CONSULTING ENGINEERS

Engineering Report

at

17 Rathfarnham Park, Rathfarnham

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1.0 Introduction

The proposed extension to the existing house is located to the rear and side of the existing property at 17 Rathfarnham Park, Rathfarnham, Dublin 14.

This report comprises of design proposals for the disposal of surface water from the rear / side extension and new garden room along with comments on the existing foul and water connections.

2.0 Existing Drainage

An existing private shared sewer is located at the rear of the property.

The new drainage to the kitchen, wc and utility room will be connected to the existing foul sewer.

3.0 Proposed Surface Water

It is proposed that a soak pit will be constructed which will be in the rear garden which will take the run off from the roof of the extension.

All surface water pipework within the development site has been designed in accordance with the relevant standards so as to ensure the adequacy of capacities and gradients.

Please refer to drawing no. 21-251-001 for proposed drainage layout and details.

Also, please refer to Appendix A for the soak pit design.

The soakpit design was based on the infiltration test carried out on site. The test determined that the site infiltration rate is 1.07x10E-05 metres / second.

4.0 Water Connection

The existing property is served by a watermain from Rathfarnham Park.

We are not proposing any changes to this connection.

Appendix A: Surface Water Calculations

Soakaway A Design

Assumed values for a rectangular soakaway

length (L) =	3.5 m	Note: Plan area of 12.25m²
depth (D)=	3.5 m	
width (W) =	W m	

Calculate the design width of the soakaway (W):

Accumulative impermeable area (A) = 134 m^2

Inflow (I) = The inflow from the impermeable area drained to the soakaway
I = A x R ,where
A = Accumulative impermeable area
R = The total rainfall in a design storm for a specific duration

Outflow (O) = The outflow infiltrating into the soil during rainfall
$O = a_{s50} \times f \times d$,where
a_{s50} = The internal surface area of the Soakaway to 50% effective depth .this excludes the base
f = The soil infiltration rate determined in a trial pit
d = The storm duration

a_{s50} = 2 x (L + W) x (D /2)
= 12.25 + 4 W

f = 1.07E-05 m/s

Assume Granular material having 30% free volume shall be used to fill the soakaway

Storage (S) = 30% of the effective volume of soakaway, and

Storage (S) = The required storage in the soakaway
S = I - O

10 year storm

Duration minutes	Rainfall mm	Inflow m^3	Outflow m^3	Storage m^3	W m
15	11.9	1.5946	0.03 + 0.01 W	11.03 W	0.141
30	15.5	2.077	0.07 + 0.03 W	11.03 W	0.182
60	20	2.68	0.14 + 0.06 W	11.03 W	0.229
120	24.4	3.2696	0.28 + 0.12 W	11.03 W	0.269
240	30.9	4.1406	0.55 + 0.23 W	11.03 W	**0.319**
360	36.6	4.9044	0.83 + 0.35 W	11.03 W	0.358
720	45.7	6.1238	1.66 + 0.69 W	11.03 W	0.381
1440	55.1	7.3834	3.32 + 1.38 W	11.03 W	0.327
2880	65.8	8.8172	6.64 + 2.77 W	11.03 W	0.158

Therefore construct a plan area of 12.25m² x 0.32 m thick

Infiltration Test

Trial Pit Dimensions:

Length =	1 m
Width =	1 m
Depth =	1 m
Effective Depth =	1 m

Volume Outflowing between 75% and 25% effective depth.

V_{p75} = 0.5 m^3

Mean Surface Area through which outflow occurs:
(pit sides to 50% effective depth and pit base)

a_{p50} = 3 m^2

Time for outflow between 75% and 25% effective depth:

t_{p75-25} = 260 minutes

Soil infiltration rate:

f = 1.06838E-05






1MX1MX1M hole & location

13.25
100cm

13.30
77cm

13.45
61cm

13.25
100cm

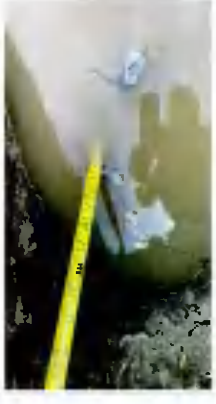
13.35
59cm

13 58
55cm

14.09
51cm

14.50
40cm

17.45
15cm



14.22
47cm

15.31
31cm