-											4.5 -
4.5 — - - - -											4.0 -
		Termina				Probe Details		Remarks	:		
(\$)	Depth: 3.90m	Obstro	Reason: uction - boulders	S.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717715.3	46	Date Started:	07/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748185.5	53	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.02		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe				1	Level
(m)  1  2  2  1.0  1  1  1  1  1  2  2  2  2  2  2  2  2		7	15		20	25	30	35		(mOD)
3.0				18	22 22 22	24	28			6.0 —
3.5					20		28	35		5.5 -
4.5 —										5.0 — - - - 4.5 — - -
	<u> </u>	Termination:			Probe Details	<u> </u>	Remarks			
	Depth: 3.70m	Reason: Obstruction - boulde	ers.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyı	nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717698.8	41	Date Started:	07/10/2020	
Location:	Swords, Co. Du	ublin			Northing:	748184.0	16	Logged By:	G. Macken	
Client:	Cairn Homes P	PLC			Elevation:	9.19		Scale:	1:25	
Engineer:	Waterman Moy	rlan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	40	45		obe	0.5	20	25		Level (mOD)
1	5	10	15		20	25	30	35		(IIIOD)
0.5 - 2	3 3 3 3 2 2 2 3 4 4 4 4 4									9.0 -
1.5										8.0 — - - - 7.5 —
2.0 1		12 11 11								7.0 —
			16	3				35	5	6.5 -
3.0										6.0 —
3.5										5.5 - - -
4.5 —										5.0 — - -
-		Termination:			Proho Detail		Dameste			4.5 -
	Depth: 2.90m	Reason: Obstruction - boulde	ers.	Type: DPH	Probe Details Mass 50kg	Drop: 500mm	Remarks: -			

Contract No: 5769			Dyn	an	nic P	robe L	.og			Probe I	
Contract:	Hollybank					Easting:	717695.4	07	Date Started:	07/10/2020	
Location:	Swords, Co.	Dublin				Northing:	748201.3	90	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	9.36		Scale:	1:25	
Engineer:	Waterman M	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1					obe				I	Leve
(m)	5	1	0 1	5	2	20	25	30	35		(mOD
0.5 -0	2										9.0
1.0	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2										8.0 -
2.0	2 4		10								7.5
2.5		9 7 7 9	14	15							7.0
3.0	3 3 4 4	9									6.0
4.0				16	18				35	5	5.5
4.5											5.0
-		Termina	tion:			Probe Detail	ls:	Remarks	<u>.</u>		4.5
(I)	Depth:		Reason:		Type:	Mass	Drop:	-	·.		
	3.80m	Obstr	uction - boulders	3.	DPH	50kg	500mm				

Contract No: 5769			ynar	nic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717634.0	50	Date Started:	09/10/2020	
_ocation:	Swords, Co. [	Dublin			Northing:	748136.9	37	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.80		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe				1	Leve
(m)	5	10	15	2	20	25	30	35		(mOD
0.5	2 2 2 2 2 2 3 3 3 3 2									12.5
1.5 -	5 5	7 12	11 11							11.5
2.5	6	7 10 7 9 10 10 9 10								10.5
3.5		11 11 10	15 15 13	17	22					9.5
4.5 -								35		8.5
		Termination:			Probe Detail		Remarks:			<u> </u>
	Depth: 4.10m	Reason: Obstruction - bo		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	ami	c Pr	obe L	.og			Probe 1	
Contract:	Hollybank				I	Easting:	717641.3	98	Date Started:	09/10/2020	
Location:	Swords, Co. I	Dublin			ı	Northing:	748124.7	40	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			ı	Elevation:	13.47		Scale:	1:25	
Engineer:	Waterman Mo	oylan			ı	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe					Level
(m)	5	11	15		2	0	25	30	35		(mOD
0.5	2 2 2 2 3 3 2 2										13.0 -
1.0	3 3										12.5
1.5	5 5	7 9									12.0 -
2.0		7	14	16							11.5
2.5		9 9	11								11.0 -
3.0		9	13	16							10.5
3.5			13			23					10.0 -
4.0							26	28	35	;	_ 9.5 -
- 4.5 — - - - -											9.0 -
		Termina				Probe Details		Remarks	S:		
(\$)	Depth: 4.20m	Obstru	Reason: uction - boulders.		Гуре: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717650.7	20	Date Started:	09/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748141.0	34	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.11		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1			Pro	obe					Level
(m)	5	10	15	2	0	25	30	35		(mOD
1.5		7 8 8 9 10	12							11.5 11.0 -
3.0		9 11	13		22	24				9.5
-								35	5	9.0 -
3.5										8.5
- - -										8.0 -
4.5										7.5
		Termination:	'		Probe Detail		Remarks:			
	Depth: 3.20m	Reas Obstruction		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe DP0	
Contract:	Hollybank				Easting:	717664.9	16	Date Started:	09/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748145.8	16	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	11.37		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe				1	Level
(m)	5	10	15		20	25	30	35		(mOD
0.5	2 2 2 2 2 2 3									11.0 -
1.0	3 3 3 3 3 3									10.5 -
1.5	4 4									10.0 —
2.0	6	8								9.5 -
2.5		9 9 8 9								9.0 <del>-</del>
3.0			15	17						
3.5				<u>"</u>				35	5	8.0 —
4.0										7.5 -
- - 4.5 — - -										7.0 —
=										6.5 -
$\overline{}$		Terminati	on:		Probe Detail	s:	Remarks	S:		
	Depth: 3.30m		Reason: ction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	/nar	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717679.8	02	Date Started:	09/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748145.6	38	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	10.95		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Level
(m)	5	10	15		20	25	30	35		(mOD)
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2									10.5 -
1.5	3 3 3 3 3 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6									10.0 — - - - 9.5 —
2.0	4 5 5 5 5	r								9.0 — - - -
2.5		7 12	14	17	23					8.5 — - -
3.0					20 22					8.0 —
								35		- - -
3.5 -										7.5 - - -
4.0										7.0 — - -
4.5 — - - - -										6.5 -
		Termination:		<u> </u>	Probe Details		Remarks			6.0 —
	Depth: 3.10m	Reason: Obstruction - bou	ders.	Type: DPH	Mass 50kg	Drop: 500mm	-	•		

Contract No: 5769			Dynar	nic Pı	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717692.6	23	Date Started:	09/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748153.2	75	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	10.39		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5		15		obe 0	1	30	35	1	Level (mOD)
1.0 — 1 — 1.5 — 1 — 1 — 1 — 1	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	10				25				9.5 — 9.0 —
2.0 0	2 3	9 10 10								8.5 — - - - 8.0 —
3.0		11		17	22					7.5 —
3.5 -					21 22			35		7.0 —
4.0										6.0 —
-										5.5 —
(As)	Depth:	Termination:	n:	Type:	Probe Details Mass	S: Drop:	Remarks			
	3.40m	Obstruction -		DPH	50kg	500mm				

Contract No: 5769			Dyna	amic I	Probe L	og			Probe N	
Contract:	Hollybank				Easting:	717712.2	88	Date Started:	09/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748154.8	62	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	9.76		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					Probe					Level (mOD)
(m)	5	1	0 15		20	25	30	35		(IIIOD
1.0 - 22 22 1.5 - 21 1 1 1 0										9.5 9.0 - 8.5
2.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3		10 10							7.5
3.5				17	22	25	28	35		6.5 -
4.0										6.0
4.5										5.5 -
- - -										5.0 -
13	Depth:	Termina	tion: Reason:	Туре	Probe Details : Mass	Drop:	Remarks	s:		
	3.60m	Obstro	uction - boulders			500mm				

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717723.5	05	Date Started:	09/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748160.2	44	Logged By:	G. Macken	
Client:	Cairn Homes	s PLC			Elevation:	9.20		Scale:	1:25	
Engineer:	Waterman M	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1			Pr	obe				1	Leve
(m)	5	10	15	:	20	25	30	35		(mOE
0.5	3 3 2 2 2 2 2 3 3 3 3 3 3									8.5
1.5	2 2 3									7.5
3.0	β 4	1 1 9		16 19						6.5
					21	25	_			6.0
0.5							28	35	;	
3.5										5.5
-										
4.0										
-										5.0
4.5 —										
-										4.5
										4.5
					<u></u>					
(A)	Depth:	Terminati	ion: Reason:	Type:	Probe Detail Mass	ls: Drop:	Remarks	3:		
( %)	3.50m	Obstru	ction - boulders.	DPH	50kg	500mm	1			

Contract No: 5769		Dyna	amic P	robe L	og			Probe N DP05	
Contract:	Hollybank			Easting:	717732.2	57	Date Started:	09/10/2020	
Location:	Swords, Co. Du	ublin		Northing:	748139.2	39	Logged By:	G. Macken	
Client:	Cairn Homes P	PLC		Elevation:	10.88		Scale:	1:25	
Engineer:	Waterman Moy	·lan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10 15		obe	05	00	05	1	Level (mOD)
1.0 - 22 1.5 - 2.5 - 3.5 - 3.5 - 3.5	2	9 10 11 12 13 13 12 11 11	17 18		25	30	35		10.5 - 10.0 - 10
-									7.0 -
4.0									
4.5 —									6.5 -
-									6.0 -
	Daniel	Termination:		Probe Details		Remarks:			
<b>(§</b> )	Depth: 3.60m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	ļ-			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717743.7	18	Date Started:	12/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748126.1	80	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.35		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe				I	Leve
(m)	5	10	15	2	20	25	30	35		(mOD
0.5	2 2 2 2 2 2 2 2 2 2 3									12.0
1.0	3 2 2 2 3									
1.5	3 5 4									11.0 -
2.0	2 3									10.5
2.5	4 3 3 4 4									10.0
3.0	5 4 5 6									9.5
	6	9			21					9.0
3.5					20		28			3.0
4.0								35	•	8.5
-										
4.5 —										8.0
-										7.5
	D . #	Termination			Probe Detail		Remarks:	:		
$(\S)$	Depth: 3.80m		Reason: ction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769		D	ynan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717717.64	42	Date Started:	12/10/2020	
Location:	Swords, Co. Di	ublin			Northing:	748122.00	65	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC			Elevation:	12.82		Scale:	1:25	
Engineer:	Waterman Moy	/lan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Leve
(m)	5	10	15		20	25	30	35		(mOI
0.5	2 2 2 2 2 2 2 2 2 2									12.5
1.5 0 0 1 1 1 2.0	2									11.5
2.5	2 3 3 3 4 2 2 5 5									10.5
3.5	4 6 5 6	9		18	21					9.5
4.0						25		35	5	8.5
- - -		Termination:			Probe Details	2.	Pamaria			8.0
	Depth: 4.10m	Reason: Obstruction - bot	ulders.	Type: DPH	Mass 50kg	Drop: 500mm	Remarks -	<b>.</b>		

Contract No: 5769		Dyna	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717706.0	66	Date Started:	12/10/2020	
Location:	Swords, Co. Dub	lin		Northing:	748121.2	86	Logged By:	G. Macken	
Client:	Cairn Homes PL0	C		Elevation:	13.24		Scale:	1:25	
Engineer:	Waterman Moyla	n		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		obe	05	00	05		Level (mOD)
1	5	10 15		20	25	30	35		(IIIOD
0.5	3 3 2 2 2 2 3								13.0 <del>-</del>
1.0	2 3	8							12.0 –
2.0	3 3 2 2								11.5 -
2.5	3 7	9							11.0 -
3.0	6	14	40						10.5
			16	21					10.0 -
3.5 -							35		9.5 -
4.0									9.0 —
- - -				Donk D. C.					8.5 -
(A)	Depth:	ermination: Reason:	Type:	Probe Details Mass	S: Drop:	Remarks:			
	3.40m	Obstruction - boulders.		50kg	500mm				

Contract No: 5769		С	ynar	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717694.4	99	Date Started:	12/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748113.92	25	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	13.78		Scale:	1:25	
Engineer:	Waterman M	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe			1	1	Level
(m)	5	10	15		20	25	30	35		(mOD)
0.5	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2									- 13.5 - - -
1.0	4									- 13.0 — - -
1.5	5 5 3 3									- 12.5 - - -
2.0	3									- 12.0 — -
2.5		9 12	14							- - 11.5 – -
3.0		10	14	18						- - 11.0 — -
3.5	4	8 12	14	6						- 10.5 - -
4.0					21			35		10.0 —
4.5										9.5 — -
-										9.0 —
	·	Termination:			Probe Details		Remarks:	:		l
$(\S)$	Depth: 3.70m	Reason: Obstruction - bo		Type: DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769		Dyna	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717679.9	56	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin			Northing:	748114.20	69	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.81		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10 15		obe	25	30	35		Level (mOD
1.0	4 3 3 4 6 6 6 5 2								13.5 - 13.0 - 12.5 -
2.5	5 6 6 5 8 7 7 7 6 6 4 7 7	9							11.5 -
3.5		12 15	19	21	26		35	;	10.5 -
4.5									9.5 -
		mination:		Probe Details		Remarks:			
	Depth:	Reason: Obstruction - boulders.	Type:	Mass 50kg	Drop: 500mm	-			_

Contract No: 5769			Dyna	mic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717667.3	43	Date Started:	09/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748106.9	87	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.19		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-		0 45		robe	25	20	25		Level (mOD)
1	5	1	0 15		20	25	30	35		(IIIOD)
1	3 2 2									14.0 -
0.5	3	_								13.5 -
1.0		9		19						
								35	5	13.0 —
_										-
1.5 —										
										12.5 -
]										-
2.0										
1										12.0 —
- 2.5 —										-
										11.5 -
										-
3.0										
										11.0 —
]										
3.5 —										-
-										10.5 -
4.0										-
-										10.0 —
-										
4.5										-
										9.5 -
†										-
		Termina	ition:		Probe Details		Remarks:			
	Depth: 1.10m		Reason: uction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	_			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717654.0	72	Date Started:	09/10/2020	
_ocation:	Swords, Co. [	Dublin			Northing:	748107.5	97	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.20		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe				1	Leve
(m) 1	5	10	15	:	20	25	30	35		(mOE
0.5	2 2 2 2 2	7 9	13							14.0
1.5		7 7	15	18						13.0
2.0		8 7 7	14	18 19						12.0
3.0			12	16	22	200	28			11.5
3.5 —						26		35		11.0
4.0										10.5
- - - 4.5 -										10.0
-		Termination:			Probe Detail	s:	Remarks			9.5
	Depth:	Rea	ison:	Type:	Mass	Drop:	-	•		
	3.30m	Obstruction	ı - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dyna	mic P	robe L	.og			Probe N DP06	
Contract:	Hollybank			Easting:	717662.7	74	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin			Northing:	748075.8	82	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	14.51		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10 15		obe	25	30	35		Level (mOD
1.0 2	4 4 4 3 3 3 5 5								13.5 -
2.5 - 2	5 5 5 5	12							12.0 -
		15		22					
3.5			18				35		11.0 —
4.0									10.5 -
1									
	Torm	nation:		Probe Details	0.	Domarica	L		
	Depth:	nation: Reason: struction - boulders.	Type:	Mass 50kg	Drop: 500mm	Remarks:			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe DP0	
Contract:	Hollybank				Easting:	717668.5	16	Date Started:	12/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748064.6	81	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.30		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1			Pr	obe					Level
(m)	5	10	15		20	25	30	35		(mOD)
0.5	2 2 2 2 3 3 3 3 2 3 3 2 3									14.0
1.0	3 2 4 3 3 3 2 4									13.0 —
2.0	5 5 4 4									12.5 -
2.5	4 3 3 4 5									12.0 -
3.0 —	5	8	10 12							11.5
4.0				18 18	20	24		35	;	10.5 -
- - - 4.5 —										10.0 —
-										9.5 -
de	Depth:	Termina	tion: Reason:	Type:	Probe Detail Mass	ls: Drop:	Remarks	S:		
	4.00m	Obstru	uction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dyna	mic Pı	obe L	og			Probe N DP06	
Contract:	Hollybank			Easting:	717678.1	23	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin		ı	Northing:	748079.2	65	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	14.51		Scale:	1:25	
Engineer:	Waterman Moylan		I	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10 15	Pro 2	bbe	25	30	35		Level (mOD
1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		10 10 10 11 11 15 12 13		22			35		14.0 - 13.5 - 13.0 - 12.5 - 11.5 - 10.5 -
-									
15		mination:		Probe Details		Remarks:			
(\$)	Depth: 4.30m C	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	]-			

Contract No: 5769			Dyn	ami	c Pr	obe L	og			Probe N	
Contract:	Hollybank				E	Easting:	717692.6	33	Date Started:	12/10/2020	
Location:	Swords, Co. [	Dublin			1	Northing:	748082.5	24	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			E	Elevation:	14.51		Scale:	1:25	
Engineer:	Waterman Mo	ylan			F	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	11	0 1:		Pro		25	30	35		Level (mOD)
1.0 - 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 4 2 3 3 3 5 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6	7 8 8 9	11 14								14.0 —  14.0 —  13.5 —  13.0 —  12.5 —  12.0 —  11.5 —  11.5 —
			11	16							
4.0			14		18				35	;	10.5 -
- - 4.5 — - - -											10.0 -
		Termina				Probe Details		Remarks:			
(\$)	Depth: 4.20m	Obstru	Reason: uction - boulders		ype: DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769		Dynar	nic Pı	obe L	og			Probe N DP07	
Contract:	Hollybank			Easting:	717705.9	10	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin			Northing:	748083.4	71	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	14.41		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40 45		obe	25	20	25		Level (mOD)
(m)  2 2 1 1 2 2 1 1 1 1 1 1 2 2 2 2 2 2 2	5 3 4 4 4 3 3 3 5 5 5 6 7 7 7	10 15	2	0	25	30	35		14.0 —  13.5 —  13.0 —  12.5 —  12.0 —
3.0	4 3	11 13							
3.5		11	18				35		11.0 -
4.0									10.0 -
	Termir			Probe Details		Remarks:	1		
$(\S)$	Depth: 3.70m Obs	Reason: truction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyı	nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717723.6	22	Date Started:	12/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748091.6	18	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.42		Scale:	1:25	
Engineer:	Waterman Mo	pylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10	15		obe	25	30	35	•	Level (mOD)
1.0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 7								14.0 —   13.5 —   13.0 —   12.5 —
3.0	6 4 5 3 4 6	7 7 7 7								12.0 —
3.5		9 13	16	3	21	25				11.0 —
4.0					23			35		10.5 -
4.5 —										10.0 —
-										9.5 -
		Termination:			Probe Details		Remarks			
	Depth: 3.90m	Reason: Obstruction - boulde	ers.	Type: DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769		Dyna	mic Pı	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717747.6	77	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin			Northing:	748098.2	09	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	14.47		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		45		obe				1	Level (mOD
1.5 - 1.5 - 2.0 - 1 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	4 3 4 5 6 6 7 6 7 6 5	15		0	25	30	35		14.0 – 13.5 – 13.0 –
3.0	7 9	12 14 14 12							11.5
3.5		11		22					11.0 =
4.0							35	j	10.5 -
4.0									
4.5 —									10.0 –
	Termina	ation:		Probe Details	):	Remarks:			
	Depth:	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	am	ic Pı	robe L	.og			Probe No: <b>DP074</b>	
Contract:	Hollybank					Easting:	717751.8	99	Date Started:	12/10/2020	
Location:	Swords, Co.	Dublin				Northing:	748084.8	25	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	14.56		Scale:	1:25	
Engineer:	Waterman Mo	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	-1					obe				-1	Leve
(m)	5	10	15	5	2	0	25	30	35		(mOD
0.5	2 3 3 2 3 3 4										14.5
1.0	4 3 3 3 5										13.5
2.0	5 5										13.0 -
2.5	4 3 2 3 3	7									12.0
3.0	5 6	8	0 12								11.5
3.5			12 11 11 11	16							11.0 -
-					18				35	5	10.5
4.5											10.0
		Terminat				Probe Detail		Remarks	:		
	Depth: 4.20m	Obstru	Reason: ction - boulders		Type: DPH	Mass 50kg	Drop: 500mm	<u> </u>			

Contract No: 5769			Dyn	an	nic P	robe L	og			Probe N	
Contract:	Hollybank					Easting:	717757.5	48	Date Started:	12/10/2020	
Location:	Swords, Co. D	Dublin				Northing:	748073.8	77	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	14.15		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe				1	Level
(m)	5	10	0 1	5		20	25	30	35		(mOD)
0.5	3 3 3 3 4 4 4 4 4										14.0 -
1.5	3 3 3 2 2 3										13.0 —
2.0	3 3 4 5										12.5 -
2.5	3										12.0 -
3.0	5 5 6 6	7									11.5 -
3.5			11 14	15							11.0 —
4.0				15 15	18	23			35	5	10.5 -
- - - -											10.0 —
4.5 — - - - -											9.5 -
		Termina				Probe Details		Remarks			
(\$)	Depth: 4.00m	Obstru	Reason: uction - boulder	s.	Type: DPH	Mass 50kg	Drop: 500mm	<u>-</u>			

Contract No: 5769		Dyna	mic P	robe L	og			Probe N DP07	
Contract:	Hollybank			Easting:	717736.4	69	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin			Northing:	748065.4	06	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	14.00		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		4045		obe	05	00	05		Level
(m)  1  0.5  1  1.0  1.5  2.0  3.0	5 2 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4	10 15		20	25	30	35		13.5 - 12.5 - 11.5 - 11.0 - 11
3.5		10 13 15 12	18			_	35		10.5
4.0									10.0 - 9.5 -
		nation:		Probe Details		Remarks:			
<b>(§</b> )	Depth: 3.70m Obs	Reason: struction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	_			

Contract No: 5769		Dyna	mic Pı	robe L	og			Probe No: <b>DP077</b>	
Contract:	Hollybank			Easting:	717725.6	47	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin			Northing:	748059.1	73	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.64		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		obe	05	00	05		Level (mOD)
1	5	10 15	2	0	25	30	35		-
0.5	3 3 2 2 2 2 2 3 3 3								13.5 - 13.0 -
1.0	2								- 12.5 - - - -
2.0	3 4 5								12.0 — - - -
2.5	3								11.5 -
3.0	β β	10							11.0 — - - -
3.5		12 10 13 15							10.5 - - - -
4.0			18				35	;	10.0 — - -
- - - - 4.5 –									9.5 - - -
									9.0 — - - -
		mination:		Probe Details		Remarks:			
<b>(§</b> )	Depth: 3.80m O	Reason: bstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyr	amic	Probe L	.og			Probe N DP07	
Contract:	Hollybank			Easting:	717710.7	42	Date Started:	12/10/2020	
Location:	Swords, Co. Dul	blin		Northing:	748059.4	48	Logged By:	G. Macken	
Client:	Cairn Homes PL	.C		Elevation:	13.64		Scale:	1:25	
Engineer:	Waterman Moyla	an		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40	45	Probe	25	20	25		Level (mOD)
(111)	5	10	15	20	25	30	35		(IIIOD)
0.5 - 2 2 2 2 2 2 2	3 3								13.5 -
1.0	4 5 5 4 4								- 12.5 - - - -
1 2	3								12.0 — - - -
2.0		9 10 10 10 12							11.5 -
2.5	5	11	17						11.0 —
3.0	3 3 3								10.5 -
3.5		12	16	22			35		10.0 —
4.0									9.5 - -
4.5 -									9.0 —
		Townsia of the second	<u> </u>	Duct D. C.		<u> </u>			-
	Depth: 4.00m	Termination: Reason: Obstruction - boulder	Typ		Drop:	Remarks:			

Contract No: 5769		Dyna	amic P	robe L	og			Probe N DP07	
Contract:	Hollybank			Easting:	717696.1	76	Date Started:	12/10/2020	
Location:	Swords, Co. Dubl	lin		Northing:	748052.2	83	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.62		Scale:	1:25	
Engineer:	Waterman Moylar	n		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10 15		obe	25	30	35		Level (mOD)
2.0 — — — — — — — — — — — — — — — — — — —	4	8 11 12 14 13	17				35		13.5 -  13.0 -  13.0 -  12.5 -  12.0 -  11.5 -  11.0 -  10.5 -  10.0 -  9.5 -
 4.5   									9.0 –
		ermination:		Probe Details		Remarks:			1
(\$)	Depth: 3.90m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynar	nic Pr	obe L	og			Probe N	
Contract:	Hollybank		ı	Easting:	717687.5	99	Date Started:	12/10/2020	
Location:	Swords, Co. Dublin		ı	Northing:	748053.1	38	Logged By:	G. Macken	
Client:	Cairn Homes PLC		I	Elevation:	13.74		Scale:	1:25	
Engineer:	Waterman Moylan		ı	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		45	Pro		05	00	05		Level (mOD)
1	5 1	0 15	2	0	25	30	35		(IIIOD)
0.5 - 2									13.5 - 13.0 -
1.0	3 : 3 : 3								12.5 -
1.5	5 6 9	13							12.0 —
2.0 —	8 9 6 5 7								11.5 -
3.0 —	3 3								11.0 —
3.5	5 8	14		_			35	i.	- 10.5 - - -
4.0									10.0
4.5 —									9.5 - - - -
- - -									9.0 —
(As)	Termina Depth:	ntion: Reason:	Type:	Probe Details Mass	Drop:	Remarks:			
		ruction - boulders.	DPH	50kg	500mm				

Contract No: 5769			Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717674.6	69	Date Started:	12/10/2020	
Location:	Swords, Co. D	Oublin			Northing:	748046.6	12	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	13.82		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40	45		obe	05	20	05		Level (mOD)
1	5	10	15		20	25	30	35		(IIIOD)
0.5	3									13.5 -
1.5	3 3 3 3 3 4									12.5 - - - - - 12.0 -
2.0		9 9 9 11	115							11.5 -
3.0 — 2	4 4	8								11.0 —
3.5	5	9								10.5 -
4.0			13	16 16			1			9.5 –
4.5 — — — — —								35		9.0 —
	Donth:	Termination:			Probe Details		Remarks:			1
$(\S)$	Depth: 4.50m		ason: on - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynamic	Probe L	.og		Probe No: DP082
Contract:	Hollybank		Easting:	717685.508	Date Started:	12/10/2020
Location:	Swords, Co. Dublin		Northing:	748018.117	Logged By:	G. Macken
Client:	Cairn Homes PLC		Elevation:	13.41	Scale:	1:25
Engineer:	Waterman Moylan		Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1
Depth		45	Probe	05	05	Leve (mOI
1.0	5 10 2 2 3 2 2 3 2 3 2 4 3 4 5 5	15	20	25 30	35	13.0 12.5 12.0
2.5	3 4 4 4					10.5
4.0	7 9 8	13 15 18				9.5
4.5	11	13 2 15 18			35	9.0
	Termination:  Depth: Reas  4.80m Obstruction -			s: Remark Drop: - 500mm	S:	

Contract No: 5769		Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717698.04	44	Date Started:	12/10/2020	
Location:	Swords, Co. [	Dublin		Northing:	748021.03	35	Logged By:	G. Macken	
Client:	Cairn Homes	PLC		Elevation:	13.16		Scale:	1:25	
Engineer:	Waterman Mo	pylan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40 45		obe	25	20	25	1	Level (mOD)
0.5 - 2 2 1 1 1 1 1 1 2 2 2 1 1 1 1 1 1 1 1	5 2 2 2 2 3 2 3 5 6	10 15  8 12 10 10 9 12 7	17	20	25	30	35		13.0 — 12.5 — 12.0 —
3.0	3 3 6 5 6	8 10 10							10.5
4.0		11 15 15 15 15 10 10 10 10 11 12 14							9.0 -
	Depth:	Termination: Reason:	Type:	Probe Details Mass	s: Drop:	Remarks:	35		
	4.90m	Obstruction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dynar	nic Pı	obe L	og			Probe No: DP084	
Contract:	Hollybank			Easting:	717688.9	61	Date Started:	13/10/2020	
Location:	Swords, Co. Dublii	n		Northing:	747994.3	92	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	14.33		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		bbe	05	00	05		Level (mOD)
1	5	10 15	2	0	25	30	35		(11100)
0.5	5	9 9 10 14							14.0 —
1.0	5	9							13.5 — - -
1.5	3 5								13.0 —
1.5	6	9		22			35	i	- - 12.5 –
2.0									- - -
									12.0 —
2.5 — — — —									- - -
3.0									11.5 — - -
									- - 11.0 —
3.5 — — — — — —									- - - 10.5 –
4.0									-
- - - 4.5 -									10.0 —
									9.5 —
	Tei	rmination:		Probe Details	):	Remarks:			
	Depth:	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dy	/nan	nic P	robe L	.og			Probe No: DP085	
Contract:	Hollybank				Easting:	717708.3	34	Date Started:	13/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	747990.1	17	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.26	;	Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe				ı	Level
(m)	5	10	15	2	0	25	30	35		(mOD
0.5	4 6	9 10 8								14.0 -
1.0	5 5 5	9								13.5
1.5	5	7								13.0 -
2.0	3 3 3 4	13								12.5
2.5		10 10 10 10 10	16	6						12.0 -
3.0		8 8 12	14	6						11.0 -
3.5			15			25				
4.0						24		35	;	10.5
-  -  -  -										10.0 -
4.5										9.5
		Termination:			Probe Detail		Remarks:			
	Depth: 3.80m	Reason: Obstruction - boul	lders.	Type: DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769		Dyn	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717720.2	31	Date Started:	13/10/2020	
Location:	Swords, Co. Du	ıblin		Northing:	748003.7	19	Logged By:	G. Macken	
Client:	Cairn Homes P	LC		Elevation:	13.09		Scale:	1:25	
Engineer:	Waterman Moyl	lan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	40		obe	25	20	25	1	Level (mOD)
1	5	10 15		20	25	30	35		13.0 —
	4								-
	3								
0.5	7								12.5 -
		9							
1.0	3								-
-	5 4								12.0 —
	5								
1.5	5								-
	3								11.5 -
	3								
2.0	3								
		11 10							11.0
		12							-
2.5		8							10.5 -
		<u>8</u> 9							-
	5	9							-
3.0	6								10.0 —
		12							-
3.5		10							-
		13		21					9.5 -
					26		35		
4.0									
1									9.0 —
_									-
4.5 —									8.5 -
-									-
]									-
		Termination:		Probe Details		Remarks:			
	Depth: 3.90m	Reason: Obstruction - boulders	Type:	Mass 50kg	Drop: 500mm	-			
	0.30111	Obstraction - boulders	, DETI	Jong	550111111				

Contract No: 5769			Dyn	an	nic P	robe L	.og			Probe No: DP087	
Contract:	Hollybank					Easting:	717721.1	91	Date Started:	13/10/2020	
Location:	Swords, Co.	Dublin				Northing:	747989.7	70	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	13.89		Scale:	1:25	
Engineer:	Waterman Mo	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe				I	Leve
(m)	5	10	15	5	2	0	25	30	35		(mOE
0.5	3		0								13.5
1.5	5 5 4 4	7 8 8									12.5
2.5	4	1	12 12 12	16							11.5
3.0		8 8	0	15	17						11.0
3.5			12	15			25		35	5	10.5
4.0											9.5
		Terminati	on:			Probe Detail	s:	Remarks	S:		9.0
	Depth:		Reason:		Type:	Mass	Drop:	-			
	3.70m	Obstru	ction - boulders	S.	DPH	50kg	500mm				

Contract No: 5769		Dyn	amic I	Probe L	og			Probe N	
Contract:	Hollybank			Easting:	717740.4	05	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	747985.7	66	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.74		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		Probe	- 05	20	05		Level (mOD)
1	5	10 19	5	20	25	30	35		(IIIOD
0.5	5 3	9 11 10 10							13.5 -
1.0	7 7 5 5 5 6								12.5 -
2.0	8 5 5	9							12.0 —
2.5		10 10 12 12 12 12 14	15						11.5 -
3.0	8	10	15						10.5 -
4.0				23		28	35	5	10.0 —
4.5 —									9.5 - - - -
	Term	ination:		Probe Details	::	Remarks			9.0 —
	Depth:	Reason: struction - boulders	Type s. DPH	: Mass	Drop: 500mm	-			

Contract No: 5769		Dyna	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717741.9	02	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748001.5	65	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	12.98		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe					Level
(m)	5	10 15		20	25	30	35		(mOD
0.5	3 4 6 8 9 8 7 6 5	10 12 10							12.5 -
2.0	6 7 7 6 7 7	10							11.5 -
2.5		11 11 10	5						10.5
3.5		12	5 5 16 18		24		35		9.5 -
4.5 —									9.0 - 8.5 -
$\overline{}$	Termin	ation:		Probe Details	S:	Remarks:			
	Depth:	Reason: truction - boulders	Type: DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769		Dyr	ami	c Pr	obe L	.og			Probe N	
Contract:	Hollybank			E	Easting:	717707.9	94	Date Started:	13/10/2020	
Location:	Swords, Co. D	ublin		١	Northing:	748032.70	61	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC		E	Elevation:	13.10		Scale:	1:25	
Engineer:	Waterman Moy	ylan		F	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				Pro						Leve
(m)	5	10	15	20	)	25	30	35		(mOD
1.5	2 2 4 2 2 3 3 2 2 2 2 3 3 3 3 3 3 3 5 5 5 5	8								13.0 12.5 12.0
2.5	5	10 10 10 11 11 13	16 15							11.0 -
3.5	2 4 4 6 6 5	9 10 11 11								9.5
4.5		13	16		21	26		35	;	9.0 · 8.5
		Termination:			Probe Details		Remarks	::		
	Depth: 4.60m	Reason: Obstruction - boulde		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	mic Pı	obe L	.og		Probe No: <b>DP091</b>
Contract:	Hollybank		ı	Easting:	717711.7	79 Date Started	: 13/10/2020
Location:	Swords, Co.	Dublin		Northing:	748015.7	94 Logged By:	G. Macken
Client:	Cairn Homes	PLC		Elevation:	12.84	Scale:	1:25
Engineer:	Waterman M	oylan	I	Rig Type:	Competito	or 130 Sheet No:	Sheet 1 of 1
Depth	1		Pro	be			Leve
(m)	5	10 15	2	0	25	30 35	(mOE
0.5	2 3 3 2 3 3 2 2 2						12.5
1.5	3 2 3 3 3 2 4						11.5
2.5		10 10 13 14 14 14					10.5
3.0	5 6 4 6	7					9.5
3.5	4	12 10 11					9.0
4.5 —		12	18				8.5
- - - -							8.0
	Donth	Termination:		Probe Detail		Remarks:	·
(\$)	Depth: 4.40m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	]-	

Contract No: 5769		Dynar	nic P	robe L	og			Probe No: <b>DP092</b>	
Contract:	Hollybank			Easting:	717735.1	49	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748038.6	07	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.60		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		obe	05	00	05		Level (mOD)
(111)	5	10 15		20	25	30	35		13.5 -
	3 4								
	5								
0.5	3								13.0 -
2	3								
	7	13							
1.0	7	11							12.5 -
	5								
4.5	5								
1.5	5								12.0 -
	5								
2.0	6								
	8								11.5 -
	9								
2.5	8								
	8								11.0 —
		15					35	i	-
3.0									
-									10.5 -
_									
3.5 —									
-									10.0 —
-									
4.0									
-									9.5 -
1									
4.5 —									9.0 —
-									
-									-
	Termi	nation:		l Probe Details	3:	Remarks	:		
	Depth:	Reason: struction - boulders.	Type: DPH	Mass	Drop: 500mm	-			
	2.90111   Obs	suucuon - poulders.	טרח	50kg	JUUIIIII				

Contract No: 5769		Dyna	amic P	robe L	og			Probe N DP09	
Contract:	Hollybank			Easting:	717729.2	70	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748019.0	16	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.00		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe			1	1	Level
1.0	5 3 3 3 3 3 3 3 3 3 4 4 4 4 4 6 5 5 4 7 7	10 15 10 12 12 12		20	25	30	35		12.5 - 12.0 - 11.5 - 11.0 - 10.5 - 1
3.5	8	10 14 13	18	22 20		_	35		9.5 -
4.5 -	Termin Depth:	ation: Reason:	Type:	Probe Details Mass	s: Drop:	Remarks:			8.5 -
		ruction - boulders		50kg	500mm				

Contract No: 5769		Dyn	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717753.3	68	Date Started:	13/10/2020	
Location:	Swords, Co. Dul	blin		Northing:	748035.8	74	Logged By:	G. Macken	
Client:	Cairn Homes PL	_C		Elevation:	13.83		Scale:	1:25	
Engineer:	Waterman Moyla	an		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10 1:		robe		30	35		Level (mOD)
	2 4 4 4 3 3 4 4	10 1			25				- - 13.5 — - - -
1.0	5 6 7 5 5 6 6	8							13.0 —
2.0	7 6 6	9 10 10							- 12.0 — - - -
2.5		12 9 9 14 13 13	15						11.5 — 11.0 —
3.5		9 11 14	15 18	22					10.5 — - - - - -
4.0			10				35		10.0 — - - -
4.5 —									9.5 — - -
-									9.0 —
		Termination:	-	Probe Details		Remarks	:		
(\$)	Depth: 3.80m	Reason: Obstruction - boulders	Type: s. DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769		Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717751.1	85	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748023.2	03	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.62		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	_			obe					Level (mOD)
(m) 1	5	10 15		20	25	30	35		-
0.5	3 3 3 3 3 3								13.5 - 13.0 -
1.0	5 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5								12.5 -
2.0	5 6 4 5								12.0 —
2.5	5 6 6 7								11.5 -
		10 12 12 12 12							11.0 -
3.0		13 14		20					10.5 -
3.5						28	35	·	10.0 —
4.0									9.5 - - -
4.5									9.0 —
	Termina			Probe Details		Remarks	:		
	Depth:	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynar	nic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717757.9	87	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	747996.2	74	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.40		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	10 45		obe	25	20	25		Level (mOD)
1.0 - 2.0 - 3.5 - 3	5 3 4 4 3 4 5 5 5 7 7	12 11 14 15	19		25	30	35		13.0 —  12.5 —  12.5 —  11.5 —  11.5 —  11.0 —  10.5 —
-									9.5 -
4.0									9.5 -
- 4.5 —									9.0 —
_									8.5 -
	Termin	ation:		Probe Details	 S:	Remarks:			
	Depth:	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyr	nan	nic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717766.6	65	Date Started:	13/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	747982.7	01	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.93		Scale:	1:25	
Engineer:	Waterman Mo	pylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe				1	Level
(m)	5	10	15		20	25	30	35		(mOD)
0.5	4 6	7 9 8								14.5
1.0	6 6 4 4									14.0 —
1.5	5 4	<b>1</b> 8								13.5 – -
2.0	6	9 13								13.0 —
2.5		11 13 13	15							12.5 -
3.0		9 11	15							12.0
3.5		13		18		24	29	35	;	- 11.5 — -
4.0										- 11.0 — - -
4.5 —										- - 10.5 - - -
										10.0 —
		Termination:			Probe Details		Remarks	):		
<b>(§</b> )	Depth: 3.70m	Reason: Obstruction - boulde	rs.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717772.1	82	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	747996.1	69	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.49		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)				obe			1	1	Level (mOD)
1.0	5 1	10 12 13 14 10		20	25	30	35		13.0 - 12.5 - 12.0 -
3.5	9	10 10 12 14	16	21	25		35		10.0 -
4.5 -	Termina Depth: 4.10m Obstr	tion: Reason: uction - boulders.	Type:	Probe Details Mass 50kg	5: Drop: 500mm	Remarks:			9.0 -
	3300			559	230				

Contract No: 5769		Dy	nan	nic Pı	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717759.0	82	Date Started:	13/10/2020	
Location:	Swords, Co. Du	ıblin			Northing:	748013.5	29	Logged By:	G. Macken	
Client:	Cairn Homes Pl	LC			Elevation:	13.70		Scale:	1:25	
Engineer:	Waterman Moyl	lan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40	45		obe	05	00	05	1	Level (mOD
1	5	10	15	2	0	25	30	35		(IIIOD
1.0	2 3 2 4 4 4 4 4 5 3 3 4 5 4 6 6	8								13.5 13.0 -
2.5	6	11 8 9 12 10 8 8								11.5
3.5		11 11	16	19			_	35		10.5
4.0										9.5
-										
		Termination:			l Probe Details	s:	Remarks:			
	Depth: 3.60m	Reason: Obstruction - bould	ers.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	am	ic P	robe L	.og			Probe I	
Contract:	Hollybank					Easting:	717770.9	66	Date Started:	13/10/2020	
Location:	Swords, Co. I	Dublin				Northing:	748016.2	55	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	13.51		Scale:	1:25	
Engineer:	Waterman Mo	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	1,	0 1			obe		30	35		Leve (mOD
1.0	2	7 7	10 12	15			25				13.0 - 12.5 12.0 -
3.0		8	14 12 14	16	18	21					10.5
3.5						23					10.0
4.0					19				35	5	9.5
		Termina				Probe Detail		Remarks	s:		
	Depth: 3.80m	Obstru	Reason: uction - boulders	S.	Type: DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769		Dynan	nic Pr	obe L	og			Probe N	
Contract:	Hollybank		E	Easting:	717793.7	58	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin		1	Northing:	747993.4	40	Logged By:	G. Macken	
Client:	Cairn Homes PLC		E	Elevation:	13.75		Scale:	1:25	
Engineer:	Waterman Moylan		F	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		45	Pro		25	20	25		Level (mOD)
1	5 10	15	20	)	25	30	35		(IIIOD)
0.5	3 3 3 3 2								13.5 -
1.0	3 2 4								13.0 —
1.5	6 5 6 7								12.5 - - -
2.0	6 8			21					12.0 —
				F 1		29	35		- 11.5 –
2.5 —									-
									- - 11.0 —
3.0									10.5 -
3.5									10.0 —
4.0									9.5 -
4.5 — - - -									9.0 —
-									-
	Termination:	ason:	Type:	Probe Details Mass	: Drop:	Remarks:			
<b>(§</b> )	· · ·	n - boulders.	DPH	50kg	500mm	] <del>-</del>			

Contract No: 5769		Dynai	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717790.2	42	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748015.0	65	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.47		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		4045		obe	05	00	05	•	Level (mOD
(m) 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 4 4 4 3 3 5 5 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	12 14	18		25	30	35		13.0 - 12.5 - 11.5 -
3.0	4	13 12							10.5
3.5			18				35	i.	
4.0									9.5
	Termin			Probe Details		Remarks:			
$(\S)$	Depth: 3.70m Obst	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	<u> </u> -			

Contract No: 5769			Dyn	am	nic P	robe L	og			Probe N	
Contract:	Hollybank					Easting:	717784.8	21	Date Started:	13/10/2020	
Location:	Swords, Co. D	ublin				Northing:	748048.6	12	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC				Elevation:	13.50		Scale:	1:25	
Engineer:	Waterman Moy	/lan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe					Level
1.0 — 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 3 4 3 2 2 3 4 3 3 2 4 5 5 5	8	10	5			25	30	35		(mOD)  13.0 —  12.5 —  11.5 —  11.0 —  10.5 —
3.5		9	11 14	16	18						10.0 -
			14	16							
4.0									35	5	9.5 -
4.5											9.0 –
		Termina	tion:			l Probe Details	 3:	Remarks:			
	Depth: 4.00m		Reason: uction - boulders	5.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	amic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717814.9	55	Date Started:	14/10/2020	
Location:	Swords, Co.	Dublin			Northing:	747978.2	84	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	15.66		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	<u> </u>				robe				1	Level
(m)	5	10	15		20	25	30	35		(mOD
0.5	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2									15.5
1.5	3 3 4 3 3 3 4									14.5
2.5	5 6 4 5 6	8 7								13.5
3.0		9	10							12.5
					22			35	i	
3.5										12.0 -
4.5										11.5
- - - -										11.0
110	Depth:	Termina	tion: Reason:	Type:	Probe Detail Mass	ls: Drop:	Remarks	:		
(S)	3.40m	Obstru	uction - boulders.		50kg	500mm	-			

Contract No: 5769			Dyn	amic F	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717828.8	06	Date Started:	14/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	747990.3	70	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	14.43		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competit	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)					Probe					Level (mOD)
1.0	5 2 2 3 3 3 4 3 5 5 6 4	3 9 7	0 15		20	25	30	35		14.0 —
2.5		7	14		20	25		35	;	12.0 —
3.0										- - - - 11.0 —
4.0										10.5 -
4.5 —										10.0 —
										9.5 —
	Depth: 2.90m	Termina	tion: Reason: uction - boulders	Type: DPH	Probe Details Mass 50kg	s: Drop: 500mm	Remarks -	:		

Contract No: 5769		Dyna	mic Pı	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717820.1	82	Date Started:	14/10/2020	
Location:	Swords, Co. Dubl	in		Northing:	748008.3	84	Logged By:	G. Macken	
Client:	Cairn Homes PLC	;		Elevation:	13.13		Scale:	1:25	
Engineer:	Waterman Moylar	1		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		obe	05	00	05		Level (mOD)
(111)	5	10 15	2	0	25	30	35		(11100)
0.5 - 2	2 2 2 3 2 2 2 3 2								13.0 - 12.5 ·
1.5	3 4 6 6								12.0 — - - - - 11.5 —
2.0	5 5 5 7								- 11.0 —
2.5	7	8	16	22		28			10.5 -
3.0							35	5	-
3.5 —									10.0 — - - -
4.0									9.5 — - - -
- - - - 4.5 –									9.0 —
- - - -									8.5 — - -
		ermination:		Probe Details		Remarks:			
(\$)	Depth: 2.90m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyn	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717850.0	10 Dat	e Started:	14/10/2020	
Location:	Swords, Co. I	Dublin		Northing:	747995.1	04 Log	ged By:	G. Macken	
Client:	Cairn Homes	PLC		Elevation:	13.55	Sca	le:	1:25	
Engineer:	Waterman Mo	oylan		Rig Type:	Competito	or 130 She	et No:	Sheet 1 of 1	
Depth	-1			robe					Leve
(m)	5	10 15	5	20	25	30	35		(mOD
0.5	2 2 2 2 2 3 2 3 2 3								13.0 -
1.5 - 2.0	5 5 5 5 5 6 5								12.0 - 11.5
2.5		7 7 10 12		22					11.0 -
3.0							35	<u>:</u>	10.5
3.5 -									10.0 -
4.0									9.5
4.5 —									9.0 -
		Termination:		Probe Detail		Remarks:			
	Depth: 3.00m	Reason: Obstruction - boulders	Type: . DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynar	nic Pı	obe L	og			Probe N	
Contract:	Hollybank			Easting:	717842.0	54	Date Started:	14/10/2020	
Location:	Swords, Co. Dublin			Northing:	748008.6	75	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.14		Scale:	1:25	
Engineer:	Waterman Moylan		I	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		4045		obe	- 05	00			Level (mOD)
1	5	10 15	2	0	25	30	35		(11100)
0.5	3								13.0 -
1.0	3 5 5 7								- - - 12.0 —
1.5	5 6 5 6 5								11.5 —
2.0	4 7 7 8								- - 11.0 — - -
2.5		14		20	26		35	5	10.5 -
3.0									10.0 —
3.5 —									9.5 - -
4.0									9.0 —
4.5 —									8.5 —
	Termin	ation:		Probe Details		Domeste	,		
	Depth:	Reason: ruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	Remarks: -			

Contract No: 5769		Dynar	nic Pı	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717856.7	71	Date Started:	14/10/2020	
Location:	Swords, Co. Dublin			Northing:	747973.7	38	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	15.15		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40.		obe	- 05	00	05		Level (mOD
(111)	5	10 15	2	0	25	30	35		(IIIOD
0.5	2 3 2 3								15.0 - 14.5
	3 4 2 4 5 5								14.0 -
2.0	6 4 6 7 5								13.5 ·
2.5	7 8 7 8	10							13.0 -
		12	6	22	26				12.5
3.0							35	5	12.0 -
3.5									11.5
 - - - 4.5 —									11.0 -
-   									10.5
		nation:		Probe Details		Remarks	:		
(\$)	Depth: 3.00m Ob	Reason: struction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	ļ <b>-</b>			

Contract No: 5769		Dyna	mic Pı	robe L	og			Probe N DP11	
Contract:	Hollybank			Easting:	717877.1	41	Date Started:	14/10/2020	
Location:	Swords, Co. Dubli	n		Northing:	747982.0	34	Logged By:	G. Macken	
Client:	Cairn Homes PLC	:		Elevation:	13.72		Scale:	1:25	
Engineer:	Waterman Moylan	1		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		obe	05	00	05		Level (mOD)
1	5	10 15		0	25	30	35		(IIIOD)
0.5	3 3 3 3								13.5 -
1.5	5 6	3							12.5 -
2.0	8	10 3 11 9 12							12.0
2.5	<b>E</b>	10 11 15	18						11.5 -
3.0			16 19	22	26				11.0 –
3.5 —							35	5	10.5 -
4.0									10.0 —
- - - - 4.5 —									9.5 -
-									9.0 —
		rmination:		Probe Details		Remarks:			
(\$)	Depth: 3.20m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	ami	ic P	robe L	.og			Probe No: <b>DP111</b>	
Contract:	Hollybank					Easting:	717861.7	76	Date Started:	14/10/2020	
Location:	Swords, Co. [	Dublin				Northing:	748003.8	09	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	12.75		Scale:	1:25	
Engineer:	Waterman Mo	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth						obe					Leve
(m)	5	1	0 15	5	2	0	25	30	35		(mOD
0.5	2										12.5
1.0	2 3										12.0 -
1.5	5 3 6	7									11.5
		8	10 12								11.0 -
2.0			11 12 14								10.5
2.5			13	16		20	24	28			10.0 -
3.0									35	5	_
3.5 —											9.5
- - - -											9.0 -
4.0											8.5
4.5											8.0 -
											<u> </u>
(As)	Depth:	Termina	tion: Reason:		Type:	Probe Detail Mass	s: Drop:	Remarks	3:		
$(\S)$	3.00m	Obstr	uction - boulders	i.	DPH	50kg	500mm	-			

Contract No: 5769		Dy	nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717826.6	24	Date Started:	14/10/2020	
Location:	Swords, Co. Du	ıblin			Northing:	748020.0	78	Logged By:	G. Macken	
Client:	Cairn Homes PL	LC			Elevation:	13.00		Scale:	1:25	
Engineer:	Waterman Moyl	an			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		40	45		obe	05	00	05		Level
(m)  1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2	5 2 3 3 3 5 5 7 7	10 9 12 12 12	15		22	25	28	35	5	12.5 - 12.0 - 11.5 - 10.5 - 10.0 -
3.0										9.5
4.0										9.0
1										
$\stackrel{+}{\sim}$		Termination:			Probe Details		Remarks	<u>_</u>		<u> </u>
	Depth: 2.80m	Reason: Obstruction - boulde	ers.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	amic P	robe L	.og			Probe DP1	
Contract:	Hollybank				Easting:	717845.4	56	Date Started:	14/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748022.4	10	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.76		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Leve
(m)	5	10	15		20	25	30	35		(mOD
0.5	2 2 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2									12.5
1.0	2									12.0 -
1.5	5	7								11.5
2.0		7 9	11 13							11.0 -
2.5			15	16	21					10.5
3.0					22	25	28	35	5	10.0 -
3.5 —										9.5
4.0										9.0 -
4.5 —										8.5
- - - -										8.0 -
(In)	Denth:	Termina	tion: Reason:	Type	Probe Detail Mass		Remarks	s:		
$(\S)$	Depth: 3.10m	Obstru	Reason: uction - boulders.	Type: DPH	50kg	Drop: 500mm	<u>-</u>			

Contract No: 5769		Dynan	nic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717872.5	62	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748020.5	83	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	12.80		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe				1	Level (mOD)
(m) 1	5	10 15		20	25	30	35		(IIIOD)
	2								12.5 -
0.5	3 4								-
0.0	3								
1	2								12.0 —
1.0	2								
	2								-
	3								11.5 -
1.5	4								-
	3								11.0 —
2.0	4								
	6								
	7								10.5 -
2.5	6 5								-
	5								-
	7 7								10.0 —
3.0		12			24				-
				f			35	5	9.5 -
3.5 —									-
-									
-									9.0 —
4.0									-
]									
-									8.5 -
4.5 — —									-
1									8.0 —
									_
(As)	Termin	ation: Reason:	Type:	Probe Details Mass	: Drop:	Remarks	:		1
		ruction - boulders.	DPH	50kg	500mm	-			

Contract No: 5769		Dynai	mic Pı	robe L	og			Probe N DP11	
Contract:	Hollybank			Easting:	717810.2	77	Date Started:	13/10/2020	
Location:	Swords, Co. Dub	blin		Northing:	748057.5	47	Logged By:	G. Macken	
Client:	Cairn Homes PL	С		Elevation:	13.29		Scale:	1:25	
Engineer:	Waterman Moyla	an		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	40 45		obe	25	20	25		Level (mOD)
1	5	10 15		0	25	30	35		(IIIOD
0.5	4								13.0 - 12.5
1.5 -	3 4 4 3 3 3 2								12.0 — 11.5 -
2.5	5 6 5 6	12							11.0 – 10.5 -
3.0			18				35	i	10.5
3.5 —									10.0 —
4.0									9.5 -
4.5 —									9.0 —
- - - -									8.5 -
		Termination:		Probe Details		Remarks			
(\$)	Depth: 3.00m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	ļ <b>-</b>			

+		<b>– j</b> · ·	alliic i	Probe L	.og			DP11	6
Hollybank				Easting:	717863.9	20	Date Started:	13/10/2020	
Swords, Co. [	Dublin			Northing:	748041.7	51	Logged By:	G. Macken	
Cairn Homes	PLC			Elevation:	12.65		Scale:	1:25	
Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
									Level (mOD
5	1	0 15	)	20	25	30	35		(IIIOD
2									12.5 -
3									
									12.0 -
2									12.0
2									
4									11.5 -
3 3									
4									
3									11.0 —
5									-
6									
5 5									10.5 -
6	8								
		12 12							10.0 —
		13							
		174	18	ha					
				22			35	5	9.5 -
									-
									9.0 —
									8.5 -
									8.0 —
									-
Depth:	Termina	tion: Reason:	Type:			Remarks			
3.20m	Obstru				500mm	1			
	Cairn Homes Waterman Mc  5  2  3 3 3 4 4 3 3 3 5 5 6	2 2 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Cairn Homes PLC  Waterman Moylan  5 10 15  2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Cairn Homes PLC  Waterman Moylan  I	Cairn Homes PLC  Waterman Moylan  Rig Type:  Probe  5 10 15 20  2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Termination:   Probe Details:   Depth:   Reason:   Type:   Mass   Drop:	Termination:   Probe Details:   Remarks   Reason:   Type:   Mass   Drop:	Cairn Homes PLC	Cairn Homes PLC         Elevation:         12.65         Scale:         1.25           Waterman Moylan         Rig Type:         Competitor 130         Sheet No:         Sheet 1 of 1           Probe           3         3         3         3         3           3         3         3         3         3           3         3         3         3         3           3         3         3         3         3         3           3         3         3         3         3         3           3         3         3         3         3         3           4         12.2         3         3         3           3         3         3         3         3         3           4         12.6         5         3         3         3           3         3         3         3         3         3           3         3         4         12.6         2         3         3         3           3         3         4         12.6         2         3         3         3         3         3         3         3

Contract No: 5769		Dyr	nan	nic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717828.6	00	Date Started:	13/10/2020	
Location:	Swords, Co. Du	blin			Northing:	748056.2	64	Logged By:	G. Macken	
Client:	Cairn Homes PL	_C			Elevation:	12.97		Scale:	1:25	
Engineer:	Waterman Moyla	an			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10	15		obe 0	25	30	35	1	Level (mOD)
1.0	4		16			24		35		12.5 - 12.0 - 11.5 - 11.0 - 10.0 - 9.5 - 9.0 -
		Termination:			Probe Details		Remarks:			
	Depth: 3.40m	Reason: Obstruction - boulde	rs.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	amic F	Probe L	.og			Probe N	
Contract:	Hollybank				Easting:	717845.5	81	Date Started:	13/10/2020	
Location:	Swords, Co.	Dublin			Northing:	748058.0	00	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.70		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)			0 45		Probe	25	20	25		Level (mOD
1	5	10	0 15	)	20	25	30	35		(IIIOD
0.5 - 2 2 1 0 0 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1	3 4 4 3 4 4 3 3 4									12.5 - 12.0 - 11.5 -
2.5			10 13 12 10 14	1	9	26				10.5 -
3.0								35	5	_
-										9.5
3.5 —										
3.5										
-										9.0 -
4.0										_
-										8.5 -
-										
4.5										
-										8.0 -
-										
		Termina	tion:		Probe Details	s <sup>.</sup>	Remarks:			
	Depth:		Reason:	Type:	Mass	Drop:	-			
	3.00m	Obstr	uction - boulders	DPH	50kg	500mm	1			

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717865.9	86	Date Started:	13/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748059.1	93	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.17		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1			Pr	obe				1	Level
(m)	5	1	0 15	2	20	25	30	35		(mOD)
0.5	3 3 3 4 3 2 2									12.0 -
1.0	3 5 4 2 4 4									11.0 —
2.0	3 4 4 5 5									10.5 -
2.5	3 3									10.0 -
3.0	5	9	12							9.5 -
3.0					21			35	5	9.0 —
3.5 —										-
4.0										8.5 -
- - - 4.5 —										8.0 —
-										7.5 -
		Termina			Probe Detail		Remarks	S:		
$(\S)$	Depth: 3.20m	Obstr	Reason: uction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynar	nic Pı	obe L	og			Probe N	
Contract:	Hollybank			Easting:	717818.0	30	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748088.5	38	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	13.81		Scale:	1:25	
Engineer:	Waterman Moylan		I	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				bbe	05	20	05		Level
(m) 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 3 2 2 4 4 4 4 5 5 5 6 3 2 2 3 4 5 5 6 3 2 2 3 4	0 15	2	0	25	30	35		13.5 - 13.0 - 12.5 - 11.5 -
3.5	3 6 7 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	14					35	5	10.5
4.5 -									9.5
	Termina			Probe Details		Remarks			
(\$)	Depth: 3.70m Obstr	Reason: uction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dynan	nic Pr	obe L	og			Probe N	
Contract:	Hollybank		ı	Easting:	717815.60	03	Date Started:	13/10/2020	
Location:	Swords, Co. Dublir	١	ı	Northing:	748107.9	78	Logged By:	G. Macken	
Client:	Cairn Homes PLC		I	Elevation:	13.91		Scale:	1:25	
Engineer:	Waterman Moylan		ı	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth		40		obe	0.5	00	05		Level (mOD)
1.5 - 2.5 -	5 2 2 2 2 2 3 3 5 5 5 5 5	10 15  11 9  10 12  14 15  14		20 22 22 22	25	30	35		13.5 - 13.0 - 12.5 - 12.0 - 11.5 -
3.0							35	5	11.0 -
- - 3.5 — - -									10.5 -
4.0									10.0 -
4.5									9.5 -
		mination:		Probe Details		Remarks:			
	Depth: 3.00m	Reason: Obstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	ami	c Pı	obe L	og			Probe I	
Contract:	Hollybank					Easting:	717807.1	17	Date Started:	13/10/2020	
Location:	Swords, Co.	Dublin				Northing:	748128.8	24	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	13.36		Scale:	1:25	
Engineer:	Waterman M	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1					obe					Level
(m)	5	10	15	5	2	0	25	30	35		(mOD
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2										13.0 -
1.0	4		12								12.5
1.5		8	12	16							12.0 -
				15							11.5 -
2.0			14		18	21					
						23	25				11.0 -
2.5									35	5	
3.0											10.5
- - - -											10.0 -
3.5 — — — — — —											0.5
4.0											9.5
- - 4.5 —											9.0 -
- - - -											8.5
		Terminat				Probe Details		Remarks	:		
	Depth: 2.50m		Reason: uction - boulders		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	amic	Probe L	.og			Probe DP12	
Contract:	Hollybank				Easting:	717805.5	75	Date Started:	13/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748147.5	52	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	12.09		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competit	or 130	Sheet No:	Sheet 1 of 1	
Depth					Probe					Level
(m)	5	10	0 15	5	20	25	30	35		(mOD)
0.5	3									12.0 —
1.0	3	L								11.5 -
1.5	4 5	8	10							11.0 —
		8	12	18						10.5 -
2.0				18	21	lh.				10.0 —
2.5						24		35	5	9.5 -
3.0										9.0 —
3.5 —										8.5 -
4.0										8.0 —
4.5										7.5 -
		Termina			Probe Detail		Remarks	S:		
	Depth: 2.60m		Reason: uction - boulders	Typ s. DP	e: Mass	Drop: 500mm	_			

Contract No: 5769			Dyn	am	nic P	robe L	.og			Probe <b>DP1</b> 2	
Contract:	Hollybank					Easting:	717801.1	92	Date Started:	13/10/2020	
Location:	Swords, Co. I	Dublin				Northing:	748177.2	89	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	9.25		Scale:	1:25	
Engineer:	Waterman Mo	oylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				Pr	obe					Leve
(m)	5	10	) 15	5	2	20	25	30	35		(mOD
0.5	2 2 2 2 3 3 3 2 2 2										9.0 -
1.5	4 5 2 2 2 3 2 3										8.0 - 7.5
2.5	5	7 9 8 8									7.0 -
3.0			12 14 14	15	18						6.5
3.5						22	24		35	5	6.0 -
4.0											5.5
- - - 4.5 -											5.0 -
- - -											4.5
13	Depth:	Terminat	tion: Reason:		Type:	Probe Detail Mass	ls: Drop:	Remarks	s:		
	3.60m	Obstru	uction - boulders	S.	DPH	50kg	500mm	-			

Contract No: 5769		Dynar	nic Pı	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717806.7	90	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748186.9	29	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	8.60		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		obe	05	00	05	1	Level (mOD)
1	5	10 15	2	0	25	30	35		8.5 -
2	2								-
	2								
0.5	3								8.0 —
	3								0.0
	3								
1.0	4								7.5 -
	5								
2	2								-
1.5									7.0 —
1									
0									
2.0	2								6.5 -
	3								
	3								
2.5	6	40							6.0 —
		13 15							-
			18		25				-
3.0							35	i	5.5 -
-									-
-									-
3.5 —									5.0 —
-									-
-									
4.0									4.5 -
-									
- 4.5 —									
4.5									4.0 —
1									
=			_						-
		nination:		Probe Details		Remarks	:		
$(\P)$	Depth: 3.10m O	Reason: bstruction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	]-			
				359					

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717806.6	06	Date Started:	13/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748204.9	12	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	7.74		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth	1				obe	I			-1	Leve
(m)	5	10	15	2	20 	25	30	35		(mOD
1.0	2 2 2 2 2 2 2 3 3 3 2 3 5 5									7.5 7.0
2.0 1	2 6 4 4	7	15 13 15		21					5.5
0.0						26 24				
3.5								35	;	4.5
4.5 -										3.5
		Termination:	<u> </u>		Probe Detail	s:	Remarks:			
	Depth: 3.30m	Reason - Obstruction -		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	am	ic P	robe L	.og			Probe N	
Contract:	Hollybank					Easting:	717825.7	68	Date Started:	13/10/2020	
Location:	Swords, Co. D	Dublin				Northing:	748188.7	95	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	8.50		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	1	0 1	_		obe	25	20	25	•	Level
(m)  1  2  1.0  1.5  2.0  2.1  2.5  3.0	5 2 2 3 3 2 3 3 2 3 3 3 3 3 3 3 3 2 2 3 3 2 2 3 3 2 2 3	7	0 1	5		20	25	30	35		(mOD)  8.0 —  7.5 —  7.0 —  6.5 —  6.5 —
3.5	6	7 9	14		18						5.0 -
4.0									35		- 4.5 -
4.5		Termina	tion:			Probe Details	e.	Remarks:			4.0 -
	Depth:		Reason:		Type:	Mass	Drop:	-			
	3.60m	Obstr	uction - boulders	s.	DPH	50kg	500mm				

Contract No: 5769			Dyna	mic P	robe L	.og			Probe I	
Contract:	Hollybank				Easting:	717847.8	14 D	ate Started:	13/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748189.8	11 Lo	gged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	8.41	Sc	cale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130 SI	neet No:	Sheet 1 of 1	
Depth					obe					Leve
(m)	5	10	15	:	20	25	30	35		(mOE
1.0	2 2 2 3 3 2 2 3 3 3 3 3 3 3 3 2 2 2 2 2									7.5
2.0	3 2 2 2 2 3 3 2 2 2									6.5
3.0	5 6 6	7								5.5
3.5		8 9 1	0 15	19		26				5.0
4.0								35	1	4.5
-										
- - 4.5 — -										4.0
=										3.5
		Terminat	ion:		Probe Detail	c.	Remarks:			0.0
	Depth:		Reason:	Type:	Mass	Drop:	-			
	3.90m	Obstru	ction - boulders.	DPH	50kg	500mm				

Contract No: 5769		Dynar	nic Pı	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717864.6	86	Date Started:	13/10/2020	
Location:	Swords, Co. Dublin			Northing:	748173.3	12	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	9.69		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	-	40 45		obe	25	20	25		Level (mOD)
(111)	5	10 15	2	0	25	30	35		(IIIOD
0.5	4								9.5
1.0	3 3								
	3 3 2								8.5 -
1.5	3								
1	5								8.0 —
2.0	3								7.5 -
2.5	3 3 6								7.0 —
3.0	5 5 7								
	7								6.5 -
3.5		11 14	18						
					24		35	i	6.0 —
4.0									5.5 -
- - 4.5 —									
- - - -									5.0 —
		nation:		Probe Details		Remarks			
	Depth:	Reason: struction - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717877.0	40	Date Started:	13/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748221.2	43	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	7.01		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10	15		obe	25	30	35		Level (mOD)
1.0 — — — — — — — — — — — — — — — — — — —	5	7	12	17		25		35		6.5 - 6.5 -
										-
$\perp$		Termination:			Probe Details	s:	Remarks:			
	Depth: 3.40m	Reas		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	mic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717867.9	37	Date Started:	13/10/2020	
Location:	Swords, Co. [	Dublin		Northing:	748230.5	35	Logged By:	G. Macken	
Client:	Cairn Homes	PLC		Elevation:	6.71		Scale:	1:25	
Engineer:	Waterman Mo	pylan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40 45		robe	25	20	25		Level (mOD
1	5	10 15		20	25	30	35		(IIIOD)
	4								6.5 -
		10		21					
0.5				22			35	i	-
									6.0 —
1.0									
-									5.5 -
_									
1.5 —									
-									5.0 —
-									-
2.0									
-									4.5 -
_ 2.5 —									-
2.5									
-									4.0 —
3.0									
-									3.5 -
-									
3.5 —									
-									3.0 —
-									-
4.0									-   
-									2.5 -
- 4.5 —									
-									
_ ]									2.0 —
									-
	Depth:	Termination:  Reason:	Type:	Probe Detail Mass	s: Drop:	Remarks:			
	0.70m	Obstruction - boulders.	DPH	50kg	500mm				

Contract No: 5769			Dyna	amic P	robe L	.og			Probe N	
Contract:	Hollybank				Easting:	717842.3	75	Date Started:	13/10/2020	
Location:	Swords, Co. [	Dublin			Northing:	748231.0	80	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	6.99		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	1	0 15		robe	25	20	25		Level (mOD)
1.5	2 2 2 3 3 2 2 2 3 4 2 2	7 8	12 13			25	30	35	;	6.5 —  6.6 —  -  6.5 —  -  5.5 —  -  4.5 —  4.5 —
3.0										- 4.0 — - -
3.5 -										3.5 -
4.0										3.0 — - - - 2.5 —
		Termina			Probe Detail		Remarks	:		-
(1)	Depth: 2.40m		Reason: uction - boulders	Type: . DPH	Mass 50kg	Drop: 500mm				

Contract No: 5769			Dyna	mic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717815.9	81	Date Started:	13/10/2020	
Location:	Swords, Co. D	ublin			Northing:	748231.2	40	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC			Elevation:	7.35		Scale:	1:25	
Engineer:	Waterman Moy	/lan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10	15		obe	25	30	35		Level (mOD)
1.0 - 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 3 2 2 3 3 2 2 3 3 4 4 4 4 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6									7.0 —
2.5	6	7 8	12					35	5	5.5
3.0										4.5 — - - - 4.0 — -
4.0										3.5 — - - -
- - 4.5 - - - -										3.0 —
		Termination	<u> </u>		Probe Details	3:	Remarks:	<u> </u>		
	Depth: 2.60m	Re	eason: on - boulders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769		Dyna	amic P	robe L	.og			Probe N	
Contract:	Hollybank			Easting:	717824.0	57	Date Started:	13/10/2020	
Location:	Swords, Co. D	Oublin		Northing:	748243.4	13	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC		Elevation:	6.85		Scale:	1:25	
Engineer:	Waterman Mo	ylan		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40 45		robe	25	20	25		Level (mOD
1	5	10 15		20	25	30	35		(IIIOD
2	2								-
2	3								6.5 -
0.5	2								
1	•								
1.0	!								6.0 —
2	2								
2	4								5.5 -
1.5		7					35	i	
-									5.0 —
2.0									
_									-
-									4.5 -
2.5 — -									
-									4.0 —
3.0									4.0
-									
_									3.5 -
3.5 —									-
-									-
-									3.0 —
4.0									-
-									
4.5 —									2.5 -
-									
-									2.0 —
(A)	Depth:	Termination:  Reason:	Type:	Probe Details Mass	s: Drop:	Remarks:			
	1.60m	Obstruction - boulders.		50kg	500mm	1			

Contract No: 5769			Dyn	ic P	robe L	og			Probe No: <b>DP135</b>		
Contract:	Hollybank					Easting:	717822.1	94	Date Started:	13/10/2020	
Location:	Swords, Co. D	Dublin				Northing:	748259.1	09	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	6.09		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10	) 1:	5		obe	25	30	35		Level (mOD)
2.0 — — — — — — — — — — — — — — — — — — —		8 3	11 14		17 18				35		6.0 —
-											-
		Terminat	tion:			Probe Details	3:	Remarks:			-
(\$)	Depth: 2.50m		Reason: uction - boulders	S.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			ynan	nic Pı	robe L	og			Probe No: <b>DP136</b>	
Contract:	Hollybank			I	Easting:	717832.4	92	Date Started:	14/10/2020	
Location:	Swords, Co. I	Dublin			Northing:	748274.7	03	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	5.88		Scale:	1:25	
Engineer:	Waterman Mo	oylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40	45		obe	05	00	05		Level (mOD)
0.5	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	7 12	15	2	0	25	30	35		5.5 —
2.0					22		_	35	i	4.0 —
2.5 —										3.5 -
3.0										3.0 —
3.5 —										2.5 — - -
4.0										2.0 — - -
4.5 —										- 1.5 - - - -
_										1.0 —
	Donth	Termination:		Type:	Probe Details Mass	S: Drop:	Remarks	:		1
	Depth: 2.00m	Obstruction - bo		DPH	50kg	500mm	_			

Contract No: 5769			Dyn	ami	c Pı	obe L	og			Probe N	
Contract:	Hollybank				ı	Easting:	717853.8	64	Date Started:	14/10/2020	
Location:	Swords, Co. D	Oublin			ı	Northing:	748270.4	04	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	5.64		Scale:	1:25	
Engineer:	Waterman Mo	ylan				Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		40		-		obe	05	00			Level (mOD)
1	5	10	1:	5	2	0	25	30	35		-
0.5	2 2 2 2 3 3 3 3										5.5
1.0	4										- -
4.5	3 4 2 3										4.5 — — —
1.5		8	14 12 14								4.0 —
2.0				15	18						-
						22			35	5	3.5 -
2.5 —											3.0 —
3.0											- - 2.5 -
3.5 —											2.0 —
4.0											- - - 1.5 -
4.5 —											-
-											1.0 —
		Termination				Probe Details		Remarks	:		
	Depth: 2.30m		Reason: ction - boulders		Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dynai	mic P	robe L	og			Probe N	
Contract:	Hollybank				Easting:	717872.1	97	Date Started:	14/10/2020	
Location:	Swords, Co. D	ublin			Northing:	748271.2	81	Logged By:	G. Macken	
Client:	Cairn Homes F	PLC			Elevation:	5.74		Scale:	1:25	
Engineer:	Waterman Moy	/lan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	10	15		obe	25	20	25		Level (mOD)
1		10	13		1	25	30	35		-
1	2									5.5 -
0.5	3									-
2.5	3									-
2	<u>?</u> !									5.0 —
1.0	3									-
	6									4.5 -
		9								-
1.5		8	14							-
						26		35		4.0 —
2.0										-
_										2.5
										3.5 -
2.5 —										-
-										3.0 —
										-
3.0										
- -										2.5 -
- 3.5 —										-
-										2.0 —
-										2.0
4.0										-
_										1.5 -
4.5										-
4.5 — –										-
										1.0 —
										-
(A)	Depth:	Termination:	on:	Type:	Probe Details Mass	S: Drop:	Remarks:			
	1.90m	Obstruction		DPH	50kg	500mm	1			

Contract No: 5769			Dyn	ami	ic Pı	obe L	og			Probe N	
Contract:	Hollybank					Easting:	717885.2	97	Date Started:	14/10/2020	
Location:	Swords, Co. [	Dublin			1	Northing:	748263.5	19	Logged By:	G. Macken	
Client:	Cairn Homes	PLC				Elevation:	6.03		Scale:	1:25	
Engineer:	Waterman Mo	ylan			ı	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)	5	1	0 15		Pro 2	obe	25	30	35		Level (mOD)
2.0 — 2.5 — 2.5 — 3.5 — 4.0 — 4.5 —	Depth:	7 9 9 Termina		15 16		Probe Details Mass		Remarks:	35		5.5 - 5.0 - 4.5 - 4.0 - 3.5 - 2.0 - 1.5 -
	Depth: 2.10m	Obstr	Reason: uction - boulders		Type: DPH	Mass 50kg	Drop: 500mm	-			
						301.9	55011111				

Contract No: 5769		Dyna	amic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717776.6	15	Date Started:	14/10/2020	
Location:	Swords, Co. Dubl	in		Northing:	748282.3	17	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	6.88		Scale:	1:25	
Engineer:	Waterman Moylar	า		Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe					Level
(m) 1	5	10 15	:	20	25	30	35		(mOD)
1 2									-
2									6.5 -
0.5	3								-
	5	8							-
		8							6.0 —
1.0		10							-
		12	5						-
		14	18						5.5 —
1.5		13							_
		11	5						-
		14		23					5.0 —
2.0						28	35		-
								,	-
- 2.5 —									4.5 -
-									-
									-
3.0									4.0 —
									-
									-
- 3.5 —									3.5 -
_									-
-									3.0 —
4.0									3.0
_									-
-									2.5 —
4.5 —									
									-
_									2.0 —
				Dook D. C.		<u> </u>			_
	Depth:	ermination: Reason:	Type:	Probe Details Mass	Drop:	Remarks:	<u> </u>		
		Obstruction - boulders.		50kg	500mm				

Contract No: 5769		Dynai	mic P	robe L	og			Probe N	
Contract:	Hollybank			Easting:	717768.2	65	Date Started:	14/10/2020	
Location:	Swords, Co. Dublin			Northing:	748272.2	69	Logged By:	G. Macken	
Client:	Cairn Homes PLC			Elevation:	7.32		Scale:	1:25	
Engineer:	Waterman Moylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth				obe				1	Level
(m)	5	10 15		20	25	30	35		(mOD)
1									-
2									7.0 —
0.5	3								-
	3								-
	6								6.5 -
1.0	7								-
	7								_
		9 10							6.0 —
1.5		9							-
		11							5.5 –
		13							5.5 -
2.0				23	26				-
							35	i	5.0 —
_ 2.5 —									-
									_
]									4.5 -
3.0									-
_									-
-									4.0 —
3.5 —									-
-									-
									3.5 -
4.0									-
-									-
-									3.0 —
4.5 —									_
									-
1									2.5 -
	Tar	mination:		Probe Details		Remarks:			
	Depth:	Reason:	Type:	Mass	Drop:	-			
	2.30m C	bstruction - boulders.	DPH	50kg	500mm				

Contract No: 5769		D	ynar	nic P	robe L		Probe No: DP142			
Contract:	Hollybank				Easting:	717771.3	15	Date Started:	14/10/2020	
Location:	Swords, Co. D	Dublin			Northing:	748258.9	60	Logged By:	G. Macken	
Client:	Cairn Homes	PLC			Elevation:	7.59		Scale:	1:25	
Engineer:	Waterman Mo	ylan			Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth					obe					Level
(m) 1	5	10	15		20	25	30	35		(mOD)
2	2									7.5 -
2	2									-
0.5	2									7.0 —
	3 3									-
	4									_
1.0	5									6.5 -
	6	8								-
		8 10								_
1.5		10								6.0 —
		11	15							-
			14	18						_
2.0					21	0.5				5.5 —
						25		35	5	-
_										_
2.5 —										5.0 —
_										_
_										-
3.0										4.5 —
_										-
3.5 —										-
3.5 —										4.0 —
_										-
4.0										_
4.0										3.5 —
										-
- 4.5 —										-
-										3.0 —
_										-
_										_
		Termination:			Probe Details		Remarks	:		I
$(\mathfrak{G})$	Depth: 2.30m	Reason: Obstruction - bot	ılders.	Type: DPH	Mass 50kg	Drop: 500mm	-			

Contract No: 5769			Dyn	amic	Pr	obe L	og			Probe N	
Contract:	Hollybank				E	asting:	717760.7	97	Date Started:	14/10/2020	
Location:	Swords, Co. D	Oublin			N	lorthing:	748244.7	35	Logged By:	G. Macken	
Client:	Cairn Homes I	PLC			E	Elevation:	8.35		Scale:	1:25	
Engineer:	Waterman Mo	ylan			F	Rig Type:	Competito	or 130	Sheet No:	Sheet 1 of 1	
Depth (m)		4	2		Prol		05	00			Level (mOD)
1.0	3 3 3 3 4 4 4		10 10 10 112	16			25	30	35		7.5
2.5				18	3	22			35	5	6.0 -
2.5											5.5 - -
3.5 —											5.0 —
4.0											4.5 -
- - - 4.5 — - -											4.0 —
-											3.5 -
		Termina				robe Details		Remarks:			
<b>(§</b> )	Depth: 2.50m	Obstru	Reason: uction - boulders	Typ . DP		Mass 50kg	Drop: 500mm	<u> </u> -			

## Appendix 4 Geotechnical Laboratory Test Results

### Classification Tests in accordance with BS1377: Part 4

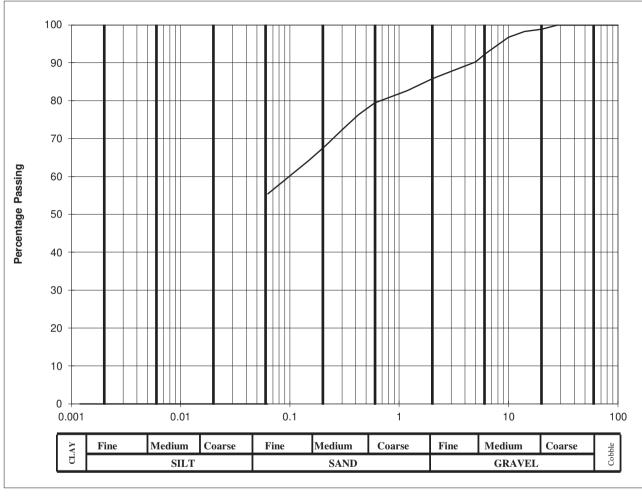
Client	Cairn Homes PLC
Site	Hollybank, Swords
S.I. File No	5769 / 20
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email info@siteinvestigations.ie
Report Date	20th October 2020

Hole ID	Depth	Sample	Lab Ref	Sample	Natural	Liquid	Plastic	Plastic	Min. Dry	Particle	%	Comments	Remarks C=Clay;
		No	No.	Type	Moisture	Limit	Limit	Index	Density	Density	passing		M=Silt Plasticity:
					Content	%	%	%	Mg/m <sup>3</sup>	Mg/m <sup>3</sup>	425um		L=Low; I=Intermediate;
					%					C			<b>H</b> =High; <b>V</b> =Very High;
													E=Extremely High
BH101	1.00	TT02	20/1023	В	15.2	34	22	12			76.3		CL
BH103	1.00	TT10	20/1024	В	16.7	33	21	12			75.7		CL
BH105	1.00	TT34	20/1025	В	15.2	34	21	13			71.9		CL
BH106	1.00	TT26	20/1026	В	15.6	36	21	15			85.2		CI

Printed 30/10/2020 \_\_\_\_\_Paddy McGonagle Sheet 1 of 1 \_\_\_\_\_\_Site Investigations Ltd

BS Sieve	Percent	Hydrometer	analysis
size, mm	passing	Diameter, mm	% passing
100	100	0.0630	
90	100	0.0200	
75	100	0.0060	
63	100	0.0020	
50	100		
37.5	100		
28	100		
20	98.8		
14	98.2		
10	96.7		
6.3	92.6		
5.0	90.2		
2.36	86.6		
2.00	85.7		
1.18	82.6		
0.600	79.4		
0.425	76.3		
0.300	72.3		
0.212	68.1		
0.150	64.3		
0.063	55		

Cobbles, %	0
Gravel, %	14
Sand, %	31
Clay / Silt, %	55



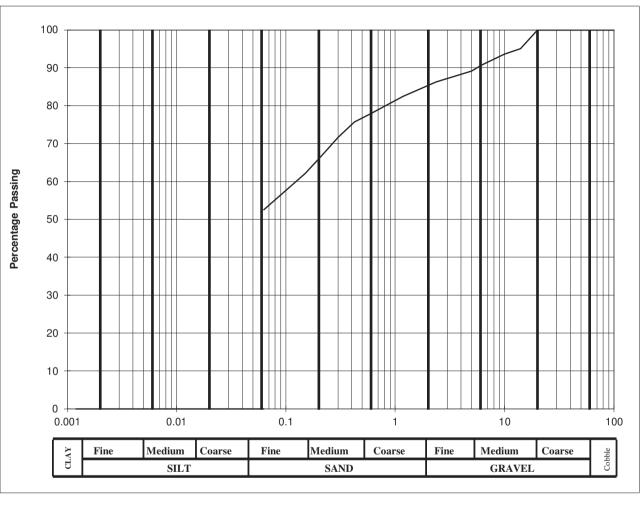
Client:	Cairn Homes PLC	Lab. No:	20/1023		Hole ID :
Project:	Hollybank, Swords	Sample No:	TT02		Depth, m:

Material description:	slightly sandy slightly gravelly silty CLAY
	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks :	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BH 101 1.00

BS Sieve	Percent	Hydrometer	analysis
size, mm	passing	Diameter, mm	% passing
100	100	0.0630	
90	100	0.0200	
75	100	0.0060	
63	100	0.0020	
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	93.6		
6.3	90.8		
5.0	89.1		
2.36	86.2		
2.00	85.3		
1.18	82.4		
0.600	77.9		
0.425	75.7		
0.300	71.6		
0.212	66.7		
0.150	62.1		
0.063	53		

Cobbles, %	0
Gravel, %	15
Sand, %	32
Clay / Silt, %	53



Client:	Cairn Homes PLC	
Project:	Hollybank, Swords	

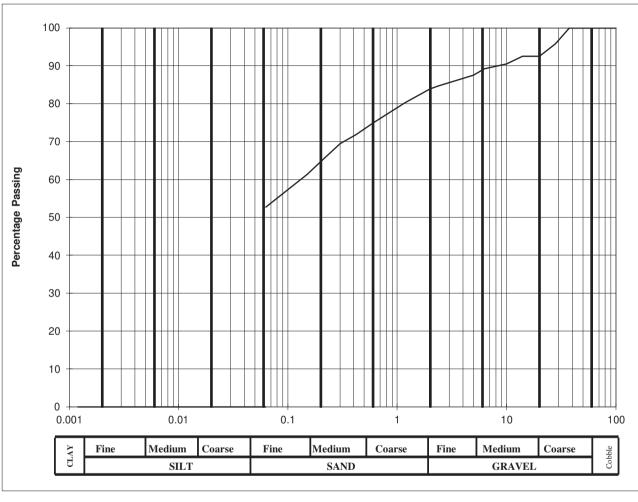
Lab. No:	20/1024
Sample No:	TT10

Hole ID:	BH 103
Depth, m:	1.00

Material description:	slightly sandy slightly gravelly silty CLAY
	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks:	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis
size, mm	passing	Diameter, mm	% passing
100	100	0.0630	
90	100	0.0200	
75	100	0.0060	
63	100	0.0020	
50	100		
37.5	100		
28	95.8		
20	92.5		
14	92.5		
10	90.5		
6.3	89.2		
5.0	87.5		
2.36	84.6		
2.00	83.9		
1.18	80.2		
0.600	74.8		
0.425	71.9		
0.300	69.4		
0.212	65.4		
0.150	61.3		
0.063	53		

Cobbles, %	0
Gravel, %	16
Sand, %	31
Clay / Silt, %	53



Client:	Cairn Homes PLC
Project:	Hollybank, Swords

Lab. No:	20/1025
Sample No:	TT34

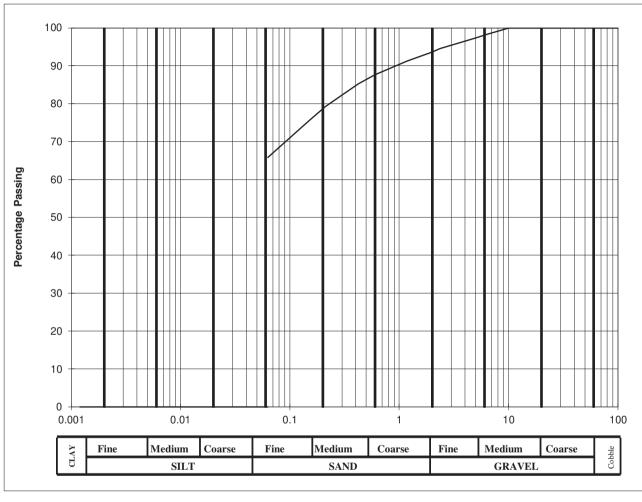
Hole ID :	BH 105
Depth, m:	1.00

Material description:	slightly sandy slightly gravelly silty CLAY
	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.
Remarks:	Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

BS Sieve	Percent	Hydrometer	analysis
size, mm	passing	Diameter, mm	% passing
100	100	0.0630	
90	100	0.0200	
75	100	0.0060	
63	100	0.0020	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	98.2		
5.0	97.3		
2.36	94.5		
2.00	93.6		
1.18	91.2		
0.600	87.6		
0.425	85.2		
0.300	82.3		
0.212	79.2		
0.150	75.5		
0.063	66		

Cobbles, %	0
Gravel, %	6
Sand, %	28
Clay / Silt, %	66

Remarks:



Client:	Cairn Homes PLC
Project:	Hollybank, Swords

Lab. No:	20/1026
Sample No:	TT26

Hole ID:	BH 106
Depth, m:	1.00

Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour.

Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

## Chemical Testing In accordance with BS 1377: Part 3

Client	Cairn Homes PLC
Site	Hollybank, Swords
S.I. File No	5769 / 20
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	20th October 2020

Hole Id	Depth	Sample	Lab Ref	рН	Water Soluble	Water Soluble	Loss on	Chloride	% passing	Remarks
	(mBGL)	No		Value	Sulphate Content	Sulphate Content	Ignition	ion	2mm	
					(2:1 Water-soil	(2:1 Water-soil	(Organic	Content		
					extract) (SO <sub>3</sub> )	extract) (SO <sub>3</sub> )	Content)	(water:soil		
					g/L	%	<b>%</b>	ratio 2:1)		
								%		
BH101	1.00	TT02	20/1023	8.32	0.129	0.110		0.24	85.7	
BH103	1.00	TT10	20/1024	8.30	0.126	0.107		0.27	85.3	
BH105	1.00	TT34	20/1025	8.40	0.127	0.107		0.29	83.9	
BH106	1.00	TT26	20/1026	8.30	0.131	0.123		0.22	93.6	

\_\_\_\_\_Paddy McGonagle
Site Investigations Ltd.

# Appendix 5 Environmental Laboratory Test Results



Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden Deeside CH5 3US

> Tel: (01244) 528700 Fax: (01244) 528701

email: haward encustomers ervices@alsglobal.com

Website: www.alsenvironmental.co.uk

Site Investigations Ltd The Grange Carhugar 12th Lock Road Lucan Co. Dublin

Attention: Stephen Letch

#### **CERTIFICATE OF ANALYSIS**

Date of report Generation:29 October 2020Customer:Site Investigations Ltd

Sample Delivery Group (SDG): 201017-89
Your Reference: 5769

Location: Hollybank, Swords

**Report No:** 573257

We received 6 samples on Saturday October 17, 2020 and 6 of these samples were scheduled for analysis which was completed on Thursday October 29, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

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

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager









#### **CERTIFICATE OF ANALYSIS**

SDG: 201017-89 Client Reference: 5769 Report Number: 573257
Location: Hollybank, Swords Order Number: 100A/20 Superseded Report:

### **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23056795	BH/01-0.5M		0.50 - 0.50	15/10/2020
23056797	BH/01-1.0M		1.00 - 1.00	15/10/2020
23056798	BH/03-1.0M		1.00 - 1.00	15/10/2020
23056801	BH/05-1.0M		1.00 - 1.00	15/10/2020
23056796	BH/06-0.5M		0.50 - 0.50	15/10/2020
23056803	BH/06-1.0M		1.00 - 1.00	15/10/2020

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

573257

Report Number:

#### **CERTIFICATE OF ANALYSIS**

Client Reference:

ALS	

SDG:

201017-89

Location: Hollybank, Swords Order Number: 100A/20 Results Legend 23056796 23056795 23056803 23056797 23056798 Lab Sample No(s) X Test No Determination Possible BH/06-0.5M BH/06-1.0M BH/01-0.5M BH/01-1.0M BH/03-1.0M BH/05-1 Customer Sample Reference .0M Sample Types -S - Soil/Solid UNS - Unspecified Solid GW - Ground Water **AGS Reference** SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water 0.50 -0.50 -1.00 - 1.00 .00 00 .00 SA - Saline Water Depth (m) - 0.50 - 1.00 - 0.50 TE - Trade Effluent - 1.00 1.00 TS - Treated Sewage US - Untreated Sewage 250g Amber Jar (ALE210) 60g VOC (ALE215) RE - Recreational Water 60g VOC (ALE215) 1kg TUB with Handle (ALE260) 250g Amber Jar (ALE210) 250g Amber Jar (ALE210) 250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260) 250g Amber Jar (ALE210) 250g Amber Jar (ALE210) DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge Container G - Gas OTH - Other Sample Type S S S S Anions by Kone (w) All NDPs: 0 Tests: 2 X X CEN Readings All NDPs: 0 Tests: 2 X Chromium III All NDPs: 0 Tests: 2 X X Coronene All NDPs: 0 Х X Dissolved Metals by ICP-MS All NDPs: 0 Tests: 2 X X Dissolved Organic/Inorganic Carbon All NDPs: 0 Tests: 2 X Х EPH by GCxGC-FID All NDPs: 0 Tests: 2 Χ Х EPH CWG GC (S) All NDPs: 0 Tests: 2 Χ X Fluoride All NDPs: 0 Tests: 2 X X GRO by GC-FID (S) All NDPs: 0 Tests: 2 X X Hexavalent Chromium (s) All NDPs: 0 Tests: 2 X X Loss on Ignition in soils All NDPs: 0 Tests: 6 X Х Х Х X Х Mercury Dissolved All NDPs: 0 Tests: 2 Х All Metals in solid samples by OES NDPs: 0 Tests: 2 Χ X PAH by GCMS All NDPs: 0 Tests: 2 X X

573257

#### **CERTIFICATE OF ANALYSIS**

ALS	

SDG: 201017-89 Client Reference: 5769 Report Number: Hollybank, Swords Location: Order Number: 100A/20 Superseded Report: Results Legend 23056795 23056797 23056798 23056796 23056803 Lab Sample No(s) X Test No Determination Possible BH/01-0.5M BH/01-1.0M BH/03-1.0M BH/05-1.0M BH/06-0.5M BH/06-1.0M Customer Sample Reference Sample Types -S - Soil/Solid UNS - Unspecified Solid GW - Ground Water **AGS Reference** SW - Surface Water LE - Land Leachate PL - Prepared Leachate 0.50 -PR - Process Water 0.50 - 0.501.00 - 1.00 .00 .00 .00 SA - Saline Water Depth (m) - 0.50 - 1.00 - 1.00 TE - Trade Effluent 1.00 TS - Treated Sewage US - Untreated Sewage RE - Recreational Water 60g VOC (ALE215) 1kg TUB with
Handle (ALE260)
250g Amber Jar
(ALE210)
250g Amber Jar
(ALE210)
250g Amber Jar
(ALE210)
250g Amber Jar
(ALE210) 60g VOC (ALE215) 250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260) 250g Amber Jar (ALE210) 250g Amber Jar (ALE210) DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge Container G - Gas OTH - Other Sample Type ഗ S S S S S S S S S PCBs by GCMS All NDPs: 0 Tests: 2 X X Phenols by HPLC (W) All NDPs: 0 Tests: 2 X All Sample description NDPs: 0 Tests: 6 X Χ X X Χ Х Total Dissolved Solids on Leachates ΑII NDPs: 0 Tests: 2 X X Total Organic Carbon All NDPs: 0 Tests: 2 Χ Χ TPH CWG GC (S) All NDPs: 0 Tests: 2 Χ X VOC MS (S) All NDPs: 0 Tests: 2 Χ X



#### **CERTIFICATE OF ANALYSIS**

SDG: 201017-89 Location: Hollybank, Swords Client Reference: Order Number:

5769 100A/20 Report Number: Superseded Report: 573257

### **Sample Descriptions**

#### **Grain Sizes**

very fine	<0.0	063mm	fine	0.06	3mm - 0.1mm	me	dium	0.1mm	ı - 2mm	coar	se	2mm - 10	Omm	very coa	arse	>10mm	
Lab Sample	No(s)	Custor	mer Sample Ro	ef.	Depth (m)		Co	lour	Descrip	tion	Ir	nclusions	Inclu	sions 2	1		
2305679	15		BH/01-0.5M		0.50 - 0.50		Dark	Brown	Silt Loa	am	١	/egetation	Sto	ones			
2305679	17		BH/01-1.0M		1.00 - 1.00		Light	Brown	Silty Cl	ay		Stones	Vege	etation			
2305679	18		BH/03-1.0M		1.00 - 1.00		Light	Brown	Silty Cl	ay		Stones	Vege	etation			
2305680	11		BH/05-1.0M		1.00 - 1.00		Light	Brown	Silty Cl	ay		Stones	Vege	etation			
2305679	16		BH/06-0.5M		0.50 - 0.50		Dark	Brown	Silt Loa	am		Stones	Vege	etation			
2305680	13		BH/06-1.0M		1.00 - 1.00		Light	Brown	Clay			Stones	N	one			

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

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

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

#### **CERTIFICATE OF ANALYSIS**

ALS

SDG: 201017-89 Location: Hollybank, Swords

Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report:

Results Legend # ISO17025 accredited.		Customer Sample Ref.	BH/01-0.5M	BH/01-1.0M	BH/03-1.0M	BH/05-1.0M	BH/06-0.5M	BH/06-1.0M
M mCERTS accredited. aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.		Depth (m)	0.50 - 0.50	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	0.50 - 0.50	1.00 - 1.00
tot.unfilt Total / unfiltered sample.  * Subcontracted - refer to subcontractor report	t for	Sample Type	Soil/Solid (S)					
accreditation status.  ** % recovery of the surrogate standard to che	ak tha	Date Sampled Sample Time	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
efficiency of the method. The results of indiv	ridual	Date Received	17/10/2020	17/10/2020	17/10/2020	17/10/2020	17/10/2020	17/10/2020
compounds within samples aren't corrected recovery	for the	SDG Ref	201017-89	201017-89	201017-89	201017-89	201017-89	201017-89
(F) Trigger breach confirmed		Lab Sample No.(s)	23056795	23056797	23056798	23056801	23056796	23056803
1-4+§@ Sample deviation (see appendix)	1.000.0	AGS Reference						
Component	LOD/Units	Method	04	00	40	47	45	45
Moisture Content Ratio (% of as	%	PM024	24	20	18	17	15	15
received sample)								
Loss on ignition	<0.7 %	TM018	45.6	4.28	4.22	3.95	4.38	3.5
			М	M	M	M	M	M
Organic Carbon, Total	<0.2 %	TM132	2.16				0.844	
, i			М				M	
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6				<0.6	
On on an, riexavalent	10.0 mg/kg	1101101	#				40.0	
DOD 00	.0 //	T14400						
PCB congener 28	<3 μg/kg	TM168	<3				<3	
			M				M	
PCB congener 52	<3 µg/kg	TM168	<3				<3	
			M				М	
PCB congener 101	<3 µg/kg	TM168	<3				<3	
5			М				M	
PCB congener 118	<3 110/lea	TM168	<3				<3	
1 OD CONGENE I 10	<3 µg/kg	1101100						
DOD 100	2 "	711100	M				M	
PCB congener 138	<3 µg/kg	TM168	<3				<3	
		1	M				M	
PCB congener 153	<3 µg/kg	TM168	<3				<3	
			М				M	
PCB congener 180	<3 µg/kg	TM168	<3				<3	
3	1 7 3 3		М				М	
Sum of detected PCB 7	<21 µg/kg	TM168	<21				<21	
	~21 μg/kg	1101100	\21				\Z1	
Congeners	0.0 "	T14404	04.5				40.0	
Chromium, Trivalent	<0.9 mg/kg	TM181	21.5				19.9	
Antimony	<0.6 mg/kg	TM181	<0.6				<0.6	
			#				#	
Arsenic	<0.6 mg/kg	TM181	18.4				11.8	
	3.3		М				М	
Barium	<0.6 mg/kg	TM181	118				111	
Banam	io.o mg/kg	1111101	#				#	
O-desisors	40.00//	TN4404						
Cadmium	<0.02 mg/kg	TM181	1.18				0.954	
			M				M	
Chromium	<0.9 mg/kg	TM181	21.5				19.9	
			M				M	
Copper	<1.4 mg/kg	TM181	34.9				22.2	
			M				M	
Lead	<0.7 mg/kg	TM181	74.2				27.8	
			M				M	
Mercury	<0.14 mg/kg	TM181	0.942				<0.14	
iviercury	<0.14 mg/kg	TIVITOT						
	-0.4 "	T11101	M				M	
Molybdenum	<0.1 mg/kg	TM181	3.54				1.98	
	-		#				#	
Nickel	<0.2 mg/kg	TM181	41.2				36.4	
			М				M	
Selenium	<1 mg/kg	TM181	1.45				<1	
			#				#	
Zinc	<1.9 mg/kg	TM181	102				73.9	
[			M				7 0.3 M	
Coronana	<200 µg/kg	TM410	<200				<200	
Coronene	~200 μg/kg	I IVI <del>4</del> IU	<b>\</b> 200				<b>\</b> 200	
M. 1011-040-040	- "		** *					
Mineral Oil >C10-C40	<5 mg/kg	TM415	11.1				5.57	
		<u> </u>						
		<del>                                     </del>						
		+ -						
	-							
1								

#### **CERTIFICATE OF ANALYSIS**

ALS

SDG: 201017-89 Location: Hollybank, Swords

Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report:

	ov GCMS								
	Results Legend		Customer Sample Ref.	BH/01-0.5M	BH/06-0.5M				
# M	ISO17025 accredited. mCERTS accredited.								
aq diss.filt	Aqueous / settled sample. Dissolved / filtered sample.		Depth (m)	0.50 - 0.50	0.50 - 0.50				
tot.unfilt	Total / unfiltered sample.		Sample Type	Soil/Solid (S)	Soil/Solid (S)				
,	Subcontracted - refer to subcontractor report accreditation status.	for	Date Sampled	15/10/2020	15/10/2020				
**	% recovery of the surrogate standard to check	k the	Sample Time						
	efficiency of the method. The results of individ compounds within samples aren't corrected for		Date Received SDG Ref	17/10/2020 201017-89	17/10/2020 201017-89				
(F)	recovery Trigger breach confirmed		Lab Sample No.(s)	23056795	23056796				
1-4+§@	Sample deviation (see appendix)		AGS Reference						
Compo		LOD/Units	Method						
Naphth	alene	<9 µg/kg	TM218	<9	<9				
				M		M			
Acenap	hthylene	<12 µg/kg	TM218	<12	<12				
	•	""		М		М			
Acenap	hthene	<8 µg/kg	TM218	26.5	<8				
/ tooriap	IIIIIIII	чо ружу	TIVIZIO	20.0 M	1	М			
Eluoron	•	<10 ug/kg	TM218	21.7	<10	IVI			
Fluoren	e	<10 µg/kg	I IVIZ 10						
				M		М			
Phenan	threne	<15 µg/kg	TM218	314	25.6				
				М		М			
Anthrac	ene	<16 µg/kg	TM218	42.5	<16				
				M		M			
Fluoran	thene	<17 µg/kg	TM218	398	41.8				
				М		М			
Pyrene		<15 µg/kg	TM218	339	38.1				
, yrone		-10 μg/kg	1101210	339 M		М			
Don=/o	anthronous	<14a/lea	TM040			IVI			
benz(a)	anthracene	<14 µg/kg	TM218	164	24				
				M		М			
Chryse	ne	<10 µg/kg	TM218	173	25.4				
				M		M			
Benzo(l	o)fluoranthene	<15 µg/kg	TM218	191	32.6				
				M		M			
Benzo(	k)fluoranthene	<14 µg/kg	TM218	62.7	<14				
DOMEO(	yndoranii ono	Tr pg///g	1101210	M		М			
Popzo/	alaurono	<15 ug/kg	TM218	128	21	IVI			
Delizo(	a)pyrene	<15 µg/kg	I IVIZ 10						
				M		М			
Indeno(	1,2,3-cd)pyrene	<18 µg/kg	TM218	74.6	<18				
				M		М			
Dibenzo	o(a,h)anthracene	<23 µg/kg	TM218	<23	<23				
				M		M			
Benzo(	g,h,i)perylene	<24 µg/kg	TM218	82.8	<24				
l "		""		М		М			
РДН Т	otal Detected USEPA 16	<118 µg/kg	TM218	2020	209				
1741, 1	otal Botootoa Goel 71 10	The paying	1101210	2020	200				
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#### **CERTIFICATE OF ANALYSIS**

ALS

SDG: 201017-89 Location: Hollybank, Swords

Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report:

TPH (	CWG (S)		0 1 0 1 0 1					
# M aq diss.filt	Results Legend ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample.		Customer Sample Ref. Depth (m)	BH/01-0.5M 0.50 - 0.50	BH/06-0.5M 0.50 - 0.50			
tot.unfilt *	Total / unfiltered sample.  Subcontracted - refer to subcontractor report accreditation status.  % recovery of the surrogate standard to check	k the	Sample Type Date Sampled Sample Time	Soil/Solid (S) 15/10/2020	Soil/Solid (S) 15/10/2020			
	efficiency of the method. The results of individ compounds within samples aren't corrected for recovery	dual or the	Date Received SDG Ref	17/10/2020 201017-89	17/10/2020 201017-89			
(F) 1-4 <b>+</b> §@	Trigger breach confirmed Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	23056795	23056796			
GRO S	onent urrogate % recovery**	LOD/Units	Method TM089	99.7	101			
Aliphati	cs >C5-C6	<10 µg/kg	TM089	<10	<10			
Aliphati	cs >C6-C8	<10 µg/kg	TM089	<10	<10			
Aliphati	cs >C8-C10	<10 µg/kg	TM089	<10	<10			
Aliphati	cs >C10-C12	<1000 µg/k	g TM414	<1000	<1000			
Aliphati	cs >C12-C16	<1000 µg/k	g TM414	<1000	<1000			
Aliphati	cs >C16-C21	<1000 µg/k	g TM414	<1000	<1000			
Aliphati	cs >C21-C35	<1000 µg/k	g TM414	3170	2610			
Aliphati	cs >C35-C44	<1000 µg/k	g TM414	<1000	<1000			
Total A	liphatics >C10-C44	<5000 µg/k	g TM414	<5000	<5000			
Total A	liphatics & Aromatics	<10000 µg/kg	TM414	<10000	<10000			
Aromat	ics >EC5-EC7	<10 µg/kg	TM089	<10	<10			
Aromat	ics >EC7-EC8	<10 µg/kg	TM089	<10	<10			
Aromat	ics >EC8-EC10	<10 µg/kg	TM089	<10	<10			
Aromat	ics > EC10-EC12	<1000 µg/k	g TM414	<1000	<1000			
Aromat	ics > EC12-EC16	<1000 µg/k	g TM414	<1000	<1000			
Aromat	ics > EC16-EC21	<1000 µg/k	g TM414	<1000	<1000			
Aromat	ics > EC21-EC35	<1000 µg/k	g TM414	1240	1690			
Aromat	ics >EC35-EC44	<1000 µg/k	g TM414	<1000	<1000			
Aromat	ics > EC40-EC44	<1000 µg/k	g TM414	<1000	<1000			
Total A	romatics > EC10-EC44	<5000 µg/k	g TM414	<5000	<5000			
Total A	liphatics & Aromatics	<10000 µg/kg	TM414	<10000	<10000			
GRO >		<20 µg/kg	TM089	<20	<20			
GRO >	C6-C7	<20 µg/kg	TM089	<20	<20			
GRO >	C7-C8	<20 µg/kg	TM089	<20	<20			
GRO >	C8-C10	<20 µg/kg	TM089	<20	<20			
GRO >	C10-C12	<20 µg/kg	TM089	<20	<20			
Total A	liphatics >C5-C10	<50 μg/kg	TM089	<50	<50			
Total A	romatics >EC5-EC10	<50 µg/kg	TM089	<50	<50			
GRO >	C5-C10	<20 µg/kg	TM089	<20	<20			
		<u> </u>					<u> </u>	

#### **CERTIFICATE OF ANALYSIS**

ALS

SDG: 201017-89 Location: Hollybank, Swords

Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report:

VOC MS (S)  Results Legend # ISO17025 accredited.							
Results Legend	C	Customer Sample Ref.	BH/01-0.5M	BH/06-0.5M			
M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.50 - 0.50	0.50 - 0.50			
tot.unfilt Total / unfiltered sample.  * Subcontracted - refer to subcontractor report	for	Sample Type	Soil/Solid (S)	Soil/Solid (S)			
accreditation status.  ** % recovery of the surrogate standard to check	k the	Date Sampled Sample Time	15/10/2020	15/10/2020			
efficiency of the method. The results of individ compounds within samples aren't corrected for	dual	Date Received	17/10/2020	17/10/2020			
recovery	or the	SDG Ref	201017-89 23056795	201017-89 23056796			
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	20000130	23030790			
Component	LOD/Units	Method					
Dibromofluoromethane**	%	TM116	106	110			
Toluene-d8**	%	TM116	94.8	96.2			
4-Bromofluorobenzene**	%	TM116	73.4	84			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10	<10			
			М	М			
Benzene	<9 µg/kg	TM116	<9	<9			
			М	М			
Toluene	<7 µg/kg	TM116	<7	<7			
			M	М			
Ethylbenzene	<4 µg/kg	TM116	<4	<4			
			М	М			
p/m-Xylene	<10 µg/kg	TM116	<10	<10			
			#	#			
o-Xylene	<10 µg/kg	TM116	<10	<10			
			M	M			
						I	



ALS

SDG: 201017-89 Location: Hollybank, Swords Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report: 573257

#### **CEN 10:1 SINGLE STAGE LEACHATE TEST**

WAC ANALYTICAL RES	ULTS					REF : BS	EN 12457
Client Reference			Site Location		Hollyk	oank, Swords	
Mass Sample taken (kg)	0.118		Natural Moistur	e Content (%)	32.1		
Mass of dry sample (kg)	0.090		Dry Matter Cont	. ,	75.7		
Particle Size <4mm	>95%		Dry matter cont	(70)	70.7		
Turtiolo Gizo (Hilli)							
Case					Landi	fill Waste Acce <sub>l</sub>	
SDG	201017-89					Criteria Limits	
Lab Sample Number(s)	23056795						
Sampled Date	15-Oct-2020					Stable	
Customer Sample Ref.	BH/01-0.5M				Inert Waste	Non-reactive Hazardous Waste	Hazardous
Depth (m)	0.50 - 0.50				Landfill	in Non- Hazardous	Waste Landfil
Solid Waste Analysis	Result					Landfill	
Total Organic Carbon (%)	2.16				3	5	6
Loss on Ignition (%)	45.6				-	-	10
Sum of BTEX (mg/kg)	-				-	-	-
Sum of 7 PCBs (mg/kg)	<0.021				1	-	-
Mineral Oil (mg/kg)	11.1				500	-	-
PAH Sum of 17 (mg/kg)	-				-	-	-
pH (pH Units) ANC to pH 6 (mol/kg)	-				-	-	-
ANC to pH 4 (mol/kg)	-				_	_	_
are to produce (moning)					-		
Eluate Analysis	C <sub>2</sub> Conc <sup>n</sup> in 1	0:1 eluate (mg/l)	A2 10:1 conc	<sup>n</sup> leached (mg/kg)	Limit valu	ues for compliance lea BS EN 12457-3 at L/S	nching test
Eluate Analysis	Result	Limit of Detection	Result	Limit of Detection	Limit valu using l	BS EN 12457-3 at L/S	aching test 10 l/kg
Eluate Analysis	Result 0.0012	Limit of Detection	<b>Result</b> 0.012	Limit of Detection	Limit valu using I 0.5	BS EN 12457-3 at L/S	aching test 10 l/kg
Eluate Analysis Arsenic Barium	Result 0.0012 0.00684	Limit of Detection	Result 0.012 0.0684	Limit of Detection	Limit valu using I 0.5 20	2 100	25 300
Eluate Analysis Arsenic Barium	Result 0.0012 0.00684 <0.00008	Limit of Detection <0.0005 <0.0002 <0.0008	Result 0.012 0.0684 <0.0008	Limit of Detection   <0.005   <0.002   <0.0008	Limit valu using I 0.5 20 0.04	2 100 1	25 300 5
Eluate Analysis Arsenic Barium Cadmium	Result 0.0012 0.00684	Limit of Detection	Result 0.012 0.0684 <0.0008 <0.01	Limit of Detection	0.5 20 0.04	2 100 1 10	25 300
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper	Result 0.0012 0.00684 <0.00008	Limit of Detection <0.0005 <0.0002 <0.0008	Result 0.012 0.0684 <0.0008 <0.01 0.0472	Limit of Detection   <0.005   <0.002   <0.0008	0.5 20 0.04 0.5 2	2 100 1	25 300 5
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF)	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238	Limit of Detection <0.0005 <0.0002 <0.0008 <0.001 <0.0003 <0.0003	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238	Limit of Detection	0.5 20 0.04 0.5 2 0.01	2 100 1 10 50 0.2	25 300 5 70 100 2
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF)	Result 0.0012 0.00684 <0.00008 <0.001 0.00472	Limit of Detection <0.0005 <0.0002 <0.0008 <0.001 <0.0003	Result 0.012 0.0684 <0.0008 <0.01 0.0472	Limit of Detection	0.5 20 0.04 0.5 2	2 100 1 10 50	25 300 5 70
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238	Limit of Detection <0.0005 <0.0002 <0.0008 <0.001 <0.0003 <0.0003	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238	Limit of Detection	0.5 20 0.04 0.5 2 0.01	2 100 1 10 50 0.2	25 300 5 70 100 2
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238 0.00545	Limit of Detection <0.0005 <0.0002 <0.00008 <0.0001 <0.0003 <0.00001 <0.0003	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545	Limit of Detection	0.5 20 0.04 0.5 2 0.01	2 100 1 10 50 0.2	25 300 5 70 100 2 30
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238 0.00545 0.0013	Limit of Detection	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013	Limit of Detection   <0.005   <0.002   <0.0008   <0.01   <0.003   <0.0001   <0.003   <0.0001   <0.003   <0.004	0.5 20 0.04 0.5 2 0.01 0.5	2 100 1 10 50 0.2 10 10 10 10 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel Lead Antimony	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238 0.00545 0.0013 0.000298	Limit of Detection <0.0005 <0.0002 <0.0008 <0.001 <0.0003 <0.00001 <0.0003 <0.0004 <0.0002	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298	Limit of Detection	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	2 100 1 10 50 0.2 10 10 10 10 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel Lead Antimony Selenium	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238 0.00545 0.0013 0.000298 <0.001	Limit of Detection <0.0005 <0.0002 <0.0008 <0.001 <0.0003 <0.00001 <0.0003 <0.0004 <0.0002 <0.0002 <0.0001	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298 <0.01	Limit of Detection	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	2 100 1 100 50 0.2 10 10 10 10 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40 50
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel Lead Antimony Selenium	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238 0.00545 0.0013 0.000298 <0.001 <0.001	Limit of Detection <0.0005 <0.0002 <0.0008 <0.001 <0.0003 <0.0001 <0.003 <0.0004 <0.0002 <0.0001 <0.0001 <0.0001	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298 <0.01 <0.01	Limit of Detection	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	2 100 1 100 50 0.2 10 10 10 10 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40 50
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	Result 0.0012 0.00684 <0.00008 <0.001 0.00472 0.0000238 0.00545 0.0013 0.000298 <0.001 <0.001 <0.001	Limit of Detection	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298 <0.01 <0.01 <0.01	Limit of Detection	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	2 100 1 10 50 0.2 10 10 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	Result 0.0012 0.00684 <0.00008 <0.0001 0.00472 0.0000238 0.00545 0.0013 0.000298 <0.001 <0.001 <0.001 <2	Limit of Detection	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298 <0.01 <0.01 <20	Limit of Detection	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Eluate Analysis  Arsenic Barium Cadmium Chromium Copper Mercury Dissolved (CVAF) Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate (soluble)	Result 0.0012 0.00684 <0.00008 <0.0001 0.00472 0.0000238 0.00545 0.0013 0.000298 <0.001 <0.001 <0.001 <0.001 <0.001	Limit of Detection	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298 <0.01 <0.01 <200 9.54	Limit of Detection	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.6 0.1 4 800	2 100 1 100 50 0.2 10 10 10 10 10 10 50 0.5 50 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200 25000
Eluate Analysis  Arsenic  Barium  Cadmium  Chromium	Result 0.0012 0.00684 <0.00008 <0.0001 0.00472 0.0000238 0.00545 0.0013 0.000298 <0.001 <0.001 <0.001 <2 0.954 <2	Limit of Detection	Result 0.012 0.0684 <0.0008 <0.01 0.0472 0.000238 0.0545 0.013 0.00298 <0.01 <0.01 <20 9.54 <20	Limit of Detection	Limit valuusing I  0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	2 100 1 100 50 0.2 10 10 10 0.7 0.5 50 15000 150	25 300 5 70 100 2 30 40 50 5 7 200 25000 50000

#### **Leach Test Information**

Date Prepared	24-Oct-2020
pH (pH Units)	7.84
Conductivity (µS/cm)	116.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.872

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
29/10/2020 14:59:58

#### **CERTIFICATE OF ANALYSIS**

ALS

SDG: 201017-89 Location: Hollybank, Swords Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report:

4000

1

500

60000

800

100000

1000

<100

<0.16

<30

573257

#### **CEN 10:1 SINGLE STAGE LEACHATE TEST**

WAC ANALYTICAL RES	ULTS					REF : BS	EN 12457/2
Client Reference			Site Location		Hollyb	ank, Swords	
Mass Sample taken (kg)	0.110		Natural Moisture	e Content (%)	22.2	,	
Mass of dry sample (kg)	0.090		Dry Matter Cont		81.8		
			Dry Matter Cont	ent (%)	01.0		
Particle Size <4mm	>95%						
Case					Landf	ill Waste Acce	otance
SDG	201017-89					Criteria Limits	
Lab Sample Number(s)	23056796						
Sampled Date	15-Oct-2020					Stable	
Customer Sample Ref.	BH/06-0.5M				Inert Waste	Non-reactive Hazardous Waste	Hazardous
Depth (m)	0.50 - 0.50				Landfill	in Non- Hazardous	Waste Landfill
Solid Waste Analysis	Result					Landfill	
Total Organic Carbon (%)	0.844		I		3	5	6
Loss on Ignition (%)	4.38				-	-	10
Sum of BTEX (mg/kg)	_				-	-	-
Sum of 7 PCBs (mg/kg)	<0.021				1	-	-
Mineral Oil (mg/kg)	5.57				500	-	-
PAH Sum of 17 (mg/kg)					-	-	-
pH (pH Units) ANC to pH 6 (mol/kg)					-	-	-
ANC to pH 4 (mol/kg)	-				-	-	-
Eluate Analysis	<u> </u>	10:1 eluate (mg/l)  Limit of Detection	712	n leached (mg/kg)		es for compliance lea SS EN 12457-3 at L/S	
Arsenic	0.000693	<0.0005	0.00693	<0.005	0.5	2	25
Barium	0.133	<0.0002	1.33	<0.002	20	100	300
Cadmium	<0.0008	<0.0008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00392	<0.0003	0.0392	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	< 0.003	<0.03	<0.03	0.5	10	30
Nickel	0.000955	<0.0004	0.00955	<0.004	0.4	10	40
Lead	0.000593	<0.0002	0.00593	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00687	<0.001	0.0687	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	0.505	<0.5	5.05	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
		<del>-</del>	<u>-</u> -	<u>-</u> -			

#### **Leach Test Information**

Total Dissolved Solids

Total Monohydric Phenols (W)

Dissolved Organic Carbon

Date Prepared	24-Oct-2020
pH (pH Units)	7.62
Conductivity (µS/cm)	111.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.880

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
29/10/2020 14:59:58

93.1

<0.016

4.08

<10

<0.016

<3

931

<0.16

40.8



ALS

SDG: 201017-89 Location: Hollybank, Swords Client Reference: Order Number: 5769 Report Number: 100A/20 Superseded Report: 573257

### **Table of Results - Appendix**

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:11 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

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

#### **CERTIFICATE OF ANALYSIS**

ALS

SDG: 201017-89 Location: Hollybank, Swords

Client Reference: Order Number: 5769 100A/20 Report Number: Superseded Report: 573257

### **Test Completion Dates**

	Tool Completion Bales					
Lab Sample No(s)	23056795	23056797	23056798	23056801	23056796	23056803
Customer Sample Ref.	BH/01-0.5M	BH/01-1.0M	BH/03-1.0M	BH/05-1.0M	BH/06-0.5M	BH/06-1.0M
AGS Ref.						
Depth	0.50 - 0.50	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	0.50 - 0.50	1.00 - 1.00
Туре	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	27-Oct-2020				27-Oct-2020	
CEN 10:1 Leachate (1 Stage)	24-Oct-2020				24-Oct-2020	
CEN Readings	28-Oct-2020				28-Oct-2020	
Chromium III	29-Oct-2020				28-Oct-2020	
Coronene	25-Oct-2020				25-Oct-2020	
Dissolved Metals by ICP-MS	29-Oct-2020				29-Oct-2020	
Dissolved Organic/Inorganic Carbon	29-Oct-2020				28-Oct-2020	
EPH by GCxGC-FID	28-Oct-2020				28-Oct-2020	
EPH CWG GC (S)	27-Oct-2020				28-Oct-2020	
Fluoride	28-Oct-2020				28-Oct-2020	
GRO by GC-FID (S)	24-Oct-2020				24-Oct-2020	
Hexavalent Chromium (s)	28-Oct-2020				28-Oct-2020	
Loss on Ignition in soils	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
Mercury Dissolved	28-Oct-2020				28-Oct-2020	
Metals in solid samples by OES	29-Oct-2020				27-Oct-2020	
Moisture at 105C	24-Oct-2020				24-Oct-2020	
PAH by GCMS	26-Oct-2020				26-Oct-2020	
PCBs by GCMS	28-Oct-2020				28-Oct-2020	
Phenols by HPLC (W)	29-Oct-2020				29-Oct-2020	
Sample description	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Total Dissolved Solids on Leachates	29-Oct-2020				28-Oct-2020	
Total Organic Carbon	29-Oct-2020				28-Oct-2020	
TPH CWG GC (S)	27-Oct-2020				28-Oct-2020	
VOC MS (S)	24-Oct-2020				24-Oct-2020	

#### **CERTIFICATE OF ANALYSIS**



SDG: 201017-89 Location: Hollybank, Swords Client Reference: Order Number: 5769 Report Number: 100A/20 Superseded Report:

nber: 573257

### **Appendix**

#### General

- 1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.
- 2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.
- 3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
- 4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
- 5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 6. NDP No determination possible due to insufficient/unsuitable sample.
- 7. Results relate only to the items tested.
- 8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content
- 9. Surrogate recoveries Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
- 11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
- 12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
- 13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss
- 14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
- 15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.
- 16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

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

#### 18. Sample Deviations

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

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

#### 19. Asbestos

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

#### Identification of Asbestos in Bulk Materials & Soils

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

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

Asbe stos Type	Common Name			
Chrysof le	White Asbests			
Amosite	Brow n Asbestos			
Cro d dolite	Blue Asbe stos			
Fibrous Act nolite	-			
Fib to us Anthop hyll ite	-			
Fibrous Tremol ite	-			

#### Visual Estimation Of Fibre Content

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

#### Respirable Fibres

Respirable fibres are defined as fibres of <3  $\mu$ m diameter, longer than 5  $\mu$ m and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, The Quantification of Asbestos in Soil (2017).

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

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



### Waste Classification Report



Job name

5769

#### **Description/Comments**

Client: Cairn Homes PLC Engineer: Waterman Moylan

#### **Project**

Hollybank

#### Site

Swords, Co. Dublin

#### **Related Documents**

# Name	Description
1 201017-89.hwol	.hwol file used to create the Job

#### **Waste Stream Template**

Rilta Suite NEW

#### **WAC Results**

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate the samples in this job: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

#### Classified by

Name: Company:

HazWasteOnline™ Training Record:

Stephen Letch Date:

Site Investigations Ltd

CourseDateHazardous Waste Classification09 Apr 2019Advanced Hazardous Waste Classification09 Oct 2019

29 Oct 2020 16:17 GMT Telephone: 00353 86817 9449

#### Report

Created by: Stephen Letch

Created date: 29 Oct 2020 16:17 GMT

#### Job summary

H		Sample Name	Depth [m]	Classification Result Hazard properties	WAC	_ Page		
	π	Sample Name	Deptil [iii]	Classification Nesdit Trazard properties	Inert	Non Haz	— i age	
	1	BH/01-0.5M-151020-0.50-0.50		Non Hazardous	Pass	Pass	3	
	2	BH/06-0.5M-151020-0.50-0.50		Non Hazardous	Pass	Pass	7	



## HazWasteOnline<sup>™</sup> Report created by Stephen Letch on 29 Oct 2020

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	11
Appendix B: Rationale for selection of metal species	13
Appendix C: Version	13

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Classification of sample: BH/01-0.5M-151020-0.50-0.50

Non Hazardous Waste Classified as 17 05 04 in the List of Waste

#### Sample details

Sample Name: LoW Code:

BH/01-0.5M-151020-0.50-0.50 Chapter: Moisture content:

24% Entry:

(wet weight correction)

17: Construction and Demolition Wastes (including excavated soil from contaminated sites)

17 05 04 (Soil and stones other than those mentioned in 17 05 03)

#### **Hazard properties**

None identified

#### **Determinands**

Moisture content: 24% Wet Weight Moisture Correction applied (MC)

#		Determinand  CLP index number	CLP Note	User entered da	ata	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	0	TPH (C6 to C40) petroleum group		<10 m	ıg/kg		<10 mg/kg	<0.001 %		<lod< th=""></lod<>
-		TPH							-	
2	0	confirm TPH has NOT arisen from diesel or petrol	4	✓						
-										
3	-	antimony {		<0.6 m	ıg/kg	1.197	<0.718 mg/kg	<0.0000718 %		<lod< td=""></lod<>
		arsenic { arsenic pentoxide }								
4	-	033-004-00-6 215-116-9 1303-28-2	$  \cdot  $	18.4 m	ıg/kg	1.534	21.45 mg/kg	0.00214 %	✓	
_										
5		barium { barium sulphide }		118 m	ıg/kg	1.233	110.62 mg/kg	0.0111 %	✓	
		016-002-00-X 244-214-4 21109-95-5								
6	-	cadmium { cadmium sulfate } 048-009-00-9	-	1.18 m	ıg/kg	1.855	1.663 mg/kg	0.000166 %	✓	
		copper { dicopper oxide; copper (I) oxide }								
7	-	029-002-00-X   215-270-7   1317-39-1	-	34.9 m	ıg/kg	1.126	29.863 mg/kg	0.00299 %	✓	
8		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	1	74.2 m	ıg/kg		56.392 mg/kg	0.00564 %	<b>√</b>	
	Ì	082-001-00-6								
9	4	mercury { mercury dichloride }		0.942 m	na/ka	1.353	0.969 mg/kg	0.0000969 %	1	
Ľ		080-010-00-X 231-299-8 7487-94-7		0.012 111	9,119	1.000		, 0.0000000 70	*	
10	æ.	molybdenum { molybdenum(VI) oxide }		3.54 m	ıg/kg	1.5	4.036 mg/kg	0.000404 %	<b>√</b>	
		042-001-00-9 215-204-7 1313-27-5						,	1	
11	-	nickel { nickel sulfate }		41.2 m	ıg/kg	2.637	82.56 mg/kg	0.00826 %	<b>√</b>	
		028-009-00-5   232-104-9   7786-81-4			-					
12	4	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		1.45 m	ıg/kg	1.405	1.548 mg/kg	0.000155 %	✓	
		034-002-00-8								
13	_	zinc { zinc sulphate } 030-006-00-9		102 m	ıg/kg	2.469	191.42 mg/kg	0.0191 %	✓	
14	4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		21.5 m	ıg/kg	1.462	23.882 mg/kg	0.00239 %	<b>√</b>	
		215-160-9   1308-38-9								



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#										- 1		Applied	
#		Determinand		CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		Conc. Not Used	
		CLP index number	EC Number	CAS Number	딩							MC	
15	4	chromium in chromi oxide }	. , .			<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<lod< td=""></lod<>
$\vdash$	(		215-607-8	1333-82-0	-								
16		naphthalene				<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<lod< td=""></lod<>
$\vdash$	-		202-049-5	91-20-3	-								
17	0	acenaphthylene	205-917-1	208-96-8		<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<lod< td=""></lod<>
18	0	acenaphthene	201-469-6	83-32-9	-	0.0265	mg/kg		0.0201	mg/kg	0.00000201 %	✓	
<del></del>	_	fluorene	201-409-0	03-32-9	+								
19	0	201-695-5 86-73-7			-	0.0217	mg/kg		0.0165	mg/kg	0.00000165 %	✓	
$\vdash$	-		201-093-3	00-73-7	+								
20	0	phenanthrene	201-581-5	85-01-8		0.314	mg/kg		0.239	mg/kg	0.0000239 %	√	
21	0	anthracene	204-371-1	120-12-7	-	0.0425	mg/kg		0.0323	mg/kg	0.00000323 %	✓	
Η.		fluoranthene	.01011	120 12 1	+								
22	0		205-912-4	206-44-0	-	0.398	mg/kg		0.302	mg/kg	0.0000302 %	√	
23	0	pyrene			T	0.339	mg/kg		0.258	mg/kg	0.0000258 %	/	
		2	204-927-3	129-00-0		0.000			0.200	9/9		*	
24		benzo[a]anthracene	:			0.164	mg/kg		0.125	mg/kg	0.0000125 %	/	
	6	601-033-00-9	200-280-6	56-55-3		0.101			0.120	mg/ng		*	
25		chrysene				0.173	mg/kg		0.131	mg/kg	0.0000131 %	/	
	6	601-048-00-0	205-923-4	218-01-9		0.170			0.101	mg/kg	0.0000101 70		
26		benzo[b]fluoranthen	e 205-911-9	205-99-2		0.191	mg/kg		0.145	mg/kg	0.0000145 %	<b>√</b>	
$\vdash$	$\rightarrow$	benzo[k]fluoranthen		205-99-2	+								
27			205-916-6	207-08-9	-	0.0627	mg/kg		0.0477	mg/kg	0.00000477 %	✓	
28		benzo[a]pyrene; ber	nzo[def]chrysene			0.128	malka		0.0973	malka	0.00000973 %	,	
20	6	601-032-00-3	200-028-5	50-32-8	1	0.120	mg/kg		0.0973	mg/kg	0.00000973 //	√	
29	0	indeno[123-cd]pyrer	ne			0.0746	malka		0.0567	malka	0.00000567 %	,	
29	ŀ	2	205-893-2	193-39-5	1	0.0746	mg/kg		0.0307	mg/kg	0.00000307 %	√	
20	Ì	dibenz[a,h]anthrace	ne		İ	<0.000	no ar/1 car		-0.000	20 er /1 e er	<0.0000002.0/		<lod< td=""></lod<>
30	6	601-041-00-2	200-181-8	53-70-3	1	<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<lod< td=""></lod<>
31	0	benzo[ghi]perylene				0.0828	mg/kg		0.0629	mg/kg	0.00000629 %	,	
51			205-883-8	191-24-2		0.0020	mg/kg		0.0029	mg/kg	0.00000029 70	<b>√</b>	
32		polychlorobiphenyls	; PCB			<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<lod< td=""></lod<>
	(	602-039-00-4	215-648-1	1336-36-3	1_	3.02.			,,,,,				
33	- 1	tert-butyl methyl eth 2-methoxy-2-methyl				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
$\sqcup \bot$	(	603-181-00-X	216-653-1	1634-04-4	1								
34		benzene				<0.009	mg/kg		<0.009	ma/ka	<0.0000009 %		<lod< td=""></lod<>
	6	601-020-00-8	200-753-7	71-43-2	1	3.000	9		3.000				
35		toluene	000 605 0	400.00.0		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<lod< td=""></lod<>
$\vdash \vdash$	-		203-625-9	108-88-3	+								
36	_ [	ethylbenzene 601-023-00-4	202-849-4	100-41-4	-	<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<lod< td=""></lod<>
27 (	-	coronene	-02-0-70	1100-41-4	+	-0.0	ma =: /1		-0.0	ma =: /!	<0.00000.0/		-1.05
37	-		205-881-7	191-07-1	-	<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<lod< td=""></lod<>
	$\dashv$	o-xylene; [1] p-xylen			T								
38	6	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<lod< td=""></lod<>
	_		L-1	1 22 2 2 1 1 1						Total:	0.0538 %	т	

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Report created by Stephen Letch on 29 Oct 2020

Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification



#### WAC Results for sample: BH/01-0.5M-151020-0.50-0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

#### **WAC Determinands**

	Solid Waste Analysis	Landfill Waste Acce	Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	2.16	3	5
2	LOI (loss on ignition)	%	45.6	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	11.1	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	2.02	100	-
7	pH	pН	7.84	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
	Eluate Analysis 10:1	•			
9	arsenic	mg/kg	0.012	0.5	2
10	barium	mg/kg	0.0684	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0472	2	50
14	mercury	mg/kg	0.0002	0.01	0.2
15	molybdenum	mg/kg	0.0545	0.5	10
16	nickel	mg/kg	0.013	0.4	10
17	lead	mg/kg	0.0029	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	<0.01	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	9.54	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	46.2	500	800
26	TDS (total dissolved solids)	mg/kg	940	4,000	60,000

Key

User supplied data

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Classification of sample: BH/06-0.5M-151020-0.50-0.50 .....

> Non Hazardous Waste Classified as 17 05 04 in the List of Waste

#### Sample details

Sample Name: LoW Code:

BH/06-0.5M-151020-0.50-0.50 Chapter:

Moisture content: 15%

Entry: (wet weight correction)

17: Construction and Demolition Wastes (including excavated soil from contaminated sites)

17 05 04 (Soil and stones other than those mentioned in 17 05

#### **Hazard properties**

None identified

#### **Determinands**

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand  CLP index number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	0	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<lod< th=""></lod<>
		TPH							
2	0	confirm TPH has NOT arisen from diesel or petrol		☑					
-	æ	antimony { antimony trioxide }							
3	_	051-005-00-X   215-175-0   1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		<lod< th=""></lod<>
4	æ	arsenic { arsenic pentoxide }		11.8 mg/kg	1.534	15.385 mg/kg	0.00154 %	,	
4	•	033-004-00-6 215-116-9 1303-28-2		11.6 Hig/kg	1.554	15.385 mg/kg	0.00134 %	✓	
5	*	barium {		111 mg/kg	1.233	116.38 mg/kg	0.0116 %	<b>✓</b>	
		016-002-00-X 244-214-4 21109-95-5							
6	æ.	cadmium { cadmium sulfate }		0.954 mg/kg	1.855	1.504 mg/kg	0.00015 %	✓	
		048-009-00-9   233-331-6   10124-36-4   copper { dicopper oxide; copper (I) oxide }							
7	-	029-002-00-X 215-270-7   1317-39-1		22.2 mg/kg	1.126	21.246 mg/kg	0.00212 %	✓	
8		lead { • lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	1	27.8 mg/kg		23.63 mg/kg	0.00236 %	<b>√</b>	
		082-001-00-6							
9	~	mercury { mercury dichloride }		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		<lod< th=""></lod<>
-		080-010-00-X  231-299-8  7487-94-7							
10	4	molybdenum { molybdenum(VI) oxide } 042-001-00-9		1.98 mg/kg	1.5	2.525 mg/kg	0.000252 %	✓	
	$\vdash$	nickel { nickel sulfate }	H						
11	-	028-009-00-5   232-104-9		36.4 mg/kg	2.637	81.579 mg/kg	0.00816 %	✓	
12	4	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<lod< th=""></lod<>
	Ш	034-002-00-8							
13	_	zinc { <mark>zinc sulphate</mark> } 030-006-00-9		73.9 mg/kg	2.469	155.109 mg/kg	0.0155 %	<b>√</b>	
		231-793-3 [2] 7733-02-0 [2]							
14	4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		19.9 mg/kg	1.462	24.722 mg/kg	0.00247 %	✓	
		215-160-9   1308-38-9							



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$\overline{}$	_				_			,			Γ		
#			Determinand	045.11	o Note	User entered	l data	Conv. Factor	Compound of	conc.	Classification value	Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number	CLP							MC	
15	4	chromium in chromium oxide }				<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<lod< td=""></lod<>
			15-607-8	1333-82-0	+							Н	
16		naphthalene				<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %	Ш	<lod< td=""></lod<>
		601-052-00-2	)2-049-5	91-20-3									
17	Θ	acenaphthylene 20	)5-917-1	208-96-8	-	<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<lod< td=""></lod<>
18	0	acenaphthene				<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<lod< td=""></lod<>
'0		20	)1-469-6	83-32-9		10.000	mg/kg		-0.000	mg/kg	40.0000000 70		LOD
10	0	fluorene				-0.01	no ar /1 car		-0.01	22 cr /l c cr	<0.000001 °/		<1.0D
19		20	)1-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %	Ш	<lod< td=""></lod<>
20	0	phenanthrene		85-01-8		0.0256	mg/kg		0.0218	mg/kg	0.00000218 %	<b>√</b>	
		· · · · · · · · · · · · · · · · · · ·	71-301-3	03-01-0	+							Н	
21	Θ		)4-371-1	120-12-7		<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<lod< td=""></lod<>
22	Θ	fluoranthene				0.0418	mg/kg		0.0355	mg/kg	0.00000355 %	/	
		20	)5-912-4	206-44-0								_	
23	Θ	pyrene				0.0381	mg/kg		0.0324	mg/kg	0.00000324 %	1	
		20	)4-927-3	129-00-0		0.000.	9/9		0.002	9,9	0.0000002.70	*	
24		benzo[a]anthracene				0.024	ma/ka		0.0204	ma/ka	0.00000304.9/	,	
24		601-033-00-9 20	00-280-6	56-55-3	_	0.024	mg/kg		0.0204	mg/kg	0.00000204 %	<b>√</b>	
		chrysene				0.0054			0.0040		2 22222242 24		
25			05-923-4	218-01-9	_	0.0254	mg/kg		0.0216	mg/kg	0.00000216 %	✓	
		benzo[b]fluoranthene											
26				205-99-2	-	0.0326	mg/kg		0.0277 mg/kg 0.00000277 %	✓			
	_	benzo[k]fluoranthene		203-33-2	+							Н	
27				207-08-9	4	<0.014	mg/kg		<0.014 mg/kg <0.0000014 %	Ш	<lod< td=""></lod<>		
	_			207-00-9	-					Н			
28		benzo[a]pyrene; benz		F0.00.0	_	0.021	mg/kg		0.0179	mg/kg	0.00000179 %	✓	
				50-32-8	-							Н	
29	Θ	indeno[123-cd]pyrene				<0.018	mg/kg		<0.018	mg/kg	<0.0000018 %	Ш	<lod< td=""></lod<>
				193-39-5							Ш		
30		dibenz[a,h]anthracen	е			<0.023	mg/kg		<0.023	ma/ka	<0.0000023 %	Ш	<lod< td=""></lod<>
		601-041-00-2 20	00-181-8	53-70-3									
31	0	benzo[ghi]perylene				<0.024	mg/kg		<0.024	ma/ka	<0.0000024 %		<lod< td=""></lod<>
[ ]		20	)5-883-8	191-24-2		10.024			-0.024	g/Rg	0.0000024 /0		
32	0	polychlorobiphenyls; I	РСВ		T	<0.021	ma/ka		<0.021	ma/ka	<0.0000021 %		<lod< td=""></lod<>
32		602-039-00-4   215-648-1   1336-36-3			\U.UZ1	mg/kg		<0.021	mg/kg	~0.0000021 %		~LOD	
33		tert-butyl methyl ether 2-methoxy-2-methylpr	r; MTBE;			<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		603-181-00-X 21	16-653-1	1634-04-4									
2.4		benzene			Ì	<b>-0.000</b>	ma e: /1.		<b>-0.000</b>	ma e: /1 -	<0.0000000.0V		-1.CD
34		601-020-00-8 20	00-753-7	71-43-2	-	<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<lod< td=""></lod<>
		toluene		1									
35			03-625-9	108-88-3	-	<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<lod< td=""></lod<>
$\vdash$	_	ethylbenzene		1.23.00.0	+								
36	0		12 840 4	100 41 4	_	<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<lod< td=""></lod<>
H	_		)2-849-4	100-41-4	+							$\vdash$	
37	Θ	coronene	25 004 7	101 07 1	_	<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<lod< td=""></lod<>
	_			191-07-1	+								
		o-xylene; [1] p-xylene											
38		20 20	)3-396-5 [2] )3-576-3 [3]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<lod< td=""></lod<>
		21	15-535-7 [4]	1330-20-7 [4]								Ш	
ı										Total:	0.0456 %	L	

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Key

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Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification





#### WAC Results for sample: BH/06-0.5M-151020-0.50-0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"

The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

#### **WAC Determinands**

	Solid Waste Analysis	Landfill Waste Acce	Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.844	3	5
2	LOI (loss on ignition)	%	4.38	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	5.57	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.209	100	-
7	pH	pН	7.62	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
	Eluate Analysis 10:1	,			
9	arsenic	mg/kg	0.0069	0.5	2
10	barium	mg/kg	1.33	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0392	2	50
14	mercury	mg/kg	<0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.0095	0.4	10
17	lead	mg/kg	0.0059	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	0.0687	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	5.05	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	40.8	500	800
26	TDS (total dissolved solids)	mg/kg	931	4,000	60,000

Key

User supplied data

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#### Appendix A: Classifier defined and non CLP determinands

#### • TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015 Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3 H226, Asp. Tox. 1 H304, STOT RE 2 H373, Muta. 1B H340, Carc. 1B H350, Repr. 2 H361d,

Aquatic Chronic 2 H411

#### confirm TPH has NOT arisen from diesel or petrol

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating

Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)

Data source: WM3 1st Edition 2015 Data source date: 25 May 2015 Hazard Statements: None.

#### barium sulphide (EC Number: 244-214-4, CAS Number: 21109-95-5)

CLP index number: 016-002-00-X

Description/Comments:

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): EUH031 >= 0.8 % Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH031 >= 0.8 % hazard statement sourced from: WM3, Table C12.2

#### lead compounds with the exception of those specified elsewhere in this Annex (worst case)

CLP index number: 082-001-00-6

Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following CLP protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350 Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium

www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

#### chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

 $Data\ source:\ https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806$ 

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1

H334, Skin Sens. 1 H317, Repr. 1B H360FD, Aquatic Acute 1 H400, Aquatic Chronic 1 H410

#### acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

#### acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

#### • fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1 H400, Aquatic Chronic 1 H410



#### phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4 H302, Eye Irrit. 2 H319, STOT SE 3 H335, Carc. 2 H351, Skin Sens. 1 H317, Aquatic Acute 1 H400

, Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

#### anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2 H319, STOT SE 3 H335, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Acute 1 H400, Aquatic

Chronic 1 H410

MIONIC I H410

• fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4 H302, Aquatic Acute 1 H400, Aquatic Chronic 1 H410

#### pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2 H315, Eye Irrit. 2 H319, STOT SE 3 H335, Aquatic Acute 1 H400, Aquatic Chronic 1 H410

#### • indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 06 Aug 2015 Hazard Statements: Carc. 2 H351

#### • benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015 Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

#### polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in

European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350 Reason for additional Hazards Statement(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

#### ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 - 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008.

(ATP6)

Additional Hazard Statement(s): Carc. 2 H351 Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

#### coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic. Data source:

http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx? SubstanceID=17010& HarmOnly=no? fc=true& lang=ender approximation of the control of t

Data source date: 16 Jun 2014 Hazard Statements: STOT SE 2 H371

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#### Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case scenario.

arsenic {arsenic pentoxide}

Arsenic pentoxide used as most hazardous species.

barium {barium sulphide}

Chromium VII at limits of detection. Barium sulphide used as the next most hazardous species. No chromate present.

cadmium {cadmium sulfate}

Cadmium sulphate used as the most hazardous species.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Chromium VII at limits of detection. Lead compounds used as the next most hazardous species. No chromate present.

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Chromium VII at limits of detection. Nickel sulphate used as the next most hazardous species. No chromate present.

selenium (selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex)

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

zinc {zinc sulphate}

Chromium VII at limits of detection. Zinc sulphate used as the next most hazardous species. No chromate present.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments.

#### **Appendix C: Version**

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2020.300.4509.8773 (26 Oct 2020)

HazWasteOnline Database: 2020.300.4509.8773 (26 Oct 2020)





Report created by Stephen Letch on 29 Oct 2020

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

**4th ATP** - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

**14th ATP** - Regulation (EU) 2020/217 of 4 October 2019

**15th ATP** - Regulation (EU) 2020/1182 of 19 May 2020

POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004

1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

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### Appendix 6 Survey Data

	Irish Transve	erse Mercator	I	Irish Nat	ional Grid
Location	Easting	Northing	Elevation	Easting	Northing
		Bore	eholes		
BH101	717699.038	748009.013	13.31	317773.679	247985.755
BH102	717739.775	747995.675	12.84	317814.425	247972.414
BH103	717777.734	748014.477	13.64	317852.391	247991.220
BH104	717818.977	748031.269	12.94	317893.643	248008.016
BH105	717867.506	748009.768	12.68	317942.183	247986.511
BH106	717863.616	748048.217	12.83	317938.291	248024.968
		Tria	al Pits		
TP101	717594.205	748257.711	9.20	317668.821	248234.506
TP102	717636.728	748329.938	8.52	317711.352	248306.749
TP103	717671.220	748198.270	9.73	317745.853	248175.052
TP104	717725.647	748194.038	8.86	317800.292	248170.820
TP105	717699.425	748083.810	14.45	317774.065	248060.568
TP106	717805.064	748123.603	13.59	317879.726	248100.370
TP107	717849.251	748187.314	8.68	317923.922	248164.095
TP108	717873.490	748253.099	5.99	317948.165	248229.895
		Dynam	ic Probes		
DP01	717531.598	748355.336	8.93	317606.200	248332.152
DP02	717541.212	748340.669	8.71	317615.816	248317.481
DP03	717548.002	748324.724	8.44	317622.607	248301.533
DP04	717560.112	748312.457	8.30	317634.720	248289.263
DP05	717568.568	748326.123	8.22	317643.178	248302.932
DP06	717580.059	748332.528	7.93	317654.671	248309.339
DP07	717590.263	748339.946	7.98	317664.877	248316.759
DP08	717603.527	748347.895	7.91	317678.144	248324.709
DP09	717611.085	748380.992	6.56	317685.703	248357.814
DP10	717629.721	748375.199	6.48	317704.343	248352.019
DP11	717628.243	748358.476	6.96	317702.865	248335.293
DP12	717629.234	748348.875	7.53	317703.856	248325.690
DP13	717563.555	748281.425	9.01	317638.164	248258.225
DP14	717587.106	748267.596	9.05	317661.720	248244.393
DP15	717583.222	748287.800	8.64	317657.835	248264.601
DP16	717591.137	748291.565	8.50	317665.752	248268.367
DP17	717602.602	748293.839	8.83	317677.219	248270.642
DP18	717608.394	748311.913	9.08	317683.012	248288.720
DP19	717624.148	748314.052	9.17	317698.770	248290.859
DP20	717587.420	748252.354	9.31	317662.035	248229.148
DP21	717595.069	748253.367	9.24	317669.685	248230.161
DP22	717611.726	748263.540	9.30	317686.346	248240.336
DP23	717619.173	748267.676	9.31	317693.794	248244.473
DP24	717632.445	748275.424	9.29	317707.069	248252.223
DP25	717643.985	748285.411	9.28	317718.611	248262.212
DP26	717655.775	748332.878	7.68	317730.403	248309.689
DP27	717660.742	748323.352	8.12	317735.371	248300.161
DP28	717667.837	748310.381	8.77	317742.468	248287.188
DP29	717607.887	748184.915	10.63	317682.507	248161.694

	Irish Transve	rse Mercator	I I	Irish National Grid			
Location -	Easting Northing		- Elevation -	Easting	Northing		
DP30	717601.356	748197.470	10.30	317675.974	248174.252		
DP31	717620.592	748207.962	9.83	317695.214	248184.746		
DP32	717633.367	748211.647	9.79	317707.992	248188.432		
DP33	717647.498	748214.032	9.65	317722.126	248190.818		
DP34	717657.172	748217.311	9.66	317731.802	248194.097		
DP35	717671.900	748222.899	9.56	317746.533	248199.687		
DP36	717674.236	748205.165	9.61	317748.869	248181.949		
DP37	717623.608	748169.160	10.66	317698.231	248145.936		
DP38	717637.422	748171.238	10.31	317712.048	248148.014		
DP39	717655.466	748175.278	10.04	317730.096	248152.055		
DP40	717665.410	748176.993	9.94	317740.042	248153.771		
DP41	717678.472	748181.942	9.63	317753.107	248158.721		
DP42	717693.830	748222.344	9.35	317768.467	248199.132		
DP43	717706.974	748222.284	9.21	317781.614	248199.072		
DP44	717721.294	748217.927	9.07	317795.937	248194.714		
DP45	717738.174	748214.072	8.81	317812.821	248190.858		
DP46	717738.249	748204.809	8.81	317812.896	248181.593		
DP47	717729.464	748189.521	8.75	317804.109	248166.302		
DP48	717715.346	748185.553	9.02	317789.988	248162.333		
DP49	717698.841	748184.016	9.19	317773.480	248160.796		
DP50	717695.407	748201.390	9.36	317770.045	248178.173		
DP51	717634.050	748136.937	12.80	317708.676	248113.706		
DP52	717641.398	748124.740	13.47	317716.025	248101.506		
DP53	717650.720	748141.034	12.11	317725.349	248117.804		
DP54	717664.916	748145.816	11.37	317739.548	248122.587		
DP55	717679.802	748145.638	10.95	317754.437	248122.409		
DP56	717692.623	748153.275	10.39	317767.261	248130.048		
DP57	717712.288	748154.862	9.76	317786.930	248131.635		
DP58	717723.505	748160.244	9.20	317798.149	248137.019		
DP59	717732.257	748139.239	10.88	317806.903	248116.009		
DP60	717743.718	748126.180	12.35	317818.367	248102.947		
DP61	717717.642	748122.065	12.82	317792.286	248098.831		
DP62	717706.066	748121.286	13.24	317780.707	248098.052		
DP63	717694.499	748113.925	13.78	317769.138	248090.689		
DP64	717679.956	748114.269	13.81	317754.592	248091.033		
DP65	717667.343	748106.987	14.19	317741.976	248083.750		
DP66	717654.072	748107.597	14.20	317728.702	248084.360		
DP67	717662.774	748075.882	14.51	317737.406	248052.638		
DP68	717668.516	748064.681	14.30	317743.150	248041.435		
DP69	717678.123	748079.265	14.51	317752.759	248056.022		
DP70	717692.633	748082.524	14.51	317767.272	248059.282		
DP71	717705.910	748083.471	14.41	317780.551	248060.229		
DP72	717723.622	748091.618	14.42	317798.267	248068.378		
DP73	717747.677	748098.209	14.47	317822.327	248074.970		
DP74	717751.899	748084.825	14.56	317826.550	248061.583		
DP75	717757.548	748073.877	14.15	317832.200	248050.633		

	Irish Transve	erse Mercator		Irish National Grid			
Location	Easting Northing		- Elevation -	Easting	Northing		
DP76	717736.469	748065.406	14.00	317811.117	248042.160		
DP77	717725.647	748059.173	13.64	317800.293	248035.926		
DP78	717710.742	748059.448	13.64	317785.385	248036.201		
DP79	717696.176	748052.283	13.62	317770.816	248029.034		
DP80	717687.599	748053.138	13.74	317762.237	248029.889		
DP81	717674.669	748046.612	13.82	317749.304	248023.362		
DP82	717685.508	748018.117	13.41	317760.146	247994.861		
DP83	717698.044	748021.035	13.16	317772.684	247997.779		
DP84	717688.961	747994.392	14.33	317763.600	247971.130		
DP85	717708.334	747990.117	14.26	317782.977	247966.855		
DP86	717720.231	748003.719	13.09	317794.876	247980.460		
DP87	717721.191	747989.770	13.89	317795.837	247966.508		
DP88	717740.405	747985.766	13.74	317815.055	247962.503		
DP89	717741.902	748001.565	12.98	317816.552	247978.305		
DP90	717707.994	748032.761	13.10	317782.636	248009.508		
DP91	717711.779	748015.794	12.84	317786.422	247992.537		
DP92	717735.149	748038.607	13.60	317809.797	248015.355		
DP93	717729.270	748019.016	13.00	317803.917	247995.760		
DP94	717753.368	748035.874	13.83	317828.020	248012.622		
DP95	717751.185	748023.203	13.62	317825.837	247999.948		
DP96	717757.987	747996.274	13.40	317832.640	247973.013		
DP97	717766.665	747982.701	14.93	317841.320	247959.437		
DP98	717772.182	747996.169	13.49	317846.838	247972.908		
DP99	717759.082	748013.529	13.70	317833.735	247990.272		
DP100	717770.966	748016.255	13.51	317845.622	247992.999		
DP101	717793.758	747993.440	13.75	317868.419	247970.179		
DP102	717790.242	748015.065	13.47	317864.902	247991.809		
DP103	717784.821	748048.612	13.50	317859.480	248025.363		
DP104	717814.955	747978.284	15.66	317889.621	247955.020		
DP105	717828.806	747990.370	14.43	317903.474	247967.108		
DP106	717820.182	748008.384	13.13	317894.848	247985.126		
DP107	717850.010	747995.104	13.55	317924.683	247971.844		
DP108	717842.054	748008.675	13.14	317916.725	247985.418		
DP109	717856.771	747973.738	15.15	317931.446	247950.473		
DP110	717877.141	747982.034	13.72	317951.820	247958.771		
DP111	717861.776	748003.809	12.75	317936.451	247980.551		
DP112	717826.624	748020.078	13.00	317901.292	247996.823		
DP113	717845.456	748022.410	12.76	317920.128	247999.156		
DP114	717872.562	748020.583	12.80	317947.240	247997.328		
DP115	717810.277	748057.547	13.29	317884.941	248034.300		
DP116	717863.920	748041.751	12.65	317938.595	248018.501		
DP117	717828.600	748056.264	12.97	317903.268	248033.017		
DP118	717845.581	748058.000	12.70	317920.252	248034.753		
DP119	717865.986	748059.193	12.17	317940.662	248035.947		
DP120	717818.030	748088.538	13.81	317892.695	248065.298		
DP121	717815.603	748107.978	13.91	317890.268	248084.742		

Location	Irish Transve	erse Mercator	Elevation	Irish National Grid			
Location	Easting	Northing	Elevation	Easting	Northing		
DP122	717807.117	748128.824	13.36	317881.779	248105.592		
DP123	717805.575	748147.552	12.09	317880.237	248124.324		
DP124	717801.192	748177.289	9.25	317875.853	248154.068		
DP125	717806.790	748186.929	8.60	317881.452	248163.710		
DP126	717806.606	748204.912	7.74	317881.268	248181.697		
DP127	717825.768	748188.795	8.50	317900.434	248165.576		
DP128	717847.814	748189.811	8.41	317922.485	248166.593		
DP129	717864.686	748173.312	9.69	317939.360	248150.090		
DP130	717877.040	748221.243	7.01	317951.716	248198.032		
DP131	717867.937	748230.535	6.71	317942.611	248207.326		
DP132	717842.375	748231.080	6.99	317917.044	248207.871		
DP133	717815.981	748231.240	7.35	317890.644	248208.031		
DP134	717824.057	748243.413	6.85	317898.722	248220.206		
DP135	717822.194	748259.109	6.09	317896.858	248235.906		
DP136	717832.492	748274.703	5.88	317907.158	248251.503		
DP137	717853.864	748270.404	5.64	317928.535	248247.203		
DP138	717872.197	748271.281	5.74	317946.872	248248.081		
DP139	717885.297	748263.519	6.03	317959.975	248240.317		
DP140	717776.615	748282.317	6.88	317851.269	248259.118		
DP141	717768.265	748272.269	7.32	317842.918	248249.068		
DP142	717771.315	748258.960	7.59	317845.969	248235.756		
DP143	717760.797	748244.735	8.35	317835.448	248221.528		



