

DRAINAGE DESIGN FOR NEW HOUSE AT 1 MARLEY RISE, RATHFARNHAM

FOUL DRAINAGE

It is proposed that the new house at 1 Marley Rise will discharge its foul waste to the existing combined sewer connection that runs through the front garden of the property. This existing sewer currently serves the adjacent property(s). It is proposed to construct an Inspection Chamber just inside this plot, in accordance with the requirements of Irish Water for new connections. It is proposed to utilise the existing connection to the public sewer, subject to agreement with Irish Water.

The current drawings show a possible clash between the existing foul sewer connection and an existing ESB mini-pillar beside the boundary wall of the property. The exact line of the foul sewer has yet to be established so there may be no issue, but if there is a clash, the mini-pillar will need to be relocated away from the sewer.

The foul sewer pipes within the site are all to be 110mm uPVC pipes with minimum fall of 1 in 60, in accordance with Technical Guidance Document H, as the pipes around the house are only serving a single dwelling.

STORM DRAINAGE

It is proposed to dispose of the stormwater runoff from the site on-site in accordance with SUDS requirements. It is proposed to construct a soakaway in the rear garden of the new house. This soakaway will be located 5.0m min. from all buildings and the public road, in accordance with the requirements of Technical Guidance Document H. It will be lined with geotextile and filled with 100-150mm diameter round drainage stone. Its location and size are indicated on the Site Drainage Plan drawing.

A percolation test in accordance with BRE Digest 365 was carried out on site and calculations for the stormwater disposal were based on the results of this test. The calculations for the stormwater disposal are included in this report.

All storm sewer pipes within the site are to be 110mm uPVC pipes with minimum fall of 1 in 80.

WATERMAIN

The new house will be serviced with water via a new connection with the Irish Water watermain located in the footpath outside the property. This connection will be subject to agreement with Irish Water.

Revision:	B
Reference:	20063/3.0/22-255
Date Issued:	29 th March 2022

Project Title:	1 Marley Rise, Rathfarnham	Date:	28-Oct-20
Report Title:	BRE Digest 365 Test Results	Project No.:	20063
Client:	Martina Murphy	Ref:	20063/4.0
Author(s):	H. Tanner	Approved:	28/10/2020

Fill No.	Depth of water at Start	(Minutes)	(Minutes)
		Time to drain 50%	Time to drain 100%
1	1.15	3	46.65
2	1.15	8.35	55.88
3	1.15	22.34	42.05
Design Values	1.15	8.35	55.88

Dimensions of Test Hole:

Depth from surface: 1.15 m Volume = 1196 litres
 Width: 0.8 m
 Length: 1.3 m

Surface Area of Test Hole = 5.87 m²

Average Area of Exfiltration = 3.455 m²

Infiltration Rate, *f* = 0.1032465 l/m²/s



Project Title: 1 Marley Rise, Rathfarnham	Date: 28-Oct-20
Report Title: Rainfall intensity calculations	Project No.: 20063
Client: Martina Murphy	File/Doc. Ref: 20063/4.0
Author(s): H. Tanner	Approved: 28-Oct-20

Based on data from the Flood studies report

2-Day R5 mm Return Period Yrs

r %

r %	1 min.	2 min.	5 min.	10 min.	15 min.	30 min.	60 min.	2 hr.	3 hr.	4 hr.	5 hr.	6 hr.	12 hr.	24 hr.	48 hr.
27	3.0	5.0	9.0	12.9	15.5	20.7	27.0	35.0	39.5	44.0	47.5	51.0	65.0	83.0	106.0
30	3.3	5.7	10.3	14.8	17.7	23.3	30.0	38.0	43.0	48.0	51.5	55.0	68.0	85.0	106.0
27	3.0	5.0	9.0	12.9	15.5	20.7	27.0	35.0	39.5	44.0	47.5	51.0	65.0	83.0	106.0

Duration, D (min./ hrs)	DR ₅ (mm)	Return Period, T (years)	Growth Factor	DR _T (mm)	Duration, D (min.)	Rainfall Intensity (mm/hr)
1 min.	1.8	30	1.385	2.5	1	149.55
2 min.	3.0	30	1.402	4.2	2	126.21
5 min.	5.4	30	1.437	7.8	5	93.12
10min.	7.7	30	1.460	11.3	10	67.82
15 min.	9.3	30	1.476	13.7	15	54.91
30 min.	12.4	30	1.485	18.4	30	36.89
60 min.	16.2	30	1.482	24.0	60	24.01
2 hr.	21.0	30	1.464	30.7	120	15.37
3 hr.	23.7	30	1.457	34.5	180	11.51
4 hrs	26.4	30	1.449	38.2	240	9.56
5 hr.	28.5	30	1.442	41.1	300	8.22
6 hr.	30.6	30	1.435	43.9	360	7.32
12 hr.	39.0	30	1.410	55.0	720	4.58
24 hr.	49.8	30	1.374	68.4	1440	2.85
48 hr.	63.6	30	1.346	85.6	2880	1.78

Available Return Periods (yrs) :
0.5, 1, 2, 5, 10, 20, 30, 50, 100, 1000 & 10000

Project Title: 1 Marley Rise, Rathfarnham	Date: 28-Mar-22
Report Title: Stormwater Soakaway Design (Rev 1)	Project No.: 20063
Client: Martina Murphy	File/Doc. Ref.: 20063/4 0
Author(s): H. Tanner	Approved: 28-Mar-22

Based on data from the Flood Studies Report

Percolation rate of soil l/m²/s

Design storm return period 1 in 30 yr

Length m
width m
Depth m

Site Area	<input type="text" value="210.0"/> m ²
Impermeable area	<input type="text" value="146.2"/> m ²
Greenfield runoff	<input type="text" value="0.00"/> l/s
Discharge through soil	<input type="text" value="0.826"/> l/s
Discharge to pipework	<input type="text" value="0.00"/> l/s

Volume m³
Extra storage (in pipework) m³
Surface area m²
% voids

Duration	Duration	Rainfall	Rainfall Intensity	Impermeable Areas	Other Areas	Run off from Imp. Area	other Run Off	Total Runoff	Allowable discharge	Storage Required	
Hrs	mins	mm	mm/hr	m ²	m ²	m ³	m ³	m ³	m ³	m ³	
	1	2.49	149.55	146	0	0.36	0.00	0.36	0.05	0.79	Max. Storage Required
	2	4.21	126.21	146	0	0.62	0.00	0.62	0.10	1.29	
	5	7.76	93.12	146	0	1.13	0.00	1.13	0.25	2.22	
	10	11.30	67.82	146	0	1.65	0.00	1.65	0.50	2.89	
0.25	15	13.73	54.91	146	0	2.01	0.00	2.01	0.74	3.16	
0.5	30	18.44	36.89	146	0	2.70	0.00	2.70	1.49	3.02	
1	60	24.01	24.01	146	0	3.51	0.00	3.51	2.97	1.34	
2	120	30.75	15.37	146	0	4.50	0.00	4.50	5.95	-3.63	
3	180	34.52	11.51	146	0	5.05	0.00	5.05	8.92	-9.68	
4	240	38.24	9.56	146	0	5.59	0.00	5.59	11.89	-15.76	
5	300	41.09	8.22	146	0	6.01	0.00	6.01	14.87	-22.15	
6	360	43.92	7.32	146	0	6.42	0.00	6.42	17.84	-28.55	
12	720	54.99	4.58	146	0	8.04	0.00	8.04	35.68	-69.11	
24	1440	68.41	2.85	146	0	10.00	0.00	10.00	71.36	-153.41	
48	2880	85.59	1.78	146	0	12.51	0.00	12.51	142.73	-325.54	