APPENDIX 7

APPENDIX 7-1

BOREHOLE LOG

Project Number:

Client: O'BRIEN CEMENT

Project Title:

Site Location: GORTEENS

BOREHOLE NO: PW1

SUBSURFACE CONDITIONS					SAMPLE		INSTALLATION DETAILS
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	
0							
2		TOPSOIL	12" BORE TO 6m				
4		CLAY					
6			6m of 219mm STEEL PIPE				
8			200mm BORE FROM 6m TO 72m				
10							
12							
14							
16							
18							
20							
22							
24							
26							
28			ESTIMATED WATER FLOW @ 28m = 1m3/hr				
30							
32							
34		LOOSE FRACTURED BROWN ROCK	ESTIMATED WATER FLOW @ 33-34.5m =				
36							
38							
40							
42							
44			ESTIMATED WATER FLOW @ 43m = 7m3/hr				
46							
48			ESTIMATED WATER FLOW @ 47m = 10m3/hr				
50		SOFT ORANGE ROCK	ESTIMATED WATER FLOW @ 49.5m = 15m3/hr				
52							
54							
56			ESTIMATED WATER FLOW @ 55.5m = 15m3/hr				
58							
60							
62			ESTIMATED WATER FLOW @ 63m = 18-				
64							
66							
68							
70							
72			END OF DRILLING				
74							
76							
78							
80							

Drill Date: 10/03/2023
Drill Method: ROTARY
Drilled By: JIM FOGARTY & SONS
Logged By: **Checked By:**

Reference Datum: Elevation: 0
Easting: 0
Northing: 0

Water Strike:
Strike: **Level:**

Revision: DRAFT **Page:** 1 of 1

DISCLAIMER: This log is for environmental purposes only.

BOREHOLE LOG

Project Number:

Client: O'BRIEN CEMENT

Project Title:

Site Location: GORTEENS

BOREHOLE NO: PW2

SUBSURFACE CONDITIONS					SAMPLE		INSTALLATION DETAILS
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	
0							
2		TOPSOIL	12" BORE TO 6m				
4		CLAY					
6			6m of 219mm STEEL PIPE				
8			200mm BORE FROM 6m TO 60m				
10							
12							
14							
16							
18							
20							
22			ESTIMATED WATER FLOW @ 21m = 5m3/hr				
24							
26							
28							
30			ESTIMATED WATER FLOW @ 29m = 10m3/hr				
32							
34							
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60			END OF DRILLING				
62							
64							
66							
68							
70							
72							
74							
76							
78							
80							

Drill Date: 10/03/2023
Drill Method: ROTARY
Drilled By: JIM FOGARTY & SONS
Logged By: **Checked By:**

Reference Datum: **Elevation:** 0
Easting: 0
Northing: 0

Water Strike:
Strike: **Level:**

Revision: DRAFT **Page:** 1 of 1

Jim Fogarty & Sons Water Well Drilling Ltd
Bodalmore, Waterford Road
Kilkenny
Email: well.drilling@hotmail.com

Well log

O'Brien Cement Ltd
Bellview port
Waterford

20th February 2024

11/4/2023 Monitoring bore No.1
200mm bore to 6m
Inserted 6m 168mm casing.
Drilled 152mm bore to 72m
Inserted 60mm stand pipe 72m
Backfilled with 5mm stone 15m down to 72m.
Bentonite pellets 15m up to 1m inside casing

12/4/2023 Monitoring bore No.2
200mm bore to 6m
Inserted 6m 168mm casing
Unstable rock formation 49.5m
Drilled 152mm bore to 60m
Inserted 57m of 60mm stand pipe.
Backfilled with 5mm stone from 10m to 57m
Bentonite pellets 10m to 4m inside of casing

14/4/2023 Well No.3
200mm bore to 6m
Inserted 6m 168mm casing
Drilled 152mm bore to 60m
Inserted 60m 60mm stand pipe.
Backfilled with 5mm stone 15m to 60m
Bentonite pellets 15m to 4m inside of casing.

Capped and locked all Monitoring bore holes.

Best regards
Michael Fogarty
Jim Fogarty & Sons Water Well Drilling Limited

APPENDIX 7-2

Des Redmond Draughting and Design
Misterin, Adamstown, Enniscorthy, Co. Wexford
086 2374705

Soakaway Tests for Proposed Development At Drumdowney, Co. Kilkenny Clients: The O'Brien Group

Introduction:

It is understood that the applicant's wish to examine the possibility of disposing of stormwater generated by a proposed development at Drumdowney, Co. Kilkenny. An investigation has been carried out to assess the suitability of the subsoils for this purpose.

Fieldwork:

Four trial pits were excavated in order to ascertain subsoil type and depth to groundwater or any signs of mottling in the trial holes. The holes were left open for over 48 hours in order to observe groundwater levels if any.

Testing:

To determine the soil infiltration rate "f" water was poured into the trial holes and kept topped up until a constant rate of fall was established.

See recorded data and calculations in Appendix 1
See photographs in Appendix 2

Conclusions:

SA 1 The infiltration rate (f value) for trial pit SA1 is 0.0000176 m/sec

Trial pits were dug to a depth of 2.2m, 1.2m wide and 1.6m long.

Signed: Des Redmond

Des Redmond Dip C.E.

Date: 15th June 2023

APPENDIX 1

SA 1

Depth of trial hole = 2.2m
Invert level set at 1.0m
Depth of water = 1.2m (Effective storage depth adopted)
Average length of trial hole = 1.6m
Average width of trial hole = 1.2m

Soil profile

200mm Clay/loam
1000mm Silt/clay
700mm Gravelly silt/clay
300mm Porous fissured shale bedrock (shale)

Observations

No sign of a watertable and no evidence of mottling. The best material for soaking occurs at 1.9m to 2.2m therefore if the invert level was set lower "f" rates would most likely increase.

Recorded Water Levels vs Time

1.2m @ 8.30 am (test commenced after initial soaking)
0.9m @9.15 am (75% full)
0.3m @ 12.26 pm (25% full)

Elapsed time (75% full to 25% full) = 206 minutes

Volume outflowing between 75% and 25% is 1.6m x 1.2m x 0.6m = 1.152 cu.m.

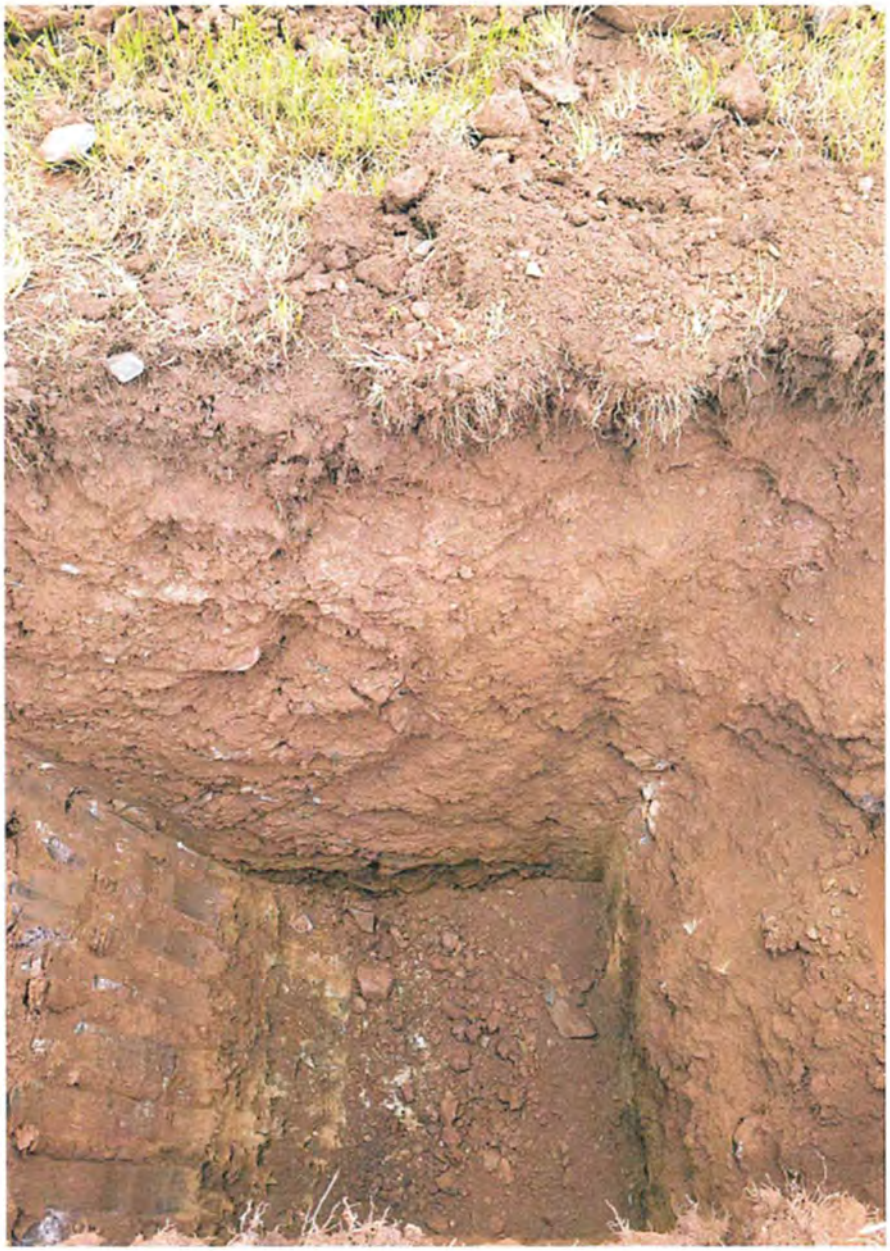
The mean surface area through which the outflow occurs, taken to be the pit sides to 50% effective depth and including the base of the pit.

= (1.6 x 0.6 x 2) + (1.2 x 0.6 x 2) + (1.6 x 1.2)
= 1.92 + 1.44 + 1.92 = 5.28 sq. m.

$$f = \frac{1.152}{5.28 \times 206 \times 60} = \frac{1.152}{65260.8} = 0.0000176 \text{ m/sec}$$

Appendix 2 -- Photos

Location of SA1 - 22m down from upper hedgerow and 8m out from side hedgerow.



TRIAL HOLE BEFORE TEST COMMENCED

EXCAVATED MATERIAL – 1.9m TO 2.2m BELOW G.L.

TRIAL HOLE AFTER TEST.