

APPLICANT: MR. DAVID FALLON

PROPOSED DWELLING-HOUSE & GARAGE IN SIDE GARDEN OF
EXISTING FAMILY HOME AT BALDONNELL UPPER,
BALDONNELL ROAD, DUBLIN 22

SURFACE WATER DRAINAGE REPORT

PATRICK JOYCE ASSOCIATES

CONSULTING ENGINEERS

2 PROSPECT GROVE

STOCKING LANE,

RATHFARNHAM,

DUBLIN 16.

AUGUST 2022

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INTRODUCTION:

The proposed development consists of two storey dwelling-house and domestic garage in the side garden of existing family home, using the existing entrance to provide access to public road, at Baldonnell Upper, Baldonnell Road, Dublin 22.

Planning permission was previously granted on the 4th May 2021 for a two storey dwelling-house on the site – Planning Reference No. SD20A/0200. I prepared Surface Water Drainage Report dated February 2021 in respect of the proposal. Condition No. 9 of the Grant of Permission stated as follows:

- ‘(1) The soakaway shall have an overflow pipe from the proposed soakaway to existing drain/ditch at rear of site.
- (2) Water butts shall form part of the SuDS (Sustainable Drainage System) provision on the site.

REASON: In the interest of public health, safety, the proper planning and sustainable development of the area and in order to ensure adequate and appropriate surface water drainage provision.’

This planning application is in respect of a change of house type together with proposed domestic garage on the site.

PROPOSED SURFACE WATER DRAINAGE:

It is proposed to discharge the surface water from the dwelling-house and garage to a stone filled soakaway to the rear of the dwelling-house as shown on the attached Site Drainage Layout Plan.

The entrance driveway shall be constructed using compacted crushed stone/gravel material.

Dwelling-house & Garage Contributing Area:

The surface water run-off contributing area for the roofs of the dwelling-house and garage is calculated as follows:

Dwelling-house:

Main Roof:	10.60 x 9.30 =	98.58 m ²
Bay Roof:	0.60 x 3.55 =	2.13 m ²
Side Roof:	2.10 x 4.80 =	10.08 m ²
Kitchen Roof:	1.80 x 5.60 =	10.08 m ²

Total:		120.87 m ²

Garage:

Roof:	7.80 x 7.80 =	60.84 m ²
<u>Total Roofs:</u>	120.87 + 60.84 =	181.71 m ²

Design Soakaway with contributing area of 182 m².

The soakaway shall be constructed strictly in accordance with the requirements of BRE Digest 365.

Surface Water - Infiltration Rate:

The applicant excavated a trial pit on the site to facilitate determination of the soil infiltration rate. I visited the site on the 11th November 2020 and I carried out a soil infiltration test.

There was no ground water present in the trial pit and the soil infiltration rate was determined to be 0.25×10^{-5} m/s.

I note from the Site Characterisation Form, dated 10th June 2020, prepared by JMG Engineering Services Limited that bedrock was encountered at 2.3 metres in the trial hole excavated for the wastewater treatment system proposal while depth to water table in the trial hole was 1.45 metres.

Soakaway Design:

Refer to BRE Digest 365 in respect of design of the soakaway.

Design soakaway with contributing area of 182 m².

The soil infiltration rate for the area of the trial pit has been taken at 0.25×10^{-5} m/s.

The return period rainfall depths for the site were obtained from Met Eireann Model – refer copy attached.

A 15% allowance for climate change factor was added to the rainfall depths as shown.

Assume soakaway with plan dimensions of 7.8 m x 5.0 m and with 1.00 m effective depth and containing 30% free volume.

The internal surface area of the soakaway to 50% of storage depth excluding base = 12.80 m².

Effective volume of the proposed soakaway = 11.70 m³

<u>Storm Duration (Mins)</u>	<u>Rainfall (mm)</u>	<u>Rainfall +15% (min)</u>	<u>Total Quantity (m3)</u>	<u>Outflow Quantity (m3)</u>	<u>Storage Quantity (m3)</u>
5	8.2	9.4	1.71	0.01	1.70
10	11.4	13.1	2.38	0.02	2.36
15	13.5	15.5	2.82	0.03	2.79
30	17.2	19.8	3.60	0.06	3.54
60	22.0	25.3	4.60	0.12	4.48
120	28.1	32.3	5.88	0.23	5.65
180	32.4	37.3	6.79	0.35	6.44
240	35.8	41.2	7.50	0.46	7.04
360	41.4	47.6	8.66	0.69	7.97
540	47.7	54.9	9.99	1.04	8.95
720	52.8	60.7	11.05	1.38	9.67
1080	60.9	70.0	12.74	2.07	10.67
1440	67.5	77.6	14.12	2.76	11.36 *
2880	77.5	89.1	16.21	5.53	10.68

Maximum storage required = 11.36 m³ (i.e. less than the effective volume of the soakaway of 11.70 m³).

Hence, soakaway with plan dimensions of 7.8 m x 5.0 m and with 1.00 m effective depth and containing 30% free volume is satisfactory.

General:

The soakaway shall be constructed strictly in accordance with the requirements of BRE Digest 365. A geotextile membrane shall be fitted around the sides and top of the granular fill in the soakaway. An inspection well with suitable access cover shall be incorporated into the soakaway.

The soakaway shall be located where shown on the attached Site Drainage Layout Plan. The proposed soakaway shall be located circa 6.3 metres from the western site boundary and 4.0 metres from the southern site boundary. The soakaway shall be located circa 15.0 metres from the proposed dwelling-house.

Technical Details - Levels:

Dwelling-house Finished Floor Level:	100.40 m
Domestic Garage Finished Floor Level:	100.20 m
Existing Ground Level at Soakaway:	99.85 m
Proposed Ground Level at Soakaway:	100.00 m
Approx Water Table Level – June 2020:	98.40 m
Bottom of Soakaway Fill:	98.70 m
Top of Soakaway Granular Fill:	99.70 m

It is proposed that all surface water generated by the proposed development shall be suitably disposed of within the site. The run-off water from the roofs of the dwelling-house and the domestic garage shall discharge to a stone filled soakaway as outlined above and shown on the attached drawing. The entrance driveway shall be constructed using compacted crushed stone/gravel material and all run-off from the driveway shall be disposed of within the site.

It is proposed to install 2 No. 200 litre water butts i.e. on the dwelling-house and garage roof rainwater drainage system where shown on the Site Drainage Layout Plan.

Details and location of the proposed soakaway are shown on the attached Site Drainage Layout Plan. There is an existing drain which runs along the western boundary of the site which is marked on the Site Drainage Layout Plan. There is also a culverted drain located on the lands to the east of the public road. It is proposed to provide an overflow drain from the soakaway to the drain along the western boundary of the site as per Condition No. 9 (1) of the Grant of Planning Permission Reference No. SD20A/0200.

The location and design of the soakaway shall be strictly in accordance with the requirements of the BRE Digest 365 Standards. A cross section of the proposed soakaway is shown the attached Drawing No. D-2101-01.

PHOTOGRAPH NO.1: TRIAL PIT



PHOTOGRAPH NO.2: PROPOSED SITE



SITE: MR. DAVID FALLON
BAL DONNELL UPPER, DUBLIN 22

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 304358, Northing: 229223,

DURATION	Interval															
	6 months	1 year	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	4.2	5.2	5.9	6.4	6.4	8.2	10.3	11.8	13.9	15.8	17.2	19.6	21.4	22.9	25.0	N/A
10 mins	5.8	7.2	8.2	8.9	8.9	11.4	14.4	16.4	19.3	21.9	24.0	27.2	29.8	31.9	34.9	N/A
15 mins	6.8	8.5	9.6	10.5	10.5	13.5	17.0	19.3	22.7	25.8	28.3	32.1	35.1	37.6	40.9	N/A
30 mins	8.9	10.9	12.3	13.5	13.5	17.2	21.6	24.5	28.7	32.5	35.5	40.2	43.8	46.9	50.5	N/A
1 hours	11.5	14.1	15.9	17.3	17.3	22.0	27.4	31.0	36.2	40.9	44.6	50.3	54.8	58.5	63.0	N/A
2 hours	14.9	18.2	20.4	22.2	22.2	28.1	34.8	39.3	45.7	51.5	56.0	63.0	68.5	73.0	78.0	N/A
3 hours	17.3	21.1	23.7	25.7	25.7	32.4	40.0	45.1	52.4	58.9	64.0	71.9	78.0	83.2	89.0	N/A
4 hours	19.3	23.5	26.3	28.5	28.5	35.8	44.2	49.8	57.7	64.8	70.3	78.9	85.6	91.2	97.5	N/A
6 hours	22.5	27.3	30.5	33.0	33.0	41.4	50.9	57.2	66.1	74.2	80.4	90.0	97.5	103.8	111.2	N/A
9 hours	26.2	31.6	35.3	38.2	38.2	47.7	58.5	65.7	75.8	84.8	91.9	102.7	111.2	118.2	129.6	N/A
12 hours	29.2	35.2	39.3	42.4	42.4	52.8	64.6	72.5	83.5	93.3	101.0	112.8	121.9	129.6	147.5	N/A
18 hours	34.0	40.8	45.5	49.1	49.1	60.9	74.4	83.2	95.7	106.8	115.4	128.7	139.0	147.5	161.7	194.2
24 hours	37.8	45.4	50.5	54.5	54.5	67.5	82.1	91.8	105.4	117.5	126.8	141.3	152.4	161.7	172.6	204.1
2 days	45.7	54.0	59.5	63.8	63.8	77.5	92.8	102.8	116.7	128.8	138.2	152.5	163.5	172.6	182.8	214.2
3 days	52.0	60.9	66.8	71.3	71.3	85.8	101.7	112.0	126.2	138.7	148.2	162.6	173.7	182.8	192.1	223.6
4 days	57.5	66.9	73.1	77.8	77.8	92.9	109.4	120.0	134.6	147.3	157.0	171.7	182.9	192.1	208.5	240.6
6 days	67.1	77.3	84.1	89.2	89.2	105.4	122.9	134.0	149.3	162.5	172.5	187.6	199.1	208.5	220.9	255.5
8 days	75.5	86.5	93.6	99.1	99.1	116.2	134.5	146.2	162.0	175.7	186.0	201.6	213.3	222.9	236.0	269.1
10 days	83.1	94.7	102.3	108.0	108.0	125.9	145.0	157.1	173.5	187.6	198.2	214.1	226.2	236.0	248.0	281.7
12 days	90.2	102.4	110.3	116.3	116.3	134.9	154.7	167.2	184.1	198.5	209.4	225.7	238.0	248.0	269.8	304.4
16 days	103.3	116.5	125.0	131.5	131.5	151.4	172.4	185.6	203.3	218.4	229.8	246.7	259.4	269.8	289.4	325.0
20 days	115.3	129.4	138.5	145.3	145.3	166.3	188.4	202.2	220.7	236.4	248.1	265.6	278.8	289.4	311.8	348.4
25 days	129.3	144.4	154.0	161.3	161.3	183.5	206.8	221.2	240.6	256.9	269.1	287.3	300.9	311.8	338.4	384.4

NOTES:

N/A Data not available

These values are derived from a Depth Duration Frequency (DDF) Model

For details refer to:

'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin', Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

Planning Rack map

SITE LOCATION MAP OF PROPOSED DEVELOPMENT AT BALDONNELL ROAD, BALDONNELL UPPER FOR DAVID FALLON.
DATE - AUGUST 2020 - DR No. PP001.
PREPARED BY PETER MCGILLEN B.Sc. RUP ARCH

O.S. IRELAND LICENCE NO. EX_0071820

Baile Dhónaill
 Uachtarach
 Baldonnell Upper

8.71
 Baile Dhónaill
 Íochtarach
 Baldonnell Lower

Casement
 Aerodrome

145.40

3.55

SITE NOTICE

PROPOSED DEVELOPMENT

Móinín an Lin Uachtarach
 Moneenalion
 Commons Upper

0.21

0.56

7.87

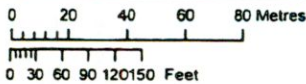
Baile Dhónaill Beag
 Baldonnell Little

1.37

0.32

16.44

Scioból an
 Bhrúnaigh
 Brownsbarn



OUTPUT SCALE: 1:2,500



CENTRE COORDINATES

ITM: 4590445 3325000

PUBLISHED: 30/11/2019
 ORDER NO.: 50094682
 MAP SERIES: 1:2,500
 SHEETS: 3325-C
 1:2,500
 1:2,500
 1:2,500

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The map objects are only accurate to the resolution at which they were captured. Output scale is not indicative of data capture scale. Further information is available at: <http://www.osi.ie>; search 'Capture Resolution' LEGEND: <http://www.osi.ie>; search 'Large Scale Legend'

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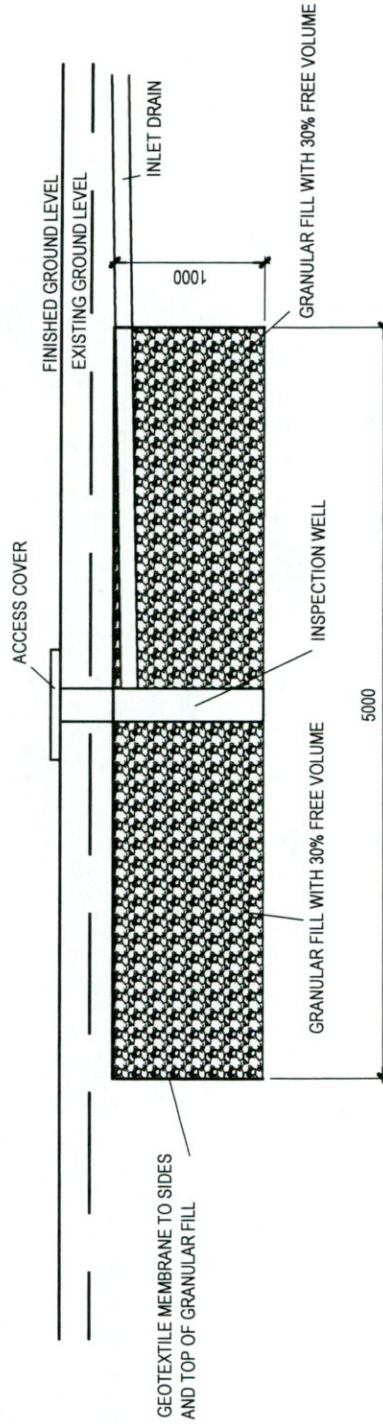


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SOAKAWAY SHALL BE DESIGNED AND CONSTRUCTED
IN ACCORDANCE WITH BRE DIGEST 365

SOAKAWAY DIMENSIONS: 7800 MM X 5000 MM WITH EFFECTIVE DEPTH OF 1000 MM



B	REVISED - ISSUED FOR PLANNING PERMISSION PURPOSES	P.J.	P.J.	04/08/22
A	ISSUED FOR PLANNING PERMISSION PURPOSES	P.J.	P.J.	12/02/21
REV	DESCRIPTION	BY	APPR	DATE
CLIENT MR. DAVID FALLON				
PROJECT PROPOSED DWELLING-HOUSE AT BALDONNELL UPPER, BALDONNELL ROAD, DUBLIN 22				
TITLE SOAKAWAY - SECTION				
PATRICK JOYCE ASSOCIATES CONSULTING ENGINEERS				
2 Prospect Grove Shocking Lane Rackhamam Dublin 16		Telephone: (01) 464 6745 Mobile: (087) 2476375 E-Mail: patrickjoyceassociates@gmail.com		
DESIGNED:	P.J.	CHECKED:	P.J.	APPROD:
DRAWN:	P.J.	DATE:	FEBRUARY-2021	SCALE:
DRG.No. D-2101-01				REV: B

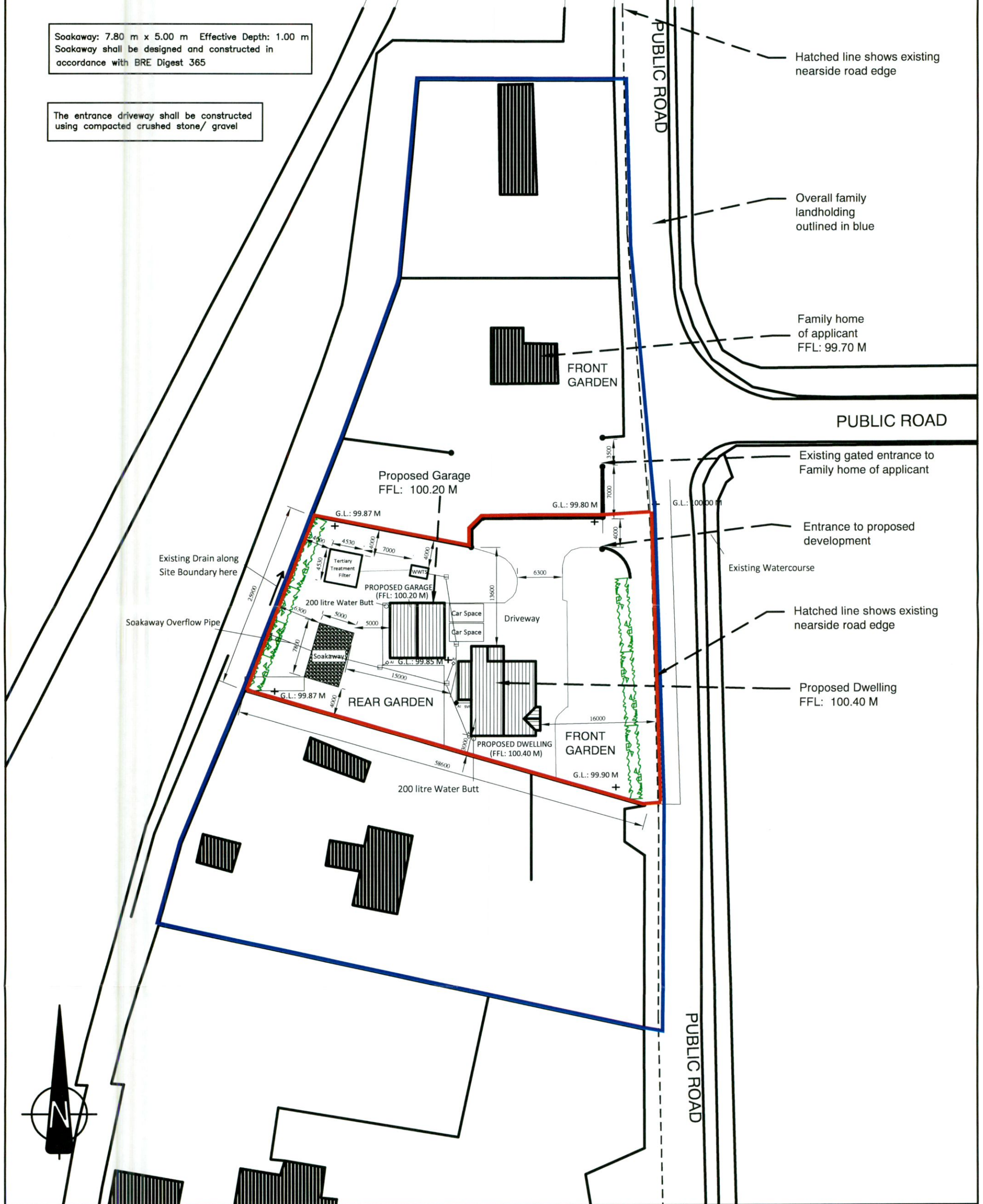
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Soakaway: 7.80 m x 5.00 m Effective Depth: 1.00 m
Soakaway shall be designed and constructed in accordance with BRE Digest 365

The entrance driveway shall be constructed using compacted crushed stone/ gravel



ISSUED FOR PLANNING APPLICATION PURPOSES ONLY

MCGILLEN DESIGN SERVICES
PLANNING AND PROJECT MANAGEMENT

BURGAGE, T: (045) 891 468
BLESSINGTON, M: (087) 646 9079
CO. WICKLOW. E: petermcgillen@hotmail.com

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DO NOT SCALE FROM THIS DWG:
Use given dimensions. Contractor to check all dimensions on site prior to commencement of works. Any discrepancies are to be referred to the Site Architect/ Engineer.

MCGILLEN DESIGN SERVICES, "BURGAGE", BLESSINGTON, CO. WICKLOW.				
E-Mail: petermcgillen@hotmail.com Phone: 045/ 891468				
CLIENT: David Fallon Baldonnell Upper Dublin 22		PROJECT: Proposed Development at Baldonnell Upper, Baldonnell Road Dublin 22		DRAWING TITLE: SITE DRAINAGE LAYOUT PLAN
PREPARED BY: PMcG/PJ	DATE: 02/08/2021	DWG NO: PP008	SCALE: 1:500	REVISION: A
			STATUS: PLANNING	