



<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 40.00 m	<b>Start Date:</b> 14/12/2022	<b>Driller:</b> KW/ AG	Sheet 5 of 5 Scale: 1:50
Sonic Drilling Rotary Coring	Fraсте XL Duo Fraсте XL Duo	0.00 15.00	15.00 40.00	715700.59 E 734928.65 N	<b>Elevation:</b> 2.10 mOD	<b>End Date:</b> 21/12/2022	<b>Logger:</b> CMc +SMC	

FINAL

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
37.50											Moderately weak (locally medium strong) dark grey LIMESTONE with occasional white calcite veins (up to 20mm thick) and occasional brassy yellow pyrite mineralisation. Slightly to moderately weathered: slightly reduced strength, localised significantly reduced strength, closer fracture spacing, clay infill on the occasional fracture surfaces, orangish brown staining on some fracture surfaces.		
		100	91	69							Discontinuities: 1. 10-25 degree bedding fractures, closely spaced (10/145/580), planar, smooth, patchy orangish brown staining on some fracture surfaces, patchy pyrite mineralisation on some bedding fractures. 2. 45-60 degree joints, widely spaced (200/1180/3000), planar, rough, orangish brown staining on most joint surfaces. 3. 70-90 degree joints from 21.00-21.35m, 21.65-21.80m, 22.70-22.90m, 24.45-24.65m, 28.75-28.90m, 33.00-33.25m, 34.50-35.25m and 35.35-35.75m, planar, rough, orangish brown staining on joint surfaces. <u>38.30-38.50m Recovered as slightly clayey angular fine to coarse gravel of dark grey limestone.</u>		
39.00		100	100	67									
40.00								-37.90	40.00		End of Borehole at 40.00m		

<b>Water Strikes</b>				<b>Chiselling Details</b>			<b>Remarks</b> Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
<b>Casing Details</b>		<b>Water Added</b>		<b>Core Barrel</b>	<b>Flush Type</b>	<b>Termination Reason</b>	<b>Last Updated</b>
To (m)	Diam (mm)	From (m)	To (m)				
15.00	183	0.00	40.00	SK6L	Water	Terminated at scheduled depth.	08/03/2023
40.00	146						





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH102

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:	FINAL
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 15.00	15.00 35.00	715710.79 E 734837.70 N	35.00 m	08/12/2022	KW / AG		
					Elevation:	End Date:			
					5.13 mOD	13/12/2022			

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.50	ES1							MADE GROUND: Very loose to loose greyish brown sandy slightly silty subangular to subrounded fine to coarse GRAVEL of predominantly limestone with medium cobble and boulder content and fragments of red brick, wood and concrete. Sand is fine to coarse. Cobbles and boulders are subangular to subrounded of limestone.		
1.00	ES2									
1.20 - 1.65	SPT (C)	N=1 (0,0/1,0,0,0) Hammer SN = 1398								
2.00	ES3									
3.00	ES4									
3.00 - 3.45	SPT (C)	N=8 (1,2/1,2,2,3) Hammer SN = 1398	3.00	2.80				Medium dense becoming dense greyish brown sandy silty subangular to subrounded fine to coarse GRAVEL of various lithologies with low cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are subangular to subrounded of limestone.		
4.00	ES5				0.23	4.90				
4.50 - 4.95	SPT (C)	N=8 (1,0/1,1,2,4) Hammer SN = 1398	4.50	4.00						
5.50	B9									
6.00 - 6.45	SPT (C)	N=15 (2,2/4,4,3,4) Hammer SN = 1398	6.00	4.00						
7.00	ES6									
7.50	B10									
7.50 - 7.95	SPT (C)	N=20 (2,3/3,4,5,8) Hammer SN = 1398	7.50	4.50						
9.00	B11									
9.00 - 9.45	SPT (C)	N=36 (3,5/7,7,10,12) Hammer SN = 1398	9.00	4.50						

Water Strikes				Remarks			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)				
				Hand dug inspection pit excavated to 1.20m. No groundwater encountered.			
Casing Details		Water Added					
To (m)	Diam (mm)	From (m)	To (m)				
15.00	183	0.00	35.00				
35.00	146						
Core Barrel		Flush Type		Termination Reason		Last Updated	
SK6L		Water		Terminated at scheduled depth.		08/03/2023	





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH102

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 2 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	FINAL
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 15.00	15.00 35.00	715710.79 E 734837.70 N	35.00 m	08/12/2022	KW / AG	
					Elevation:	End Date:	Logger:	
					5.13 mOD	13/12/2022	CMc +SMC	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
10.00	ES7							Medium dense becoming dense greyish brown sandy silty subangular to subrounded fine to coarse GRAVEL of various lithologies with low cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are subangular to subrounded of limestone.		
10.50 - 10.78	SPT (C)	N=50 (8,10/50 for 126mm) Hammer SN = 1398	10.5	5.00						
11.00	B12				-5.87	11.00		Very dense grey speckled white and blue very sandy silty subangular to subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
12.00 - 12.22	B13 SPT (C)	N=50 (10,15/50 for 75mm) Hammer SN = 1398	12.0	5.00						
13.00	B14									
13.00	D17				-8.07	13.20		Very stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of predominantly limestone.		
13.50 - 13.78	SPT (C)	N=50 (8,10/50 for 131mm) Hammer SN = 1398	13.5	5.00						
14.00	B15									
14.50	D18									
15.00	B16		15.0	5.00	-9.87	15.00		Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		
15.00 - 16.50	C19					(1.50)				
15.00 - 15.28	SPT(C) N=50 (15,10/50 for 134mm) Hammer SN = 1398	100 0 0 N/A								
16.50	C20				-11.37	16.50		Very dense brown and dark grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of predominantly limestone with low cobble content and bands of sandy gravelly clay. Sand is fine to coarse. Cobbles are subangular of dark grey limestone.		
16.50 - 18.00	C20					(1.15)				
		100 0 0 N/A								
18.00	C21		18.0	2.00	-12.52	17.65		Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		
18.00 - 19.50	C21					(1.10)				
		TCR SCR RQD FI								

Water Strikes				Remarks			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Hand dug inspection pit excavated to 1.20m. No groundwater encountered.			
Casing Details		Water Added		Core Barrel	Flush Type	Termination Reason	Last Updated
To (m)	Diam (mm)	From (m)	To (m)				
15.00	183	0.00	35.00				
35.00	146						







Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth: 35.00 m	Start Date: 08/12/2022	Driller: KW / AG	FINAL
Sonic Drilling Rotary Coring	Fraсте XL Duo Fraсте XL Duo	0.00 15.00	15.00 35.00	715710.79 E 734837.70 N	Elevation: 5.13 mOD	End Date: 13/12/2022	Logger: CMC +SMC	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
28.50								-23.37	28.50		Weak (locally medium strong) thinly to thickly laminated dark grey LIMESTONE. Moderately weathered: slightly closer fracture spacing, slightly weakened, locally significantly weakened, orangish brown staining on some fracture surfaces.		
		100	100	93							Discontinuities: 1. 5-20 degree bedding fractures, closely spaced (10/120/820), planar, smooth, orangish brown staining on some fracture surfaces. 2. 70-90 degree joints from 21.95-22.15m, 23.00-23.60m and 26.00-26.80m, undulating, rough, orangish brown staining on joint surfaces.		
30.00											Medium strong thinly to thickly laminated dark grey LIMESTONE with occasional brassy yellow pyrite mineralisation. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, patchy orangish brown staining on some fracture surfaces.		
		100	100	100							Discontinuities: 1. 5-15 degree bedding fractures, medium spaced (20/325/550), planar, smooth, patchy orangish brown staining on some fracture surfaces. 2. 65-70 degree joints from 32.65-32.85m, planar, smooth, patchy orangish brown staining on joint surface.		
31.50					3				(6.50)				
		100	100	97									
33.00													
		100	100	100									
34.50													
		100	100	100									
35.00								-29.87	35.00		End of Borehole at 35.00m		

Water Strikes				Chiselling Details			Remarks Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
Casing Details		Water Added		Core Barrel	Flush Type	Termination Reason	Last Updated
To (m)	Diam (mm)	From (m)	To (m)				
15.00	183	0.00	35.00	SK6L	Water	Terminated at scheduled depth.	08/03/2023
35.00	146						





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH103

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:	FINAL
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 16.50	16.50 35.00	715677.50 E 734839.69 N	35.00 m	14/11/2022	KW / AG		
					Elevation:	End Date:			
					5.09 mOD	18/11/2022			

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.50	ES1				5.02	0.07	BITMAC	MADE GROUND: Stiff dark greyish brown slightly sandy gravelly SILT with low cobble content and fragments of red brick and concrete. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of various lithologies. Cobbles are subangular of limestone.		
1.00	ES2									
2.00 - 2.45	SPT (C)	N=25 (3,4/6,6,6,7) Hammer SN = 1398	2.00	1.50						
2.50	ES3									
2.50 - 3.00	B10									
3.00	ES4									
3.00 - 3.45	SPT (C)	N=21 (3,3/4,6,6,5) Hammer SN = 1398	3.00	2.00	1.84	3.25		MADE GROUND: Medium dense brown sandy clayey subangular fine to coarse GRAVEL of various lithologies with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of predominantly limestone.		
3.50 - 4.00	B11									
4.00	ES5									
4.00 - 4.45	SPT (C)	N=17 (3,3/3,4,5,5) Hammer SN = 1398	4.00	3.00						
4.50 - 5.00	B12				0.59	4.50		Medium dense to dense grey slightly sandy subangular fine to coarse GRAVEL of various lithologies with medium cobble content. Sand is fine to coarse. Cobbles are subangular of predominantly limestone.		
5.00	ES6									
5.00 - 5.45	SPT (C)	N=19 (3,2/4,4,5,6) Hammer SN = 1398 Possible seepage at 5.00m	5.00	3.50						
6.00 - 6.45	SPT (C)	N=43 (4,4/10,10,12,11) Hammer SN = 1398	6.00	5.00						
6.50 - 7.00	B13									
7.50 - 8.00	B14									
7.50 - 7.95	SPT (C)	N=27 (4,5/5,6,7,9) Hammer SN = 1398	7.50	5.00	-2.41	7.50		Medium dense brown sandy slightly clayey subrounded fine to coarse GRAVEL of various lithologies. Sand is fine to coarse.		
8.00	ES7									
9.00 - 9.30	B15									
9.00 - 9.15	SPT (C)	N=10 (5 for 75mm/10 for 75mm) Hammer SN = 1398	9.00	6.00	-4.21	9.30				

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
5.00	5.00			
20.50	20.50			
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
16.50	183	0.00	35.00	
35.00	146			
Core Barrel	Flush Type	Termination Reason		Last Updated
SK6L	Water	Terminated at scheduled depth.		08/03/2023





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH103

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 2 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	FINAL
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 16.50	16.50 35.00	715677.50 E 734839.69 N	35.00 m	14/11/2022	KW / AG	
					Elevation:	End Date:	Logger:	
					5.09 mOD	18/11/2022	RW +CMc	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
9.50 - 10.00	B16							Medium dense to dense brown sandy slightly clayey subrounded fine to coarse GRAVEL of various lithologies with low cobble content. Sand is fine to coarse. Cobbles are subangular of predominantly limestone.		
10.50 - 10.90	B17	N=47 (6,8/10,10,12,15) Hammer SN = 1398	10.5	6.00	-5.81	10.90		Medium dense to dense grey sandy slightly clayey subrounded fine to coarse GRAVEL of various lithologies with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
10.50 - 10.95	SPT (C)									
11.00	ES8									
11.50 - 12.00	B18									
12.00 - 12.22	SPT (C)	N=11 (6,9/11 for 75mm) Hammer SN = 1398	12.0	6.00						
12.50 - 13.00	B19									
13.50 - 14.00	B20	N=49 (6,9/10,10,12,17) Hammer SN = 1398	13.5	6.00		14.60		Very stiff dark brownish grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone.		
13.50 - 13.95	SPT (C)									
14.00	ES9									
14.60 - 15.00	B21									
15.00 - 15.40	B22	N=50 (10,15/50 for 75mm) Hammer SN = 1398	15.0	6.00		15.00		Dense grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of limestone with medium cobble content. Sand is fine to coarse. Cobbles are subangular of limestone.		
15.00 - 15.22	SPT (C)									
15.50 - 16.00	B23							Dark grey gravelly clayey fine to coarse SAND with low cobble content. Gravel is subrounded fine to coarse of predominantly limestone. Cobbles are subangular of limestone.		
16.00 - 16.50	B24							Brownish grey sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
16.50 - 16.80	SPT(C) N=50 (12,13/50 for 150mm) Hammer SN = 1398		16.5	3.00		16.50 (0.35)		Very stiff dark greyish brown slightly sandy very gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of predominantly limestone.		
		100 0 0				16.85		Very stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of various lithologies. Cobbles are subrounded of limestone.		
						(2.70)				
18.00						18.0				
18.00 - 19.50	C24									
18.00 - 18.45	SPT(C) N=47 (8,12/12,11,12,12) Hammer SN = 1398									
		TCR SCR RQD FI								

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
5.00	5.00			Hand dug inspection pit excavated to 1.20m.
20.50	20.50			
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
16.50	183	0.00	35.00	
35.00	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	









<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 35.00 m	<b>Start Date:</b> 14/11/2022	<b>Driller:</b> KW / AG	Sheet 4 of 4 Scale: 1:50
Sonic Drilling Rotary Coring	Fraсте XL Duo Fraсте XL Duo	0.00 16.50	16.50 35.00	715677.50 E 734839.69 N	<b>Elevation:</b> 5.09 mOD	<b>End Date:</b> 18/11/2022	<b>Logger:</b> RW +CMc	<b>FINAL</b>

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
28.50											Moderately weak (locally medium strong) indistinctly thinly laminated dark grey LIMESTONE with occasional white calcite veins (1-4mm thick) and pyrite crystallisation. Partially weathered: reduced strength, slightly closer fracture spacing and clay deposits and yellowish brown and orangish brown staining on fracture surfaces.  Discontinuities: 1. 5 -20 degree bedding fractures, closely spaced (10/150/650), planar, smooth with occasional dark grey clay deposits (up to 2mm thick) on fracture surfaces. 2. 45-55 degree joints, widely spaced (100/850/2150), planar, rough with occasional dark grey clay deposits (up to 2mm thick on joint surfaces). 3. 75-85 degree joints at 23.15-23.65m and 30.00-30.30m, planar, rough with yellowish brown and orangish brown staining on joint surfaces.		
		100	100	71	3								
30.00													
		100	100	75									
31.50					9				(12.75)				
		100	100	35									
33.00													
		100	100	100	3								
34.50													
		95	95	54									
35.00								-29.91	35.00		End of Borehole at 35.00m		

<b>Water Strikes</b>				<b>Chiselling Details</b>			<b>Remarks</b> Hand dug inspection pit excavated to 1.20m.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
5.00	5.00						
20.50	20.50						
<b>Casing Details</b>		<b>Water Added</b>					
To (m)	Diam (mm)	From (m)	To (m)				
16.50	183	0.00	35.00				
35.00	146			<b>Core Barrel</b>	<b>Flush Type</b>	<b>Termination Reason</b>	
				SK6L	Water	Terminated at scheduled depth.	
						<b>Last Updated</b>	
						08/03/2023	



<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 40.50 m	<b>Start Date:</b> 02/12/2022	<b>Driller:</b> KW / AG +SJ / AG	Sheet 1 of 5 Scale: 1:50
Sonic Drilling Rotary Coring	XL Fraste Duo XL Fraste Duo	0.00 16.50	16.50 40.50	715741.01 E 734843.84 N	<b>Elevation:</b> 5.10 mOD	<b>End Date:</b> 06/12/2022	<b>Logger:</b> LN+RW	<b>FINAL</b>

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.50	ES1							MADE GROUND: Very stiff greyish brown slightly sandy slightly gravelly CLAY with fragments of concrete and pyrite. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		
1.00 - 1.23	SPT (S)	N=50 (25 for 125mm/50 for 109mm) Hammer SN = 1398								
2.00	ES2				3.10	2.00				
2.00 - 2.17	SPT (S)	N=50 (25 for 105mm/50 for 65mm) Hammer SN = 1398		2.00				MADE GROUND: Medium dense greyish brown sandy slightly clayey subangular fine to coarse GRAVEL of predominantly limestone with fragments of concrete, red brick and steel. Sand is fine to coarse.		
3.00	ES3									
3.00 - 3.45	SPT (S)	N=24 (1,1/2,7,9,6) Hammer SN = 1398		3.00						
4.00	ES4				1.10	4.00				
4.00 - 4.40	B9							Medium dense greyish brown sandy clayey subangular fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
4.00 - 4.45	SPT (S)	N=11 (1,1/1,2,4,4) Hammer SN = 1398		4.00		4.40		Firm greyish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of predominantly limestone.		
4.40 - 5.00	B10				0.70					
5.00 - 5.30	B11				0.10	5.00				
5.00 - 5.45	SPT (S)	N=38 (2,3/10,17,6,5) Hammer SN = 1398		5.00		5.30		Dense greyish brown sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
6.00 - 6.50	B12				-0.20			Greyish brown gravelly very clayey fine to coarse SAND. Gravel is subrounded fine to coarse of predominantly limestone.		
6.50 - 6.95	SPT (S)	N=14 (1,1/2,3,5,4) Hammer SN = 1398		6.50		6.50		Medium dense grey sandy slightly clayey subrounded fine to coarse GRAVEL of predominately limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
7.00	ES5									
8.00 - 8.45	SPT (S)	N=16 (2,3/2,4,6,4) Hammer SN = 1398		8.00						
8.30 - 8.50	B13									
9.00 - 9.45	SPT (C)	N=18 (3,4/6,5,4,3) Hammer SN = 1398		9.00						

<b>Water Strikes</b>				<b>Remarks</b>			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Hand dug inspection pit excavated to 1.20m. No groundwater encountered.			
<b>Casing Details</b>		<b>Water Added</b>					
To (m)	Diam (mm)	From (m)	To (m)				
16.50	183	0.00	40.50				
40.50	146						
<b>Core Barrel</b>		<b>Flush Type</b>		<b>Termination Reason</b>		<b>Last Updated</b>	
SK6L		Water		Terminated at scheduled depth.		08/03/2023	





<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 40.50 m	<b>Start Date:</b> 02/12/2022	<b>Driller:</b> KW / AG +SJ / AG	Sheet 2 of 5 Scale: 1:50
Sonic Drilling Rotary Coring	XL Fraste Duo XL Fraste Duo	0.00 16.50	16.50 40.50	715741.01 E 734843.84 N	<b>Elevation:</b> 5.10 mOD	<b>End Date:</b> 06/12/2022	<b>Logger:</b> LN+RW	<b>FINAL</b>

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
10.00	ES6							Medium dense grey sandy slightly clayey subrounded fine to coarse GRAVEL of predominately limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
10.50 - 11.00 10.50 - 10.80	B14 SPT (C)	N=50 (10,15/50 for 150mm) Hammer SN = 1398	10.5	3.00	-5.40	10.50		Very dense light greyish brown sandy clayey subrounded fine to coarse GRAVEL of predominately limestone. Sand is fine to coarse.		
12.00 - 12.44 12.10 - 12.60	SPT (C) B15	N=50 (9,10/50 for 285mm) Hammer SN = 1398	12.0	3.00	-7.00	12.10		Very stiff brownish grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium of predominately limestone.		
13.00	ES7									
13.50 - 13.70 13.50 - 13.65	B16 SPT (C)	N=50 (25 for 75mm/50 for 75mm) Hammer SN = 1398	13.5	3.50	-8.40 -8.60	13.50 13.70		Very dense greyish brown gravelly slightly clayey fine to coarse SAND. Gravel is subrounded fine to medium of predominately limestone. Very stiff greyish brown slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium of predominately limestone.		
14.50 - 15.00	B17									
15.00 - 15.30	SPT (C)	N=50 (10,11/50 for 150mm) Hammer SN = 1398	15.0	3.00	-9.90	15.00		Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominately limestone.		
16.00 16.00 - 16.50	ES8 B18									
16.50 - 18.00 16.50 - 16.65	C19 SPT(C) N=50 (25 for 75mm/50 for 75mm) Hammer SN = 1398	100 0 0 N/A	16.5	3.00	-11.40	16.50 (3.40)		Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of predominately limestone.		
18.00 18.00 - 19.50	C20		18.0	3.00						

<b>Water Strikes</b>				<b>Remarks</b>			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Hand dug inspection pit excavated to 1.20m. No groundwater encountered.			
<b>Casing Details</b>		<b>Water Added</b>		<b>Core Barrel</b>		<b>Flush Type</b>	<b>Termination Reason</b>
To (m)	Diam (mm)	From (m)	To (m)	SK6L		Water	Terminated at scheduled depth.
16.50	183	0.00	40.50				
40.50	146						
							<b>Last Updated</b> 08/03/2023



**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH104

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 3 of 5  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	FINAL
Sonic Drilling Rotary Coring	XL Fraste Duo XL Fraste Duo	0.00 16.50	16.50 40.50	715741.01 E 734843.84 N	40.50 m	02/12/2022	KW / AG +SJ / AG	
					Elevation: 5.10 mOD	End Date: 06/12/2022	Logger: LN+RW	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
18.00 - 18.24	SPT(C) N=49 (20,15/49 for 86mm) Hammer SN = 1398	100	0	0							Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of predominantly limestone.		
19.50 19.50 - 21.00 19.50 - 19.65	C21 SPT(C) N=50 (25 for 75mm/50 for 75mm) Hammer SN = 1398	95	0	0	N/A			-14.80	19.90 (1.20)		Dark brown and dark grey sandy slightly clayey subangular to subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
21.00		100	0	0	N/A			-16.00	21.10 (2.15)		Very stiff dark greyish brown slightly sandy slightly gravelly CLAY with high cobble and boulder content. Sand is fine to coarse. Gravel is subangular fine to coarse of predominantly limestone. Cobbles and boulders are of limestone. (Possible highly weathered bedrock)		
22.50		100	32	10				-18.15	23.25		Medium strong (locally weak) dark greyish black argillaceous LIMESTONE. Partially weathered: slightly reduced strength, slightly closer fracture spacing. Occasional white quartz veins with bands of pyrite.		
24.00		100	85	47	7						Discontinuities: 1. 10 to 20 degree bedding fractures, very closely to closely spaced (10/60/700) planar, smooth, occasionally with light grey clayey film on surfaces. 2. 70 to 90 degree joints, undulating, occasionally planar, occasional orange staining.		
25.50		100	83	3	11								
27.00		100	100	85	1								
		TCR	SCR	RQD	FI								

Water Strikes				Chiselling Details			Remarks Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
Casing Details		Water Added					
To (m)	Diam (mm)	From (m)	To (m)				
16.50	183	0.00	40.50				
40.50	146			Core Barrel	Flush Type	Termination Reason	Last Updated
				SK6L	Water	Terminated at scheduled depth.	08/03/2023





Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Sheet 4 of 5 Scale: 1:50
Sonic Drilling Rotary Coring	XL Fraste Duo XL Fraste Duo	0.00 16.50	16.50 40.50	715741.01 E 734843.84 N	40.50 m	02/12/2022	KW / AG +SJ / AG	
					Elevation:	End Date:	Logger:	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
28.50					7						Medium strong (locally weak) dark greyish black argillaceous LIMESTONE. Partially weathered: slightly reduced strength, slightly closer fracture spacing. Occasional white quartz veins with bands of pyrite.  Discontinuities: 1. 10 to 20 degree bedding fractures, very closely to closely spaced (10/60/700) planar, smooth, occasionally with light grey clayey film on surfaces. 2. 70 to 90 degree joints, undulating, occasionally planar, occasional orange staining.		
		100	81	72									
30.00					3								
		100	100	83	12								
31.50													
		100	90	83									
33.00					3								
		100	100	80									
34.50					5								
		100	97	91									
36.00					1								
		100	94	61	4								
		TCR	SCR	RQD	FI								

Water Strikes				Chiselling Details			Remarks Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
Casing Details		Water Added		Core Barrel	Flush Type	Termination Reason	Last Updated
To (m)	Diam (mm)	From (m)	To (m)				
16.50	183	0.00	40.50	SK6L	Water	Terminated at scheduled depth.	08/03/2023
40.50	146						





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH104

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 5 of 5  
Scale: 1:50

<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 40.50 m	<b>Start Date:</b> 02/12/2022	<b>Driller:</b> KW / AG +SJ / AG	<b>FINAL</b>
Sonic Drilling Rotary Coring	XL Fraste Duo XL Fraste Duo	0.00 16.50	16.50 40.50	715741.01 E 734843.84 N	<b>Elevation:</b> 5.10 mOD	<b>End Date:</b> 06/12/2022	<b>Logger:</b> LN+RW	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
37.50					2						Medium strong (locally weak) dark greyish black argillaceous LIMESTONE. Partially weathered: slightly reduced strength, slightly closer fracture spacing. Occasional white quartz veins with bands of pyrite.		
		100	100	79							Discontinuities: 1. 10 to 20 degree bedding fractures, very closely to closely spaced (10/60/700) planar, smooth, occasionally with light grey clayey film on surfaces. 2. 70 to 90 degree joints, undulating, occasionally planar, occasional orange staining.		
39.00					6								
		100	99	71									
40.50								-35.40	40.50		End of Borehole at 40.50m		

<b>Water Strikes</b>				<b>Chiselling Details</b>			<b>Remarks</b> Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
<b>Casing Details</b>		<b>Water Added</b>					
To (m)	Diam (mm)	From (m)	To (m)				
16.50	183	0.00	40.50				
40.50	146						
				<b>Core Barrel</b>	<b>Flush Type</b>	<b>Termination Reason</b>	<b>Last Updated</b>
				SK6L	Water	Terminated at scheduled depth.	08/03/2023





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH105

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:
Sonic Drilling Rotary Coring	Fraсте XL Duo Fraсте XL Duo	0.00 16.50	16.50 30.20	715714.67 E 734810.41 N	30.20 m	29/12/2022	SJ / AG	LN+RW
					Elevation:	End Date:	FINAL	
					5.12 mOD	30/12/2022		

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.50	ES17				4.92	0.20	CONCRETE			
1.00	ES18						MADE GROUND: Very soft, locally firm, brown slightly sandy slightly gravelly silty CLAY with fragments of red brick and pyrite. Sand is fine to coarse. Gravel is subangular fine to coarse of predominantly limestone.			
1.20 - 1.65	SPT (C)	N=0 (0,0/0,0,0,0) Hammer SN = 1398								
1.50	ES19									
2.00 - 2.50	B1									
2.00 - 2.45	SPT (C)	N=0 (0,0/0,0,0,0) Hammer SN = 1398								
2.50	ES20									
3.00 - 3.45	SPT (C)	N=10 (1,1/2,2,3,3) Hammer SN = 1398								
3.50	ES21									
4.00 - 4.50	B2				1.12	4.00		Firm brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of predominantly limestone.		
4.00 - 4.45	SPT (C)	N=12 (0,1/2,2,3,5) Hammer SN = 1398								
5.00	ES22				0.12	5.00		Medium dense becoming dense greyish brown very sandy clayey subangular to subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subangular of limestone.		
5.00 - 5.45	SPT (C)	N=21 (1,2/5,6,5,5) Hammer SN = 1398								
5.50 - 6.00	B3									
6.50 - 6.95	SPT (C)	N=29 (1,2/4,7,9,9) Hammer SN = 1398								
7.50 - 8.00	B4									
8.00	ES23									
8.30 - 8.64	SPT (C)	N=50 (1,3/50 for 185mm) Hammer SN = 1398								
8.50 - 9.00	B5									
					-3.98	9.10		Dense grey sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
Hand dug inspection pit excavated to 1.20m. No groundwater encountered.				
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
15.00	183	0.00	30.20	
30.20	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH105

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 2 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:
Sonic Drilling Rotary Coring	Frastr XL Duo Frastr XL Duo	0.00 16.50	16.50 30.20	715714.67 E 734810.41 N	30.20 m	29/12/2022	SJ / AG	
					Elevation:	End Date:	FINAL	
					5.12 mOD	30/12/2022		

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
9.50 - 10.00	B6	N=43 (4,7/10,9,11,13) Hammer SN = 1398						Dense grey sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
9.50 - 9.95	SPT (C)									
10.50 - 11.00	B7	N=50 (8,10/50 for 225mm) Hammer SN = 1398						Very dense greyish brown sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
11.00	ES24									
11.00 - 11.60	B8									
11.00 - 11.38	SPT (C)									
11.60 - 12.00	B9	N=50 (25 for 143mm/50 for 140mm) Hammer SN = 1398						Grey slightly sandy slightly clayey fine to coarse subrounded GRAVEL of predominantly limestone. Sand is fine to coarse.		
12.00 - 12.28	SPT (C)									
12.50 - 13.30	B10	N=50 (11,14/50 for 178mm) Hammer SN = 1398						Very stiff greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominantly limestone.		
13.50 - 14.00	B11									
13.50 - 13.83	SPT (C)									
14.00	ES25	N=50 (11,14/50 for 178mm) Hammer SN = 1398						Very dense greyish brown very sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
14.70 - 15.00	B12									
15.00 - 16.50	B13	N=50 (11,14/50 for 178mm) Hammer SN = 1398						Very stiff greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominantly limestone.		
16.50 - 18.00	C14									
16.50 - 16.82	SPT(C) N=50 (10,15/50 for 175mm) Hammer SN = 1398	100	0	0	N/A			Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		
18.00										
18.00 - 19.50	C15							Very stiff brown and dark greyish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
15.00	183	0.00	30.20	
30.20	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	







**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH105

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Sheet 3 of 4
Sonic Drilling Rotary Coring	Fraсте XL Duo Fraсте XL Duo	0.00 16.50	16.50 30.20	715714.67 E 734810.41 N	30.20 m	29/12/2022	SJ / AG	Scale: 1:50
								FINAL
					Elevation:	End Date:	Logger:	
					5.12 mOD	30/12/2022	LN+RW	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
18.00 - 18.20	SPT(C) N=50 (25 for 110mm/50 for 89mm) Hammer SN = 1398	100	0	0	N/A				(1.80)		Very stiff brown and dark greyish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		
19.50 19.50 - 21.00	C16							-14.68	19.80		Weak (locally medium strong) black argillaceous LIMESTONE with occasional white calcite veins and pyrite. Partially weathered: slightly reduced strength, staining on some fracture surfaces.		
		100	49	27	4						Discontinuities: 1. 10 to 20 degree bedding fractures, typically closely spaced becoming medium in places (20/60/800) planar, smooth. 2. 80 to 90 degree joints, undulating, rough, with heavy orangish brown staining on most surfaces and occasional white quartz.		
21.00											<u>19.80m to 20.20m. Extremely weak</u>		
		100	43	8	18						<u>21.60m to 21.70m. Extremely weak</u>		
22.50													
		100	23	10	10								
23.40					20								
		100	30	0	14				(10.40)				
24.20					1								
		100	67	48	15						<u>24.90m to 25.20m. Extremely weak</u>		
25.70					8								
		100	70	59									
27.20													
		TCR	SCR	RQD	FI								

Water Strikes				Chiselling Details			Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
Casing Details		Water Added		Core Barrel	Flush Type	Termination Reason	Last Updated
To (m)	Diam (mm)	From (m)	To (m)				
15.00	183	0.00	30.20	SK6L	Water	Terminated at scheduled depth.	08/03/2023
30.20	146						





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH105

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 4 of 4  
Scale: 1:50

<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 30.20 m	<b>Start Date:</b> 29/12/2022	<b>Driller:</b> SJ / AG	FINAL
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 16.50	16.50 30.20	715714.67 E 734810.41 N	<b>Elevation:</b> 5.12 mOD	<b>End Date:</b> 30/12/2022	<b>Logger:</b> LN+RW	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
28.70		100	95	95							Weak (locally medium strong) black argillaceous LIMESTONE with occasional white calcite veins and pyrite. Partially weathered: slightly reduced strength, staining on some fracture surfaces.  Discontinuities: 1. 10 to 20 degree bedding fractures, typically closely spaced becoming medium in places (20/60/800) planar, smooth. 2. 80 to 90 degree joints, undulating, rough, with heavy orangish brown staining on most surfaces and occasional white quartz.		
					4								
30.20		100	97	82				-25.08	30.20		End of Borehole at 30.20m		

<b>Water Strikes</b>				<b>Chiselling Details</b>			<b>Remarks</b> Hand dug inspection pit excavated to 1.20m. No groundwater encountered.	
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)		
<b>Casing Details</b>		<b>Water Added</b>		<b>Core Barrel</b>		<b>Flush Type</b>	<b>Termination Reason</b>	
To (m)	Diam (mm)	From (m)	To (m)					
15.00	183	0.00	30.20	SK6L	Water	Terminated at scheduled depth.		
30.20	146							
							<b>Last Updated</b>	
							08/03/2023	



**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH106

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 3  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Sheet 1 of 3 Scale: 1:50
Sonic Drilling Rotary Coring	Frastr CRS-XL Duo Frastr CRS-XL Duo	0.00 15.00	15.00 25.00	715753.69 E 734753.61 N	25.00 m	26/11/2022	KW / AG	
					Elevation:	End Date:	Logger:	FINAL
					4.99 mOD	28/11/2022	CMc +RW	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					4.89	0.10		CONCRETE		
0.50	ES					0.10		MADE GROUND: Greyish brown slightly sandy slightly silty subangular to subrounded fine to coarse GRAVEL of various lithologies with low cobble content and fragments of concrete and red brick. Sand is fine to coarse. Cobbles are rounded of limestone.		
0.50	ES2					0.50				
1.00	ES					1.00				
1.00	ES3					1.00				
1.50 - 1.95	SPT (C)	N=12 (1,3/2,3,3,4) Hammer SN = 1398	1.50		3.49	1.50		MADE GROUND: Firm dark greyish brown slightly sandy gravelly CLAY with low cobble content and fragments of concrete and red brick. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. Cobbles are subrounded of limestone.		
2.00	ES1					2.00				
2.00 - 2.50	B9					2.50				
2.50 - 3.00	B10					2.50				
3.00	ES				1.99	3.00		MADE GROUND: Medium dense dark greyish brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular fine to coarse of various lithologies.		
3.00	ES4					3.00				
3.00 - 3.45	SPT (C)	N=22 (2,3/3,4,7,8) Hammer SN = 1398	3.00	5.50	1.59	3.40		MADE GROUND: Dark greyish brown slightly sandy clayey subangular fine to medium GRAVEL of various lithologies. Sand is fine to coarse.		
3.50 - 4.00	B11					3.50				
4.00	ES5				1.09	3.90		Stiff orangish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. Cobbles are subrounded of limestone.		
4.50 - 5.00	B12				0.49	4.50		Light brown very sandy clayey subangular fine to coarse GRAVEL of various lithologies. Sand is fine to coarse.		
5.00 - 5.45	SPT (C)	N=30 (5,6/6,7,8,9) Hammer SN = 1398	4.50	4.50	-0.01	5.00		Stiff to very stiff light greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of various lithologies.		
5.70 - 6.00	B13					5.70				
6.00 - 6.40	B14				-1.01	6.00		Light greyish brown very sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
6.50 - 7.00	B15					6.50				
7.00	ES				-2.01	7.00		Firm light greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominantly limestone.		
7.00	ES6					7.00				
7.50 - 8.00	B16				-2.51	7.50		Medium dense light greyish brown very sandy slightly clayey fine to medium GRAVEL of predominantly limestone.		
7.50 - 7.95	SPT (C)	N=35 (6,6/7,9,9,10) Hammer SN = 1398	7.50	6.00		7.50				
8.00 - 8.50	B17					8.00				
8.50 - 9.00	B18					8.50				
9.00 - 9.17	SPT (C)	N=28 (6,9/28 for 22mm) Hammer SN = 1398	9.00	6.00	-3.91	8.90		Medium dense becoming dense dark brownish grey sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
				Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
15.00	146	0.00	25.00	
25.00	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH106

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 2 of 3  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:	
Sonic Drilling Rotary Coring	Frastr CRS-XL Duo Frastr CRS-XL Duo	0.00 15.00	15.00 25.00	715753.69 E 734753.61 N	25.00 m	26/11/2022	KW / AG		CMc +RW
								<b>End Date:</b> 28/11/2022	<b>FINAL</b>

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
9.50 - 10.00	B19							Medium dense becoming dense dark brownish grey sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
10.00	ES7									
10.50 - 11.00	B20									
10.50 - 10.52	SPT (C)	N=32 (20 for 5mm/32 for 18mm) Hammer SN = 1398	10.5	5.00						
11.50 - 12.00	B21									
12.00 - 12.50	B22									
12.00 - 12.22	SPT (C)	N=50 (9,12/50 for 75mm) Hammer SN = 1398	12.0	5.00						
13.00	ES8									
13.00 - 13.50	B23									
13.50 - 13.52	SPT (C)	N=32 (23 for 2mm/32 for 18mm) Hammer SN = 1398	13.5	5.00	-8.31	13.30		Very stiff light brownish grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominantly limestone.		
14.00 - 14.50	B24									
15.00 - 15.04	SPT(C) N=50 (25 for 20mm/50 for 25mm) Hammer SN = 1398		13.5	5.00	-10.01 -10.16	15.00 (0.15) 15.15		Very dense brownish grey slightly sandy slightly clayey subangular to subrounded fine to coarse GRAVEL of limestone. Sand is fine to coarse.		
		100 75 56						Extremely weak (locally very weak) thinly to thickly laminated dark grey LIMESTONE with occasional white calcite veins (up to 25mm thick). Moderately weathered: significantly weakened, closer fracture spacing, orangish brown discolouration penetrating in (up to 10mm) from some fracture surfaces, completely weathered leaving slightly sandy gravelly clay from 15.50-15.90m and 16.55-17.00m.		
16.50						(1.90)				
		100 68 59						Discontinuities: 1. 5-20 degree fractures at 15.40m, 15.50m, 15.95m, 16.40m, 16.45m and 16.55m, planar, predominantly smooth, orangish brown staining on fracture surfaces. 2. 75-90 degree joints from 15.15-15.35m, 16.00-16.25m, undulating, rough, orangish brown staining on joint surfaces.		
18.00						-12.06	17.05	Medium strong thinly to thickly laminated dark grey LIMESTONE with occasional white calcite veins (up to 10mm thick) and rare laminations rich in brassy yellow pyrite. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, orangish brown discolouration on some fracture surfaces.		
								Discontinuities:		
		TCR SCR RQD FI								

Water Strikes				Remarks			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	Hand dug inspection pit excavated to 1.20m. No groundwater encountered.			
Casing Details		Water Added					
To (m)	Diam (mm)	From (m)	To (m)				
15.00	146	0.00	25.00				
25.00	146						
				<b>Core Barrel</b>	<b>Flush Type</b>	<b>Termination Reason</b>	<b>Last Updated</b>
				SK6L	Water	Terminated at scheduled depth.	08/03/2023





Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Sheet 3 of 3 Scale: 1:50
Sonic Drilling Rotary Coring	Frastr CRS-XL Duo Frastr CRS-XL Duo	0.00 15.00	15.00 25.00	715753.69 E 734753.61 N	25.00 m	26/11/2022	KW / AG	
					Elevation:	End Date:	Logger:	FINAL
					4.99 mOD	28/11/2022	CMc +RW	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill	
19.50		100	100	87							Medium strong thinly to thickly laminated dark grey LIMESTONE with occasional white calcite veins (up to 10mm thick) and rare laminations rich in brassy yellow pyrite. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, orangish brown discolouration on some fracture surfaces.			
		100	100	79							Discontinuities: 1. 5-20 degree bedding fractures closely spaced (5/130/420), planar, predominantly smooth, patchy orangish brown staining on some fracture surfaces. 2. 45-55 degree joints from 17.10-17.20m and 18.10-18.20m, planar, rough, orangish brown staining on joint surfaces. 3. 70-90 degree joints from 21.80-22.05m and 23.20-23.50m, undulating, rough, orangish brown staining on joint surfaces.			
21.00		100	100	59	8				(7.95)					
22.50		100	100	65										
24.00		100	100	85										
25.00								-20.01	25.00		End of Borehole at 25.00m			

Water Strikes				Chiselling Details			Remarks Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
Casing Details		Water Added		Core Barrel	Flush Type	Termination Reason	Last Updated
To (m)	Diam (mm)	From (m)	To (m)				
15.00	146	0.00	25.00	SK6L	Water	Terminated at scheduled depth.	08/03/2023
25.00	146						





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH107

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 3  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	FINAL
Sonic Drilling Rotary Coring	Frastr CRS-XL Duo Frastr CRS-XL Duo	0.00 15.00	15.00 25.00	715734.04 E 734748.38 N	25.00 m	24/11/2022	KW / AG	
					Elevation:	End Date:	Logger:	
					4.99 mOD	26/11/2022	CMc	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 - 4.50	B1				4.79	0.20	CONCRETE			
0.50	ES7						MADE GROUND: Soft dark brown slightly sandy gravelly CLAY with low cobble content and fragments of concrete and red brick. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. Cobbles are rounded of limestone.			
1.00	ES8									
1.50 - 2.00	B15				3.49	1.50	MADE GROUND: Stiff light brown slightly sandy gravelly SILT with fragments of red brick. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.			
1.50 - 1.95	SPT (C)	N=19 (1,2/3,3,6,7) Hammer SN = 1398	1.50	1.50						
2.00	ES									
2.00	ES9									
2.50 - 3.00	B16									
3.00	ES10				1.99	3.00	Medium dense light brown sandy clayey subangular fine to coarse GRAVEL of various lithologies with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.			
3.00 - 3.45	SPT (C)	N=17 (2,3/5,5,4,3) Hammer SN = 1398	3.00	2.00						
3.50 - 4.00	B17									
4.00	ES									
4.00	ES11									
4.00 - 4.45	SPT (C)	N=27 (6,7/6,8,6,7) Hammer SN = 1398	4.00	3.00						
4.50 - 5.00	ES18									
4.50 - 5.00	U31									
4.50 - 6.00	B2									
5.00 - 5.45	SPT (C)	N=29 (4,6/6,7,7,9) Hammer SN = 1398	5.00	4.50						
5.70 - 6.00	B19				-0.71	5.70	Stiff light brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.			
6.00 - 6.40	B20				-1.01	6.00	Bluish grey sandy slightly clayey subrounded fine to medium GRAVEL of predominantly limestone. Sand is fine to coarse.			
6.00 - 6.50	B3									
6.50 - 10.50	B4				-1.41	6.40	Stiff light brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse of various lithologies. Cobbles are subrounded of limestone.			
6.50 - 7.00	B21									
7.00	ES12									
7.50 - 8.00	B22				-2.51	7.50	Dense light greyish brown slightly clayey gravelly fine to coarse SAND. Gravel is subrounded fine to medium of predominantly limestone.			
7.50 - 7.95	SPT (C)	N=34 (5,6/8,8,8,10) Hammer SN = 1398	7.50	4.50						
8.00 - 8.50	B23				-3.01	8.00	Very stiff light greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominantly limestone.			
8.50 - 9.00	B24				-3.51	8.50	Dark greyish black slightly sandy subangular fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subangular of limestone.			
9.00 - 9.15	SPT (C)	N=50 (25 for 75mm/50 for 75mm) Hammer SN = 1398	9.00	4.50	-4.01	9.00	Dense greyish brown very sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are rounded of limestone.			

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
				Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
15.00	183	0.00	25.00	
25.00	150			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	







<b>Method</b>	<b>Plant Used</b>	<b>Top (m)</b>	<b>Base (m)</b>	<b>Coordinates</b>	<b>Final Depth:</b> 25.00 m	<b>Start Date:</b> 24/11/2022	<b>Driller:</b> KW / AG	Sheet 3 of 3 Scale: 1:50
Sonic Drilling Rotary Coring	Frastr CRS-XL Duo Frastr CRS-XL Duo	0.00 15.00	15.00 25.00	715734.04 E 734748.38 N	<b>Elevation:</b> 4.99 mOD	<b>End Date:</b> 26/11/2022	<b>Logger:</b> CMc	<b>FINAL</b>

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
19.50		100	100	93							Medium strong thinly to thickly laminated dark grey LIMESTONE with occasional white calcite veins (up to 30mm thick). Slightly weathered: slightly reduced strength, slightly closer fracture spacing, orangish brown staining on some fracture surfaces.  Discontinuities: 1. 10-25 degree bedding fractures, closely spaced (30/170/600), planar, smooth, orangish brown staining on some fractures surfaces. 2. 80-85 degree joint from 20.60-21.00m, smooth, undulating, orangish brown staining on joint surface.		
		100	100	95									
21.00		100	100	100	6				(8.50)				
22.50		100	100	81									
24.00		100	100	100									
25.00								-20.01	25.00		End of Borehole at 25.00m		

<b>Water Strikes</b>				<b>Chiselling Details</b>			<b>Remarks</b> Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
<b>Casing Details</b>		<b>Water Added</b>					
To (m)	Diam (mm)	From (m)	To (m)				
15.00	183	0.00	25.00				
25.00	150			<b>Core Barrel</b>	<b>Flush Type</b>	<b>Termination Reason</b>	
				SK6L	Water	Terminated at scheduled depth.	
							<b>Last Updated</b> 08/03/2023







**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH108

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 3  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Sheet 1 of 3 Scale: 1:50
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 12.00	12.00 25.50	715645.71 E 734731.67 N	25.50 m	03/01/2023	KW / AG	
					Elevation:	End Date:	Logger:	FINAL
					4.99 mOD	05/01/2023	CMc +SMC	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.50	ES1				4.74	0.25	CONCRETE			
1.00 - 1.45	ES2 SPT (C)	N=17 (1,2/3,5,5,4) Hammer SN = 1398	1.50	1.50	3.69	1.30	MADE GROUND: Brown clayey sandy subangular to subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.			
2.00	ES3						Stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of predominantly limestone. Cobbles are subrounded of limestone.			
3.00 - 3.45	ES4 B8 SPT (C)	N=23 (2,4/6,5,5,7) Hammer SN = 1398	3.00	2.00						
4.50 - 4.95	B9 SPT (C)	N=21 (4,5/5,5,6,5) Hammer SN = 1398	4.50	2.50	0.49	4.50	Stiff grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of predominantly limestone. Cobbles are subrounded of limestone.			
6.00 - 6.45	ES5 SPT (S)	N=27 (3,5/6,6,7,8) Hammer SN = 1398	6.00	3.00						
7.00 - 8.00	B10									
8.00 - 9.00	B11				-2.51	7.50	Very stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of predominantly limestone.			
9.00 - 10.00	ES6 B12									

Water Strikes				Remarks Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
12.00	183	0.00	25.50	
25.50	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH108

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 2 of 3  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:	FINAL
Sonic Drilling Rotary Coring	Fraste XL Duo Fraste XL Duo	0.00 12.00	12.00 25.50	715645.71 E 734731.67 N	25.50 m	03/01/2023	KW / AG		
					Elevation:	End Date:			
					4.99 mOD	05/01/2023			

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
9.00 - 9.45	SPT (S)	N=32 (4,6/7,7,8,10) Hammer SN = 1398	9.00	2.50				Very stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of predominantly limestone.		
10.00 - 11.00	B13									
10.50 - 10.72	SPT (S)	N=50 (20,5/50 for 75mm) Hammer SN = 1398	10.5	3.50						
11.00 - 12.00	B14									
12.00	ES7		12.0	3.00	-7.01	12.00		Very stiff greyish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. Cobbles are subrounded of limestone.		
12.00 - 13.50	C15					(1.50)				
12.00 - 12.45	SPT(C) N=50 (25,0/50,0,0,0) Hammer SN = 1398	100 0 0 N/A								
13.50					-8.51	13.50		Very stiff dark grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular fine to coarse of limestone. Cobbles are angular of limestone. (Possible highly weathered limestone).		
		100 17 0 N/A				(1.15)				
15.00					-9.66	14.65		Weak thinly to thickly laminated dark grey LIMESTONE. Highly weathered: highly reduced strength, weathered to clay along some fracture surfaces, much closer fracture spacing.		
						(1.25)		Discontinuities: 1. 5-15 degree bedding fractures, very closely spaced (10/55/210), planar, smooth, clay infill on some fracture surfaces (up to 40mm thick). 2. 65-80 degree joints from 14.80-15.30m and 15.55-15.95m, undulating, rough.		
16.50					-10.91	15.90		Medium strong thinly to thickly laminated dark grey LIMESTONE with occasional white calcite veins (up to 35mm thick) at 70-90 degrees and occasional brassy yellow pyrite mineralisation. Slightly weathered: slightly reduced strength, slightly closer fracture spacing.		
		100 80 49						Discontinuities: 1. 0-20 degree bedding fractures, medium spaced (20/220/740), planar, smooth. 2. 70-90 degree joints from 18.00-18.40m, 19.30-19.80m and 24.90-25.35m, undulating, rough.		
18.00										
		100 100 76								
		TCR SCR RQD FI								

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
				Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
12.00	183	0.00	25.50	
25.50	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	





Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Sheet 3 of 3 Scale: 1:50
Sonic Drilling Rotary Coring	Fraсте XL Duo Fraсте XL Duo	0.00 12.00	12.00 25.50	715645.71 E 734731.67 N	25.50 m	03/01/2023	KW / AG	
					Elevation:	End Date:	Logger:	FINAL
					4.99 mOD	05/01/2023	CMc +SMC	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
19.50		100	100	93						<p>Medium strong thinly to thickly laminated dark grey LIMSTONE with occasional white calcite veins (up to 35mm thick) at 70-90 degrees and occasional brassy yellow pyrite mineralisation. Slightly weathered: slightly reduced strength, slightly closer fracture spacing.</p> <p>Discontinuities: 1. 0-20 degree bedding fractures, medium spaced (20/220/740), planar, smooth. 2. 70-90 degree joints from 18.00-18.40m, 19.30-19.80m and 24.90-25.35m, undulating, rough.</p>			
		100	100	93									
21.00		100	100	73	5				(9.60)				
22.50		100	100	91									
24.00		100	100	88									
25.50								-20.51	25.50		End of Borehole at 25.50m		

Water Strikes				Chiselling Details			Remarks Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)	
Casing Details		Water Added		Core Barrel	Flush Type	Termination Reason	Last Updated
To (m)	Diam (mm)	From (m)	To (m)				
12.00	183	0.00	25.50	SK6L	Water	Terminated at scheduled depth.	08/03/2023
25.50	146						





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH110

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 1 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:
Sonic Drilling Rotary Coring - Geobore	Frastr CRS-XL Duo Frastr CRS XL Duo	0.00 19.50	19.50 35.00	715729.20 E 734937.66 N	35.00 m	21/11/2022	KW / AG	
								<b>FINAL</b>

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
1.00	ES				1.90	0.20	CONCRETE	MADE GROUND: Dense sandy slightly silty subangular to subrounded fine to coarse GRAVEL of various lithologies with low cobble content and fragments of red brick, rebar, concrete, plastic and wood. Sand is fine to coarse.		
1.50 - 1.57	SPT (C)	N=50 (50 for 48mm/50 for 20mm) Hammer SN = 1398	1.50	Dry				No recovery from 2.00-3.00m		
3.00	ES1				-0.90	3.00		MADE GROUND: Very stiff light greyish brown slightly gravelly sandy CLAY with low cobble content and fragments of glass, wire and red brick. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. Cobbles are subangular of sandstone and limestone.		
3.00 - 3.50	B8									
3.00 - 3.22	SPT (C)	N=50 (10,15/50 for 75mm) Hammer SN = 1398	3.00	2.00						
4.00	ES2				-1.50	3.60		Greyish brown very sandy slightly clayey subangular fine to coarse GRAVEL of various lithologies. Sand is fine to coarse.		
4.00 - 4.50	B9									
4.50 - 5.00	B10				-2.40	4.50		Medium dense light brown slightly sandy slightly clayey subangular fine to coarse GRAVEL of various lithologies with low cobble content. Sand is fine to coarse. Cobbles are subrounded of sandstone.		
4.50 - 4.95	SPT (C)	N=20 (3,3/5,4,5,6) Hammer SN = 1398	4.50	3.00						
5.50 - 6.00	B11				-2.90	5.00		Light greyish brown very sandy slightly clayey subrounded fine to coarse GRAVEL of various lithologies with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
6.00 - 6.45	SPT (C)	N=27 (3,3/5,7,7,8) Hammer SN = 1398	6.00	3.00				Medium dense grey slightly sandy slightly clayey subrounded fine to coarse GRAVEL of various lithologies with low cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
6.50 - 7.00	B12									
7.00	ES3				-5.10	7.20		Dense grey slightly sandy slightly clayey subrounded fine to coarse GRAVEL of various lithologies. Sand is fine to coarse.		
7.50 - 8.00	B13									
7.50 - 7.95	SPT (C)	N=46 (4,6/10,10,12,14) Hammer SN = 1398	7.50	3.00						
8.50 - 9.00	B14				-6.20	8.30		Very stiff light brownish grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies.		
9.00 - 9.45	SPT (C)	N=40 (4,6/8,10,10,12) Hammer SN = 1398	9.00	2.00	-6.90	9.00		Dense becoming very dense dark brownish grey sandy clayey subangular fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
				Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
19.50	183	0.00	35.00	
35.00	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH110

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 2 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:
Sonic Drilling Rotary Coring - Geobore	Frastr CRS-XL Duo Frastr CRS XL Duo	0.00 19.50	19.50 35.00	715729.20 E 734937.66 N	35.00 m	21/11/2022	KW / AG	
					Elevation:	End Date:	FINAL	
					2.10 mOD	23/11/2022		

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
9.50 - 10.00	B15							Dense becoming very dense dark brownish grey sandy clayey subangular fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
10.00	ES4									
10.50 - 11.00	B16	N=50 (5,5/50 for 225mm) Hammer SN = 1398	10.5	2.00				Grey slightly sandy subangular fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subangular of limestone.		
10.50 - 10.88	SPT (C)									
11.50 - 12.00	B17							Dense brownish grey sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
12.00 - 12.30	B18									
12.50 - 13.00	B19							Dense brownish grey sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone with medium cobble content. Sand is fine to coarse. Cobbles are subrounded of limestone.		
13.00	ES5									
13.50	B20	N=48 (5,10/10,12,12,14) Hammer SN = 1398	13.5	1.00				Dense becoming very dense brownish grey very sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of various lithologies.		
13.50 - 14.00	B21									
13.50 - 13.95	SPT (C)							Dense becoming very dense brownish grey very sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of various lithologies.		
14.50	B									
14.50 - 15.00	B22	N=36 (9,10/36 for 225mm) Hammer SN = 1398	15.0	3.00				Dense becoming very dense brownish grey very sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of various lithologies.		
15.00 - 15.38	SPT (C)									
15.50 - 16.00	B23							Dense becoming very dense brownish grey very sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of various lithologies.		
16.00	ES6									
16.50 - 17.00	B24	N=50 (25 for 75mm/50 for 75mm) Hammer SN = 1398	16.5	3.50				Dense becoming very dense brownish grey very sandy slightly clayey subrounded fine to coarse GRAVEL of predominantly limestone with low cobble content. Sand is fine to coarse. Cobbles are subrounded of various lithologies.		
16.50 - 16.65	SPT (C)									
17.80 - 18.00	B25	N=50 (15,10/50 for 225mm) Hammer SN = 1398	18.0	3.00				Brownish grey slightly gravelly slightly clayey fine to coarse SAND. Gravel is subrounded fine to medium of predominantly limestone.		
18.00 - 18.38	SPT (C)									
18.20	B							Very dense dark brownish grey slightly sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse.		
18.20 - 18.70	B26									

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
Hand dug inspection pit excavated to 1.20m. No groundwater encountered.				
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
19.50	183	0.00	35.00	
35.00	146			
Core Barrel	Flush Type	Termination Reason	Last Updated	
SK6L	Water	Terminated at scheduled depth.	08/03/2023	





**Project No.**  
22-0874

**Project Name:** Dublin Central Ground Investigation

**Borehole ID**  
DC-BH110

**Client:** Dublin Central GP Ltd

**Client's Rep:** Waterman

Sheet 3 of 4  
Scale: 1:50

Method	Plant Used	Top (m)	Base (m)	Coordinates	Final Depth:	Start Date:	Driller:	Logger:	FINAL
Sonic Drilling Rotary Coring - Geobore	Frastr CRS-XL Duo Frastr CRS XL Duo	0.00 19.50	19.50 35.00	715729.20 E 734937.66 N	35.00 m	21/11/2022	KW / AG		
					Elevation:	End Date:			
					2.10 mOD	23/11/2022			

Depth (m)	Sample / Tests	Field Records				Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
19.00	ES7 B27							-16.60	18.70	[Pattern]	Very dense dark brownish grey slightly sandy clayey subrounded fine to coarse GRAVEL of predominantly limestone. Sand is fine to coarse. Very stiff brownish grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of predominantly limestone.		
19.00 - 19.50													
19.50 - 19.67	SPT(C) N=50 (11,14/50 for 23mm) Hammer SN = 1398				N/A	19.5	2.70	-17.40	19.50	[Pattern]	Very stiff brownish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone.		
		53	0	0					(1.50)				
					AZCL					[Pattern]			
21.00								-18.90	21.00	[Pattern]	Medium strong thinly to thickly laminated dark grey LIMESTONE with occasional white calcite veins (up to 15mm thick) and occasional laminations rich in brassy yellow pyrite. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, orangish brown discoloration on some fracture surfaces.		
22.50										[Pattern]	Discontinuities: 1. 10-25 degree bedding fractures, closely spaced (5/155/490), planar, predominantly smooth, patchy orangish brown staining on some joint surfaces. 2. 60-75 degree joints from 21.00-21.25m, 21.50-21.75m, 22.30-22.35m, 23.80-23.95m, 25.35-25.40m, 25.50-25.65m, 27.00-27.15m and 28.35-28.50m, planar, predominantly smooth, orangish brown staining on joint surfaces. 3. 85-90 degree joint from 27.25-27.45m, undulating, rough, orangish brown staining on joint surface.		
24.00										[Pattern]			
25.50										[Pattern]			
27.00										[Pattern]			
		TCR	SCR	RQD	FI								

Water Strikes				Remarks
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	
				Hand dug inspection pit excavated to 1.20m. No groundwater encountered.
Casing Details		Water Added		
To (m)	Diam (mm)	From (m)	To (m)	
19.50	183	0.00	35.00	
35.00	146			
Core Barrel		Flush Type	Termination Reason	Last Updated
SK6L		Water	Terminated at scheduled depth.	
				08/03/2023

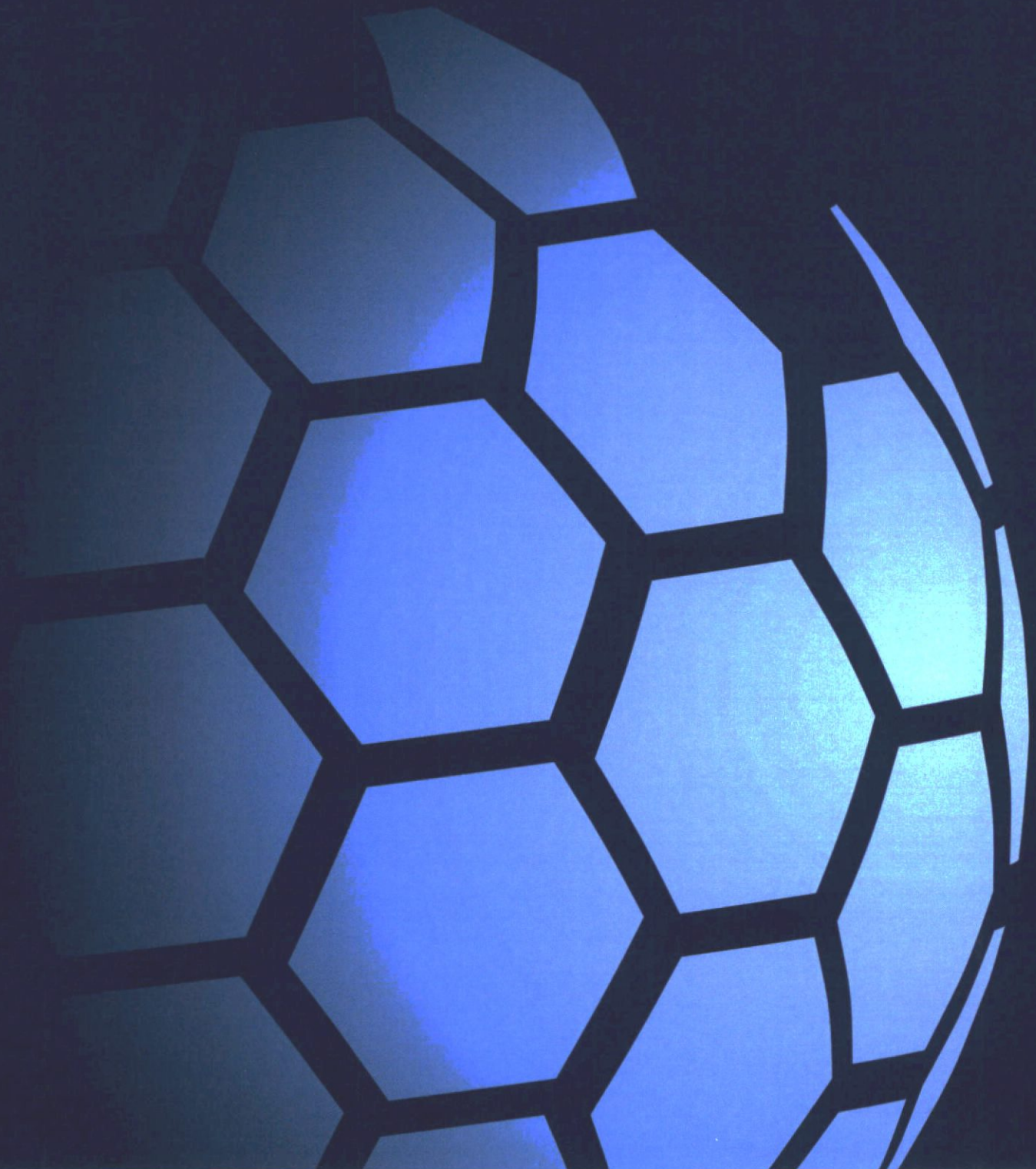




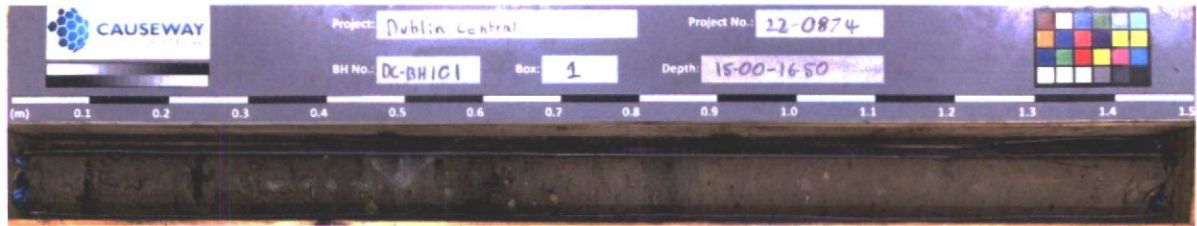


**CAUSEWAY**  
— GEOTECH

**APPENDIX C**  
**CORE PHOTOGRAPHS**



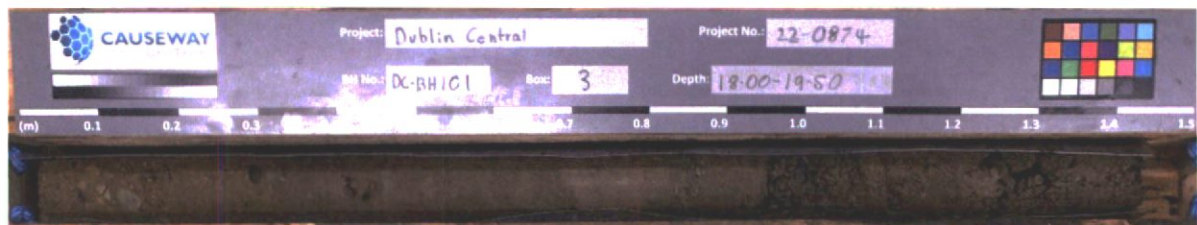




DC-BH101 (15.00-16.50m)



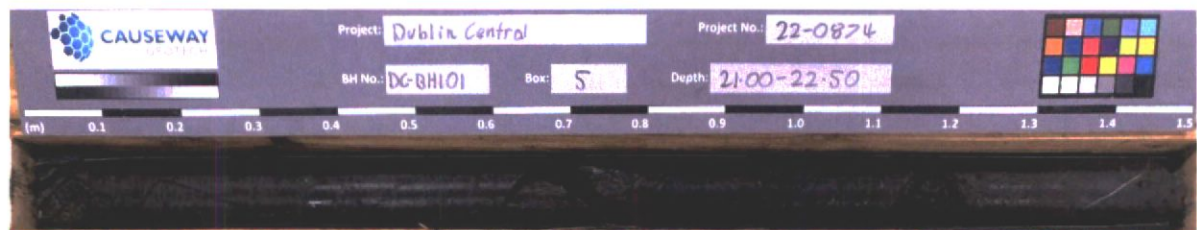
DC-BH101 (16.50-18.00m)



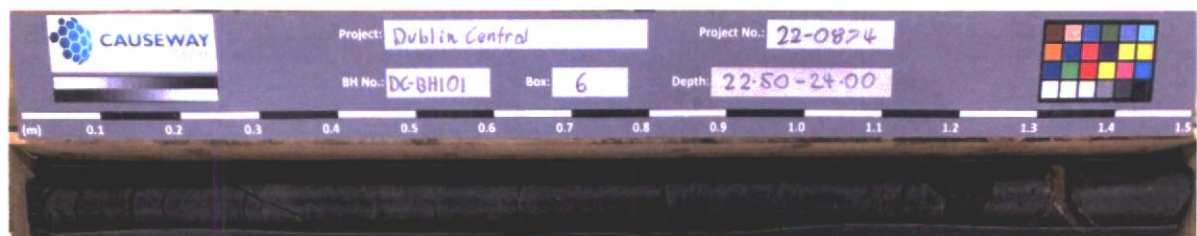
DC-BH101 (18.00-19.50m)



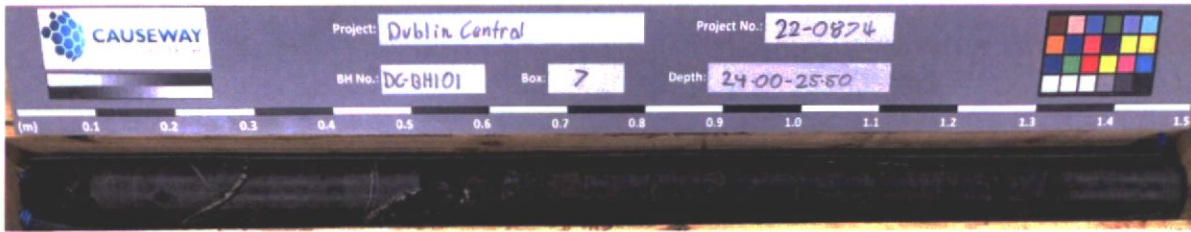
DC-BH101 (19.50-21.00m)



DC-BH101 (21.00-22.50m)



DC-BH101 (22.50-24.00m)



DC-BH101 (24.00-25.50m)



DC-BH101 (25.50-27.00m)



DC-BH101 (27.00-28.50m)



DC-BH101 (28.50-30.00m)



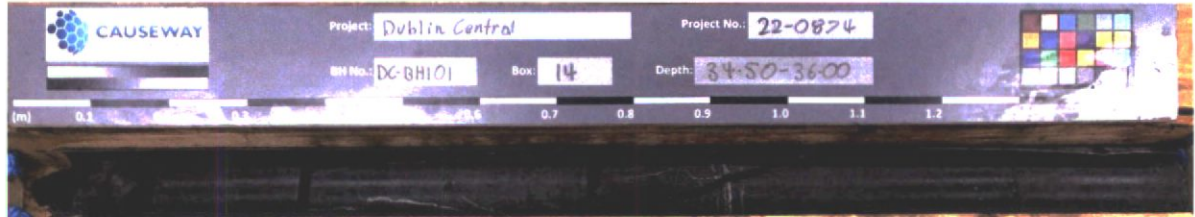
DC-BH101 (30.00-31.50m)



DC-BH101 (31.50-33.00m)



DC-BH101 (33.00-34.50m)



DC-BH101 (34.50-36.00m)



DC-BH101 (36.00-37.50m)



DC-BH101 (37.50-39.00m)



DC-BH101 (39.00-40.00m)



DC-BH102 (15.00-16.50m)



DC-BH102 (16.50-18.00m)



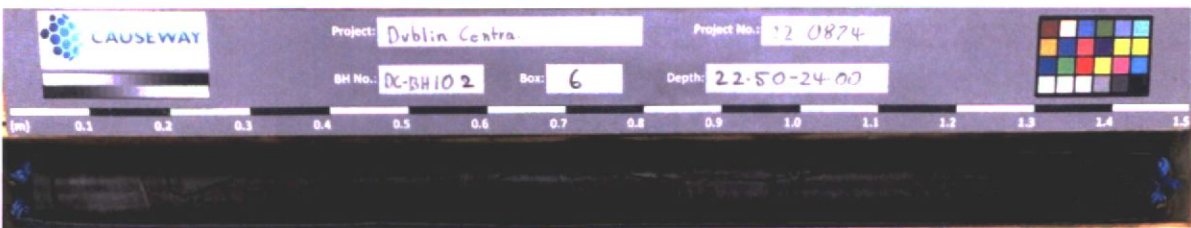
DC-BH102 (18.00-19.50m)



DC-BH102 (19.50-21.00m)



DC-BH102 (21.00-22.50m)



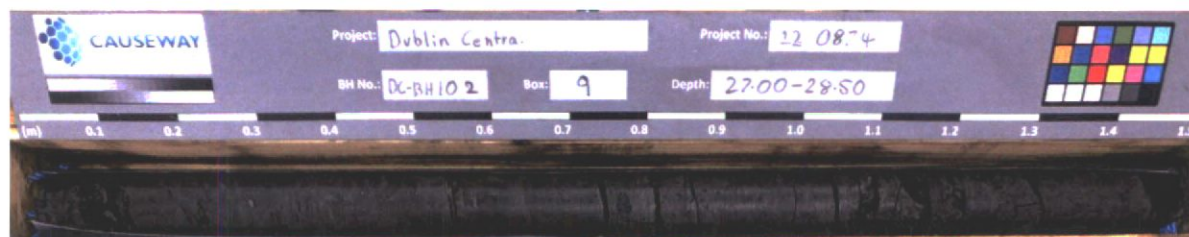
DC-BH102 (22.50-24.00m)



DC-BH102 (24.00-25.50m)



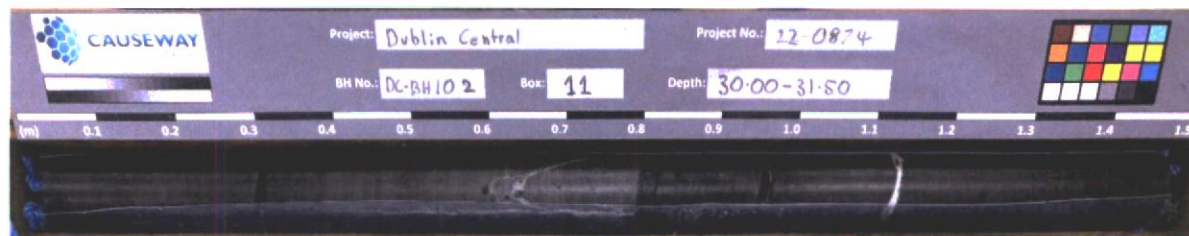
DC-BH102 (25.50-27.00m)



DC-BH102 (27.00-28.50m)



DC-BH102 (28.50-30.00m)



DC-BH102 (30.00-31.50m)



DC-BH102 (31.50-33.00m)



DC-BH102 (33.00-34.50m)



DC-BH102 (34.50-35.00m)



DC-BH103 (16.50-18.00m)



DC-BH103 (18.00-19.50m)



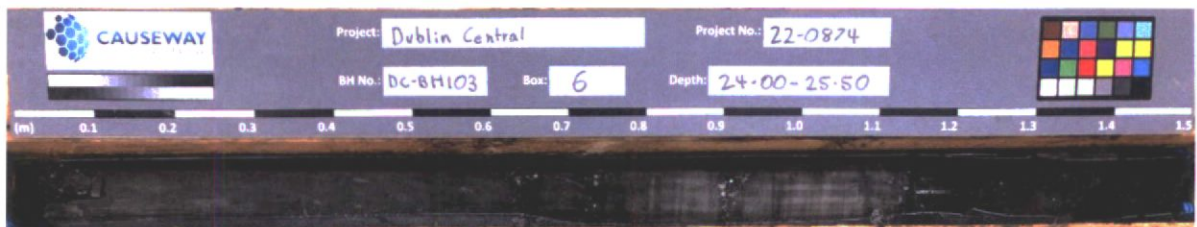
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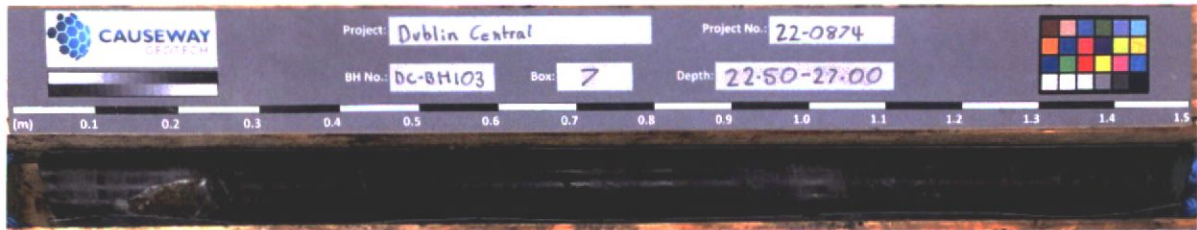
DC-BH103 (21.00-22.50m)



DC-BH103 (22.50-24.00m)



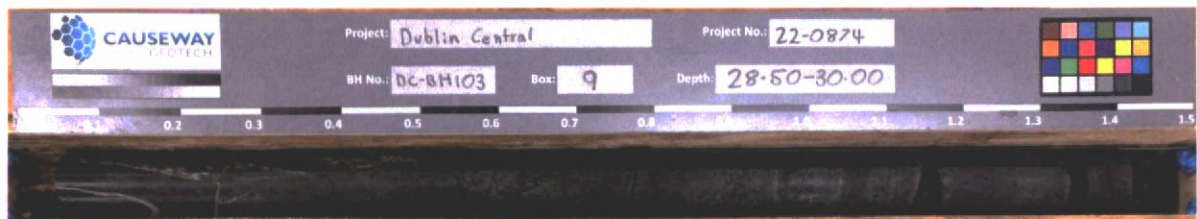
DC-BH103 (24.00-25.50m)



DC-BH103 (25.50-27.00m)



DC-BH103 (27.00-28.50m)



DC-BH103 (28.50-30.00m)



DC-BH103 (30.00-31.50m)



DC-BH103 (31.50-33.00m)

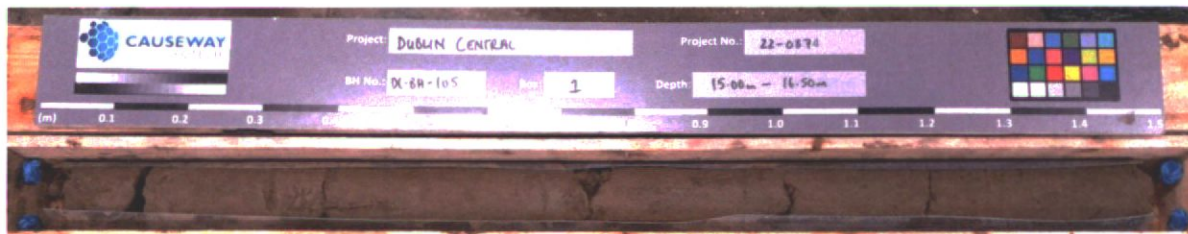


DC-BH103 (33.00-34.50m)





DC-BH103 (34.50-35.00m)



DC-BH105 (15.00-16.50m)



DC-BH105 (16.50-18.00m)



DC-BH105 (18.00-19.50m)



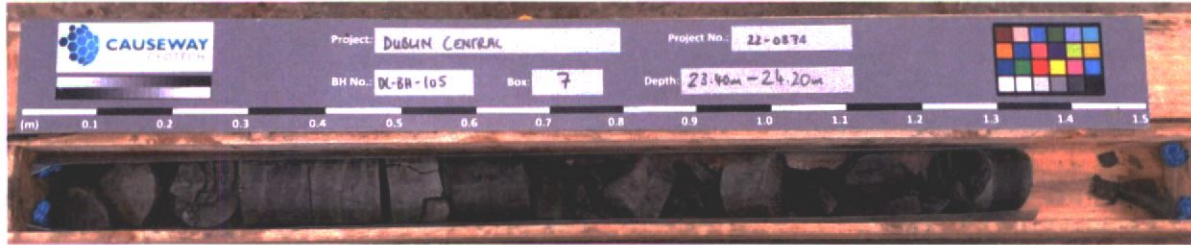
DC-BH105 (19.50-21.00m)



DC-BH105 (21.00-22.50m)



DC-BH105 (22.50-23.40m)



DC-BH105 (23.40-24.20m)



DC-BH105 (24.20-25.70m)



DC-BH105 (25.70-27.20m)



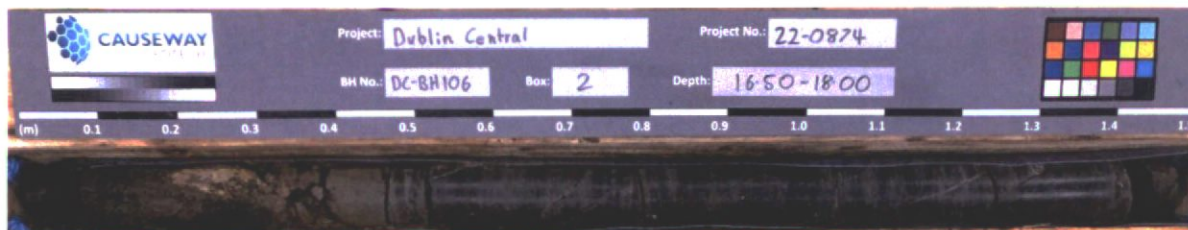
DC-BH105 (27.20-28.70m)



DC-BH105 (28.70-30.20m)



DC-BH106 (15.00-16.50m)



DC-BH106 (16.50-18.00m)



DC-BH106 (18.00-19.50m)



DC-BH106 (19.50-21.00m)



DC-BH106 (21.00-22.50m)



DC-BH106 (22.50-24.00m)



DC-BH106 (24.00-25.00m)



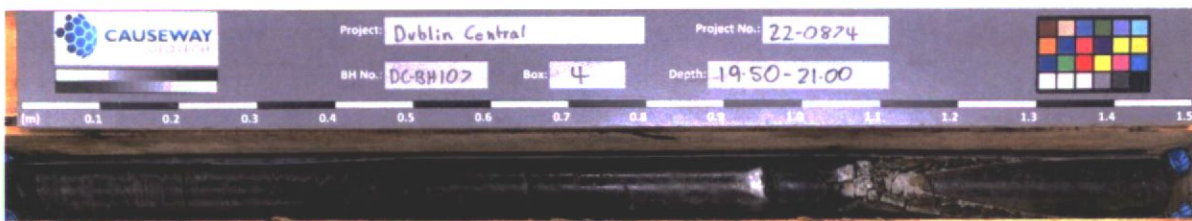
DC-BH107 (15.00-16.50m)



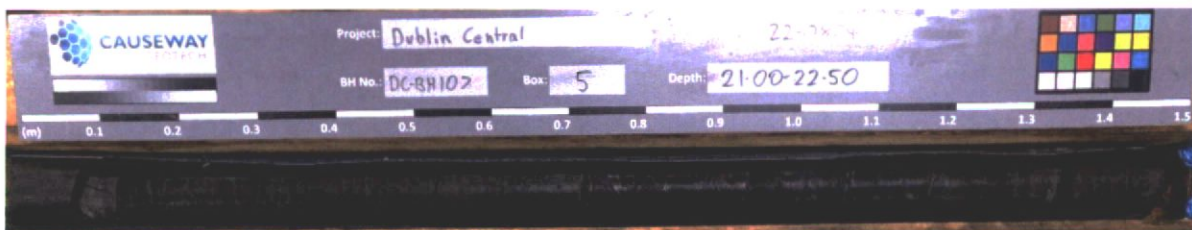
DC-BH107 (16.50-18.00m)



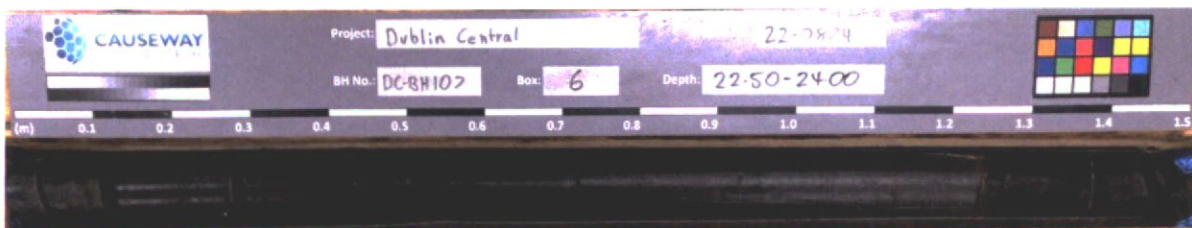
DC-BH107 (18.00-19.50m)



DC-BH107 (19.50-21.00m)



DC-BH107 (21.00-22.50m)



DC-BH107 (22.50-24.00m)



DC-BH107 (24.00-25.00m)



DC-BH108 (12.00-13.50m)



DC-BH108 (13.50-15.00m)



DC-BH108 (15.00-16.50m)



DC-BH108 (16.50-18.00m)



DC-BH108 (18.00-19.50m)

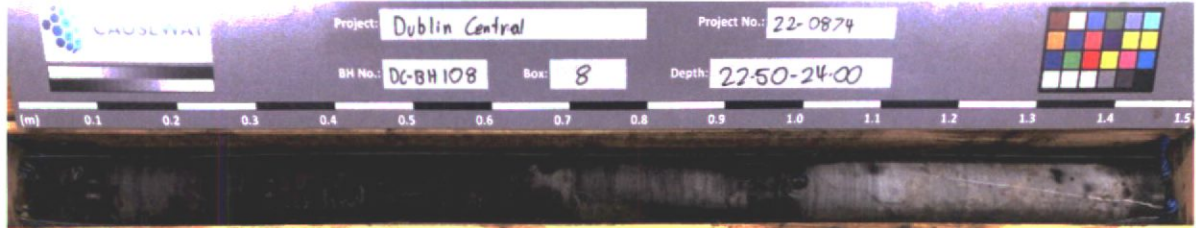


DC-BH108 (19.50-21.00m)





DC-BH108 (21.00-22.50m)



DC-BH108 (22.50-24.00m)



DC-BH108 (24.00-25.50m)



DC-BH110 (19.50-21.00m)



DC-BH110 (21.00-22.50m)



DC-BH110 (22.50-24.00m)



DC-BH110 (24.00-25.50m)



DC-BH110 (25.50-27.00m)



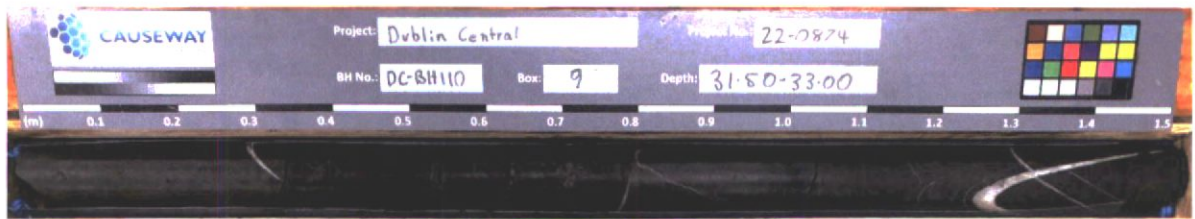
DC-BH110 (27.00-28.50m)



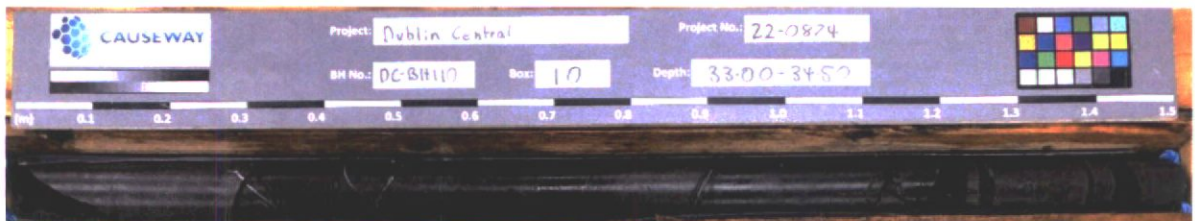
DC-BH110 (28.50-30.00m)



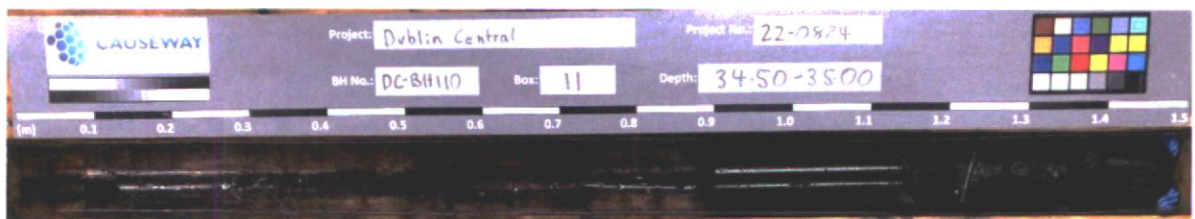
DC-BH110 (30.00-31.50m)



DC-BH110 (31.50-33.00m)



DC-BH110 (33.00-34.50m)



DC-BH110 (34.50-35.00m)

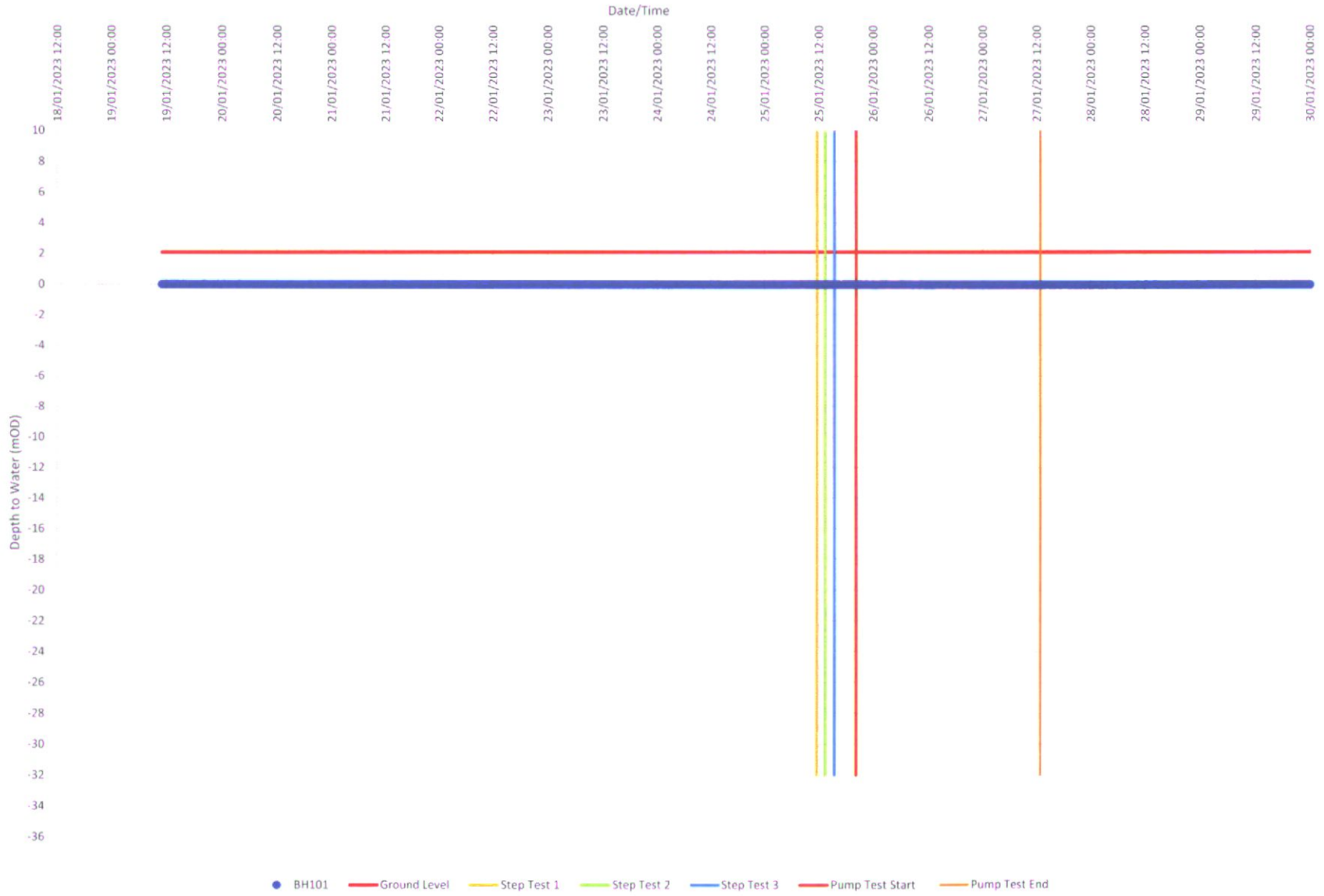


**CAUSEWAY**  
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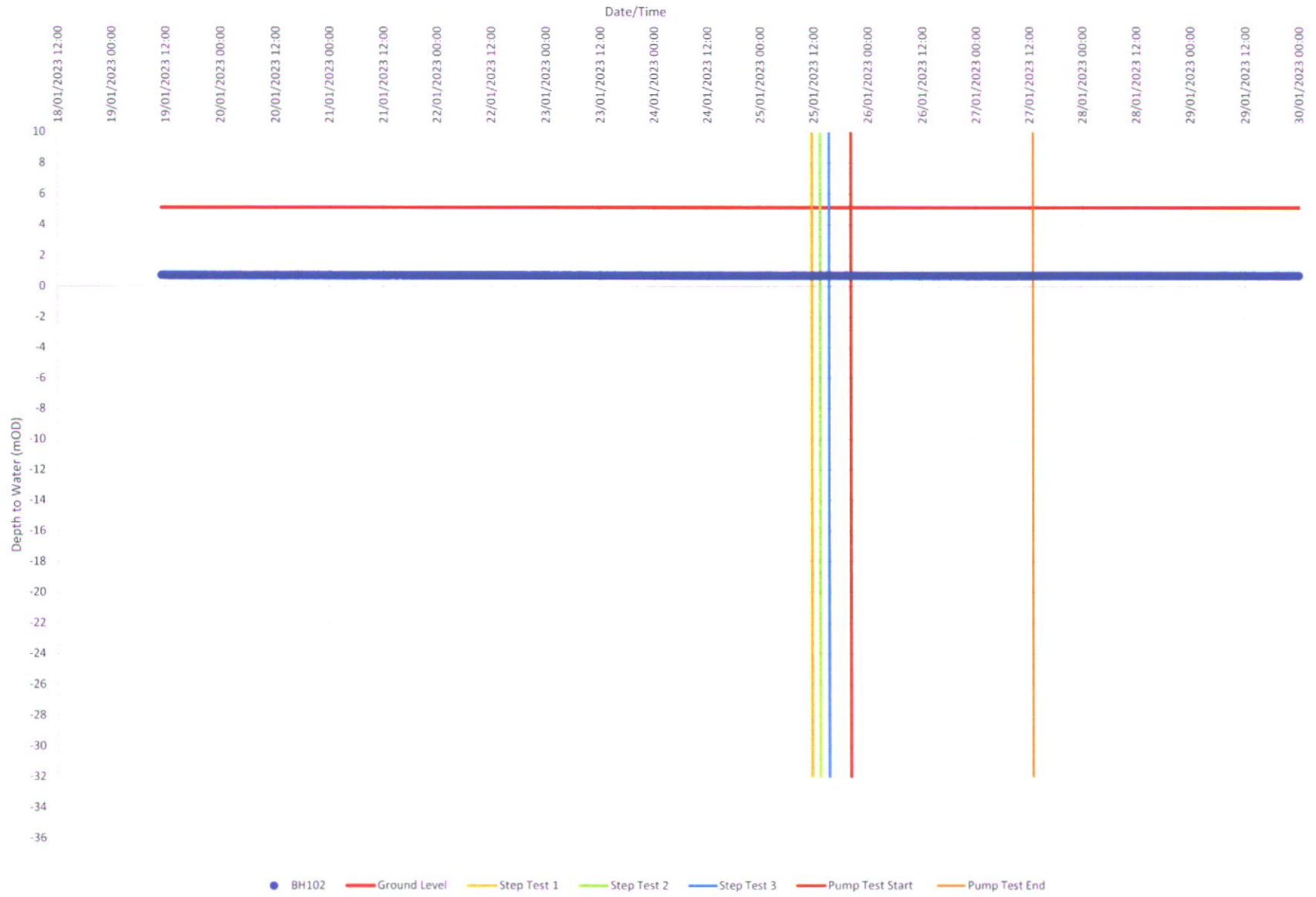
**APPENDIX D**  
**PUMP TEST RESULTS**



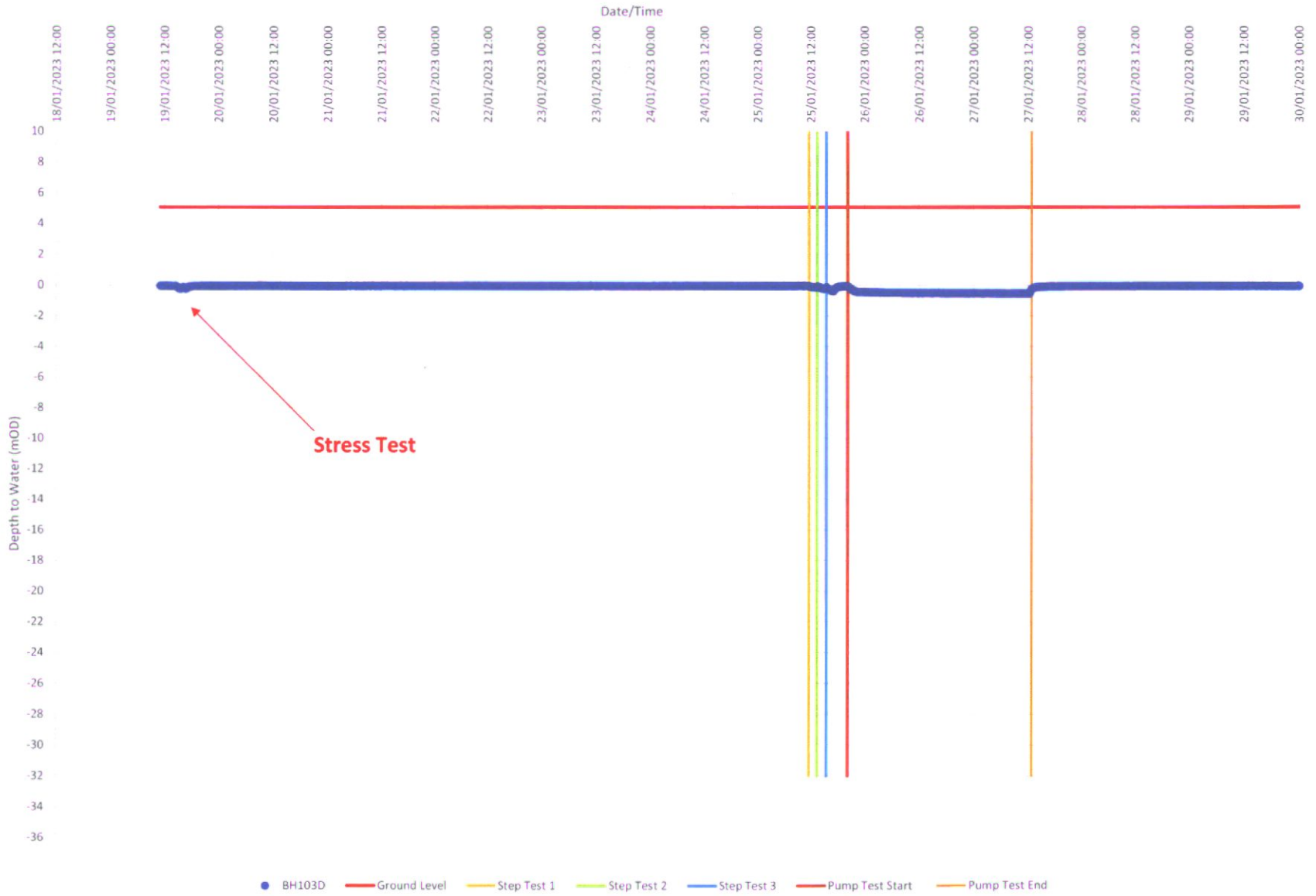
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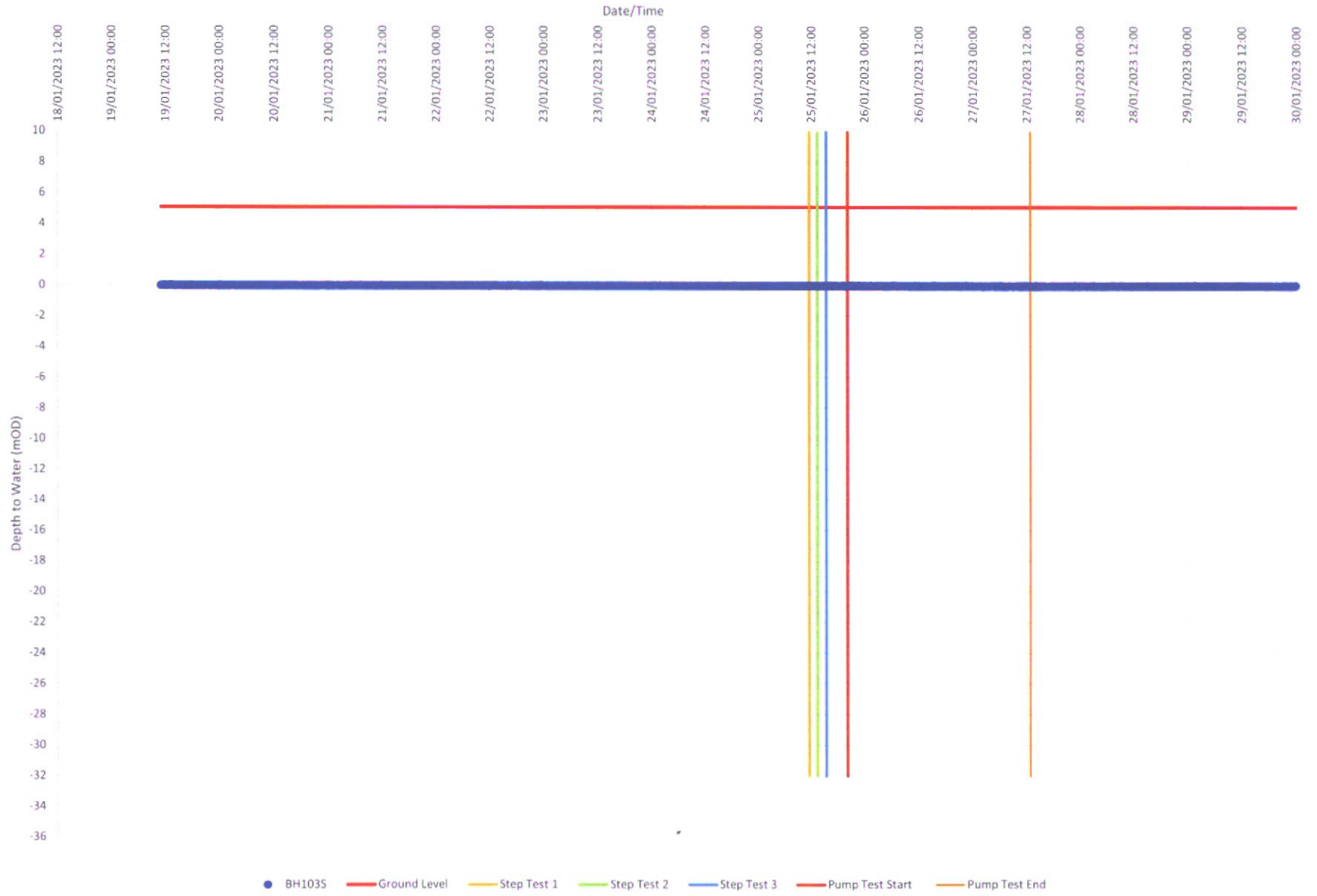
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DC-BH103D 25/01/2023 - 27/01/2023

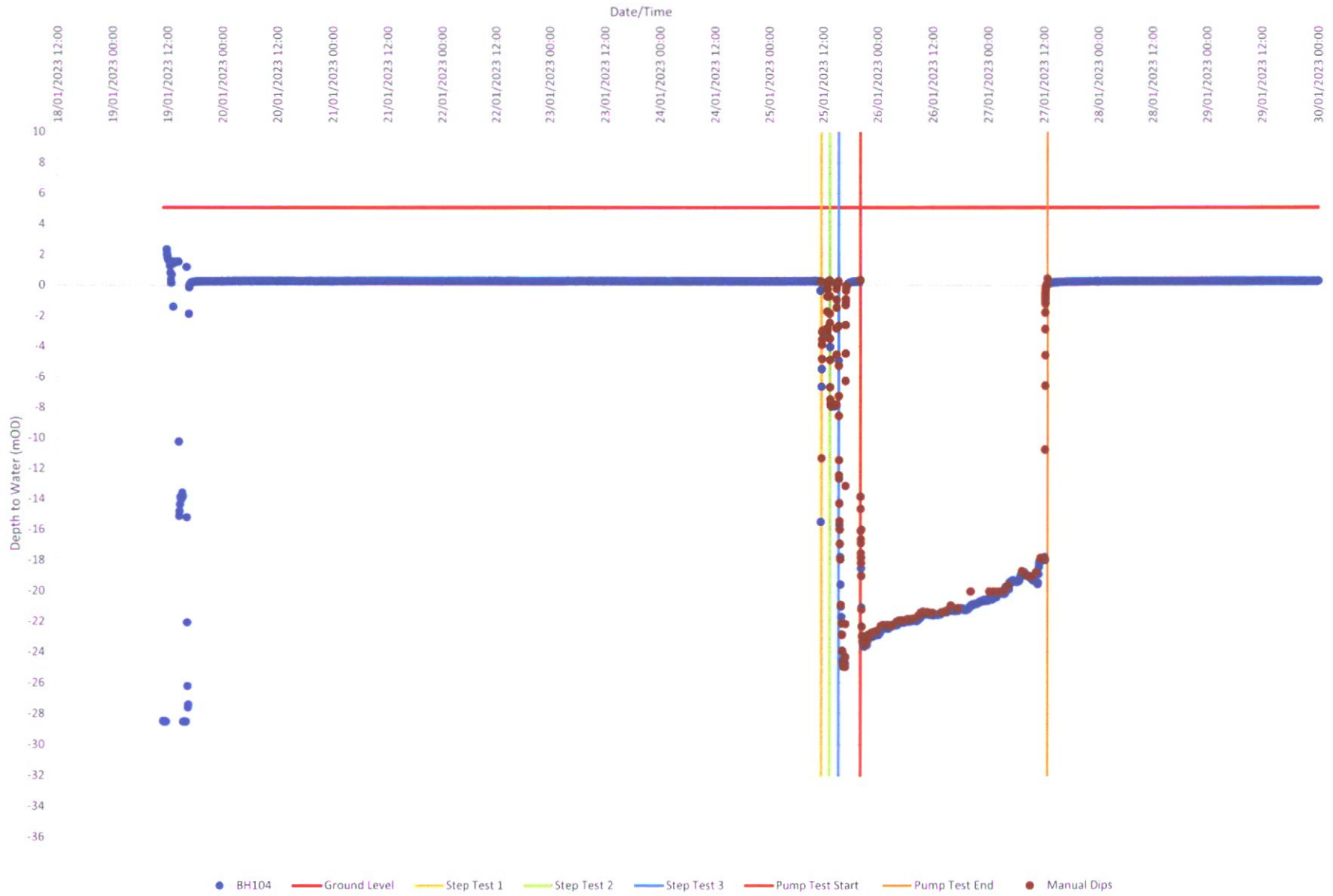


DC-BH103S 25/01/2023 - 27/01/2023

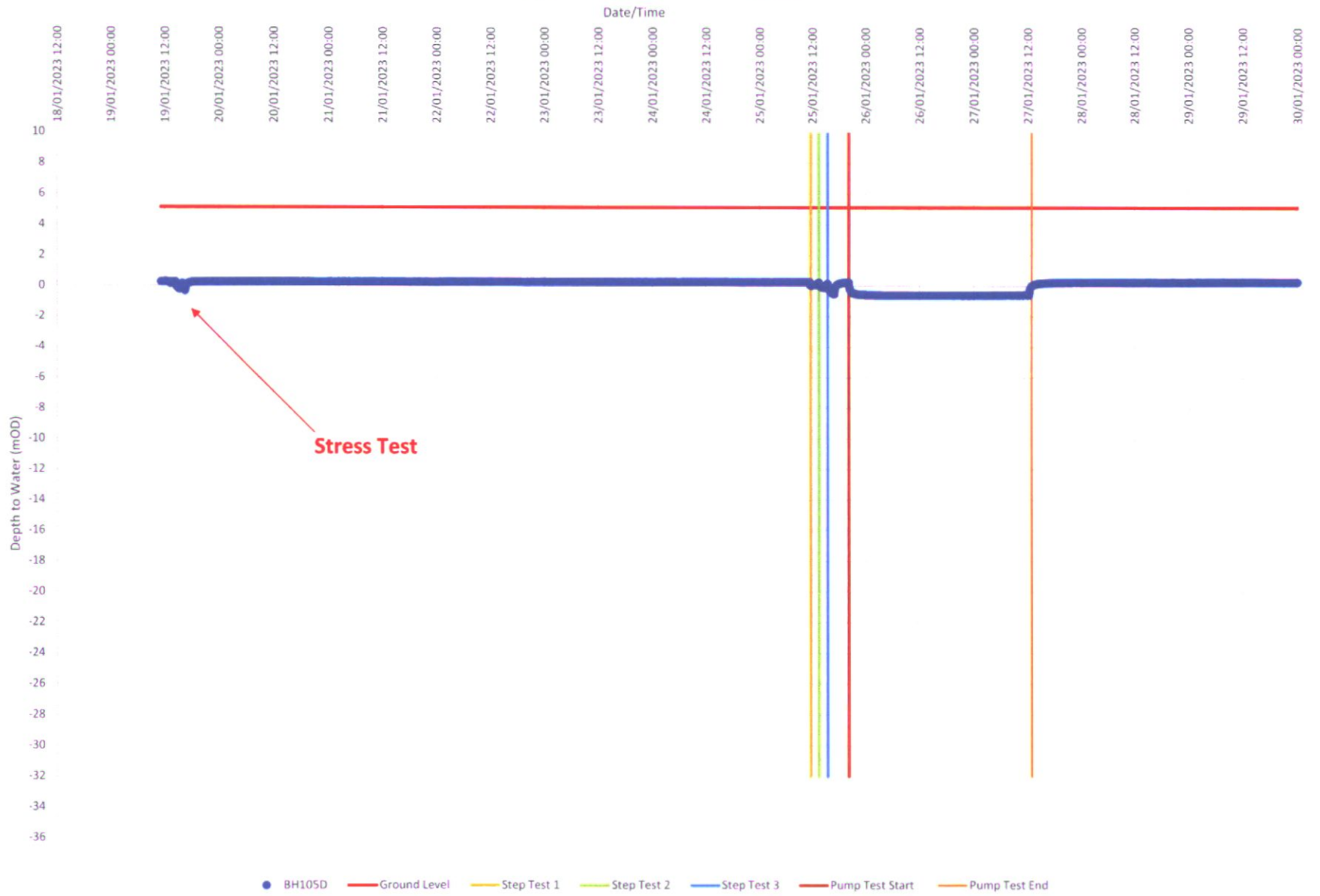




DC-BH104 25/01/2023 - 27/01/2023



DC-BH105D 25/01/2023 - 27/01/2023



DC-BH105S 25/01/2023 - 27/01/2023

