Coyle

CIVIL & STRUCTURAL

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DRAINAGE AND WATERMAIN REPORT

For a proposed 4no dwelling development

at No124 Templeville Drive, Templeogue, Dublin 6W

Revision	Description	Made	Approved	Date
0	Final	PC	PC	Dec 2022

Engineering Report for Planning Submission

Table of Contents

1.0 Introduction

Coyle Civil & Structural Consulting Engineers has been engaged by Mr Barry Coleman to carry out an Engineering Services Report for a proposed development at 124 Templeville Drive, Templeogue, Dublin 6W.

This Report, together with its aappendices address the proposed infrastructural rrequirements and will support the Planning Application for the proposed development.

2.0 Site Location

The proposed development consists of 4no proposed mews style dwelling houses at No 124 Templeville Drive, Templeogue, Dublin 6

Site Location is shown in Figure 2.1, proposed Site Layout is shown in Figure 2.2.

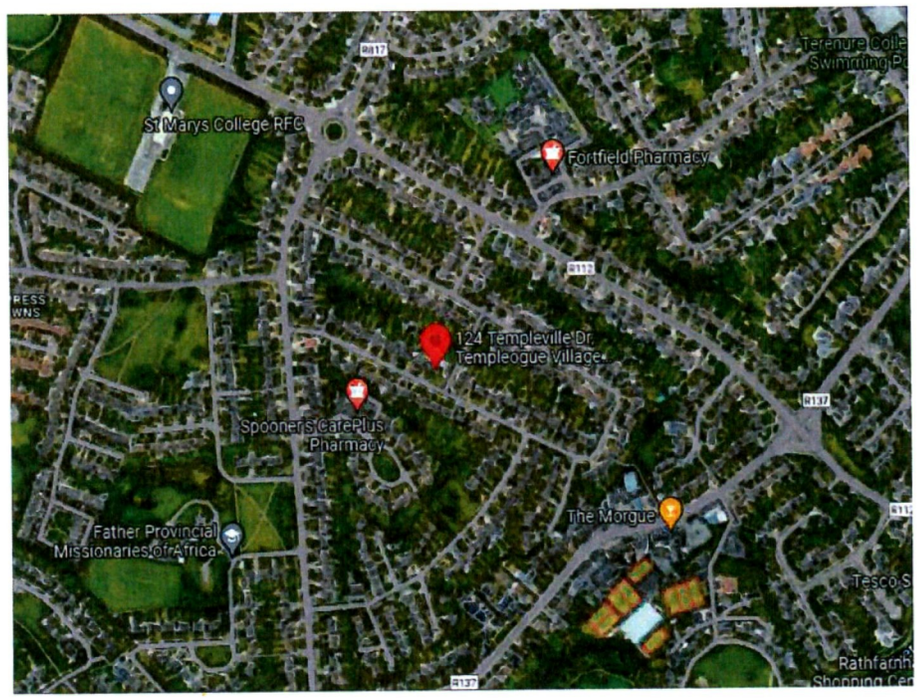


Figure 2.1 – Site Location

Figure 2.2 – Site Layout and extend of proposed works.

3.0 Detail of Proposed Development

3.1 General

The site infrastructure that is proposed as part of the proposed development is outlined hereunder and indicated on Drawing "Site Location Map" in Appendix A

3.2 Proposed Foul Drainage

Currently the existing house on the site is serviced by a 100mm diameter private foul drain, draining to the front of the dwelling into the existing 225mm diameter foul sewer on Templeville Drive.

It is proposed to provide 4no new foul drains to the new dwellings at gradients ranging from 1:40 to 1:60. A single connection point is proposed to the existing foul sewer to the opposite side of Templeville Drive. Refer to drawing C100 in Appendix B for the proposed drainage layout plan.

3.3 Proposed Surface Drainage

3.3.1 Proposed Surface Water Drain Diversion

An existing 450mm diameter **unused** concrete culvert is located along the northern boundary of the subject site. Proposals to divert this culvert for a previous development under permission SD20A/0190 where approved. Appendix G includes correspondence with South Dublin County Council confirming the acceptance of the previous drainage layout.

The current drainage proposal follows for a similar principal of the layout approved under permission SD20A/0190. The proposed layout detail can be seen in Appendix B. A clear wayleave is to be provided to allow for future maintenance. No surcharge is to be placed on the storm drain diversion.

Furthermore, it can be stated that the proposed surcharge capacity / attenuation capacity of the diversion will be marginally improved by the introduction of the four new manholes and the use of equivalent diameter diversion pipework.

It is proposed to divert this unused culvert as shown on the drainage layout plan drawing no. 292-014. A clear wayleave is to be provided allowing the Council unlimited access for future maintenance of the proposed drain. No loading surcharge is to be placed on the storm drain diversion, as demonstrated on the plan drawing.

3.3.2 Proposed Surface Water Drains

Currently the existing house on the site is serviced by a 100mm diameter private surface water (SW) drain, draining to the front of the site into the existing 225mm diameter SW drain on Templeogue Drive.

It is proposed to provide new SW drains to the new dwellings at gradients ranging from 1:25 to 1:60. Refer to drawing no C100 in Appendix B for the proposed drainage layout plan. The following SUD's elements will be included in the drainage design to allow for compliance with the Dublin Regional Drainage Strategy.

- All private car parking is to be constructed from permeable paving, allowing infiltration only.
- The new flat roof to the new dwelling is to be installed with sedum green roof.

It is proposed to attenuate SW flows from the site, within 4no 1.2m diameter circular precast concrete outfall manholes while restricting flows to a maximum of 2 l/s through the use of an orifice plate. Refer to Appendix B for the storm water attenuation details.

3.4 Water Supply

It is proposed to provide 4 new 25mm diameter PE water service connections, inclusive of Irish Water approved boundary boxes and fittings.

The estimated daily domestic demand is 1620 litres (based on 150 l/person/day, with an average occupancy of 2.7 persons per dwelling).

4.0 Summary

The drainage design proposed within this report follows the same principal of a that approved in planning permission SD20A/0190.

The storm drainage layout allows for the SUD's requirements in line with the Dublin Regional Drainage Strategy and the foul sewer and watermain design allow for the requirements of the Irish Water Code of Practice.

APPENDIX A

Existing Irish Water Services

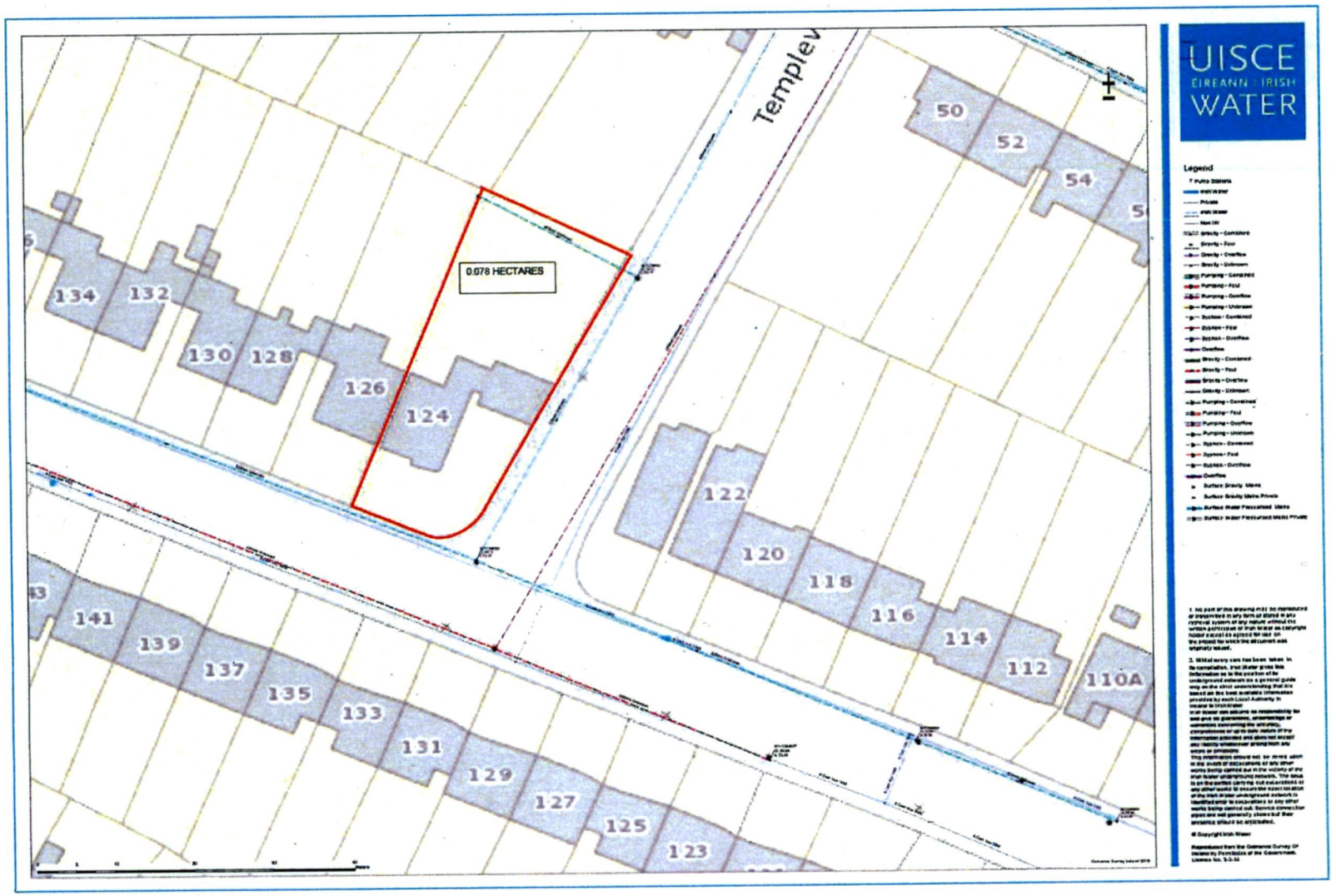


Figure 2.3 – Irish Water Existing Services Layout

APPENDIX B

Storm Water Storage Details

HR Wallingford
Working with water

Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by:	Martin Jancek
Site name:	124
Site location:	Templeville Drive

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the design of the drainage scheme.

Site Details

Latitude:	53.30011° N
Longitude:	6.30692° W
Reference:	2766062070
Date:	Nov 30 2022 19:22

Site characteristics

Total site area (ha):	0.078
Significant public open space (ha):	0
Area positively drained (ha):	0.078
Impermeable area (ha):	0.04
Percentage of drained area that is impermeable (%):	51
Impervious area drained via infiltration (ha):	0.02
Return period for infiltration system design (year):	100
Impervious area drained to rainwater harvesting (ha):	0
Return period for rainwater harvesting system (year):	100
Compliance factor for rainwater harvesting system (%):	100
Net site area for storage volume design (ha):	0.04
Net impermable area for storage volume design (ha):	0.02
Pervious area contribution to runoff (%):	30

* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of Q_{BAR} and other flow rates will have been reduced accordingly.

Design criteria

Climate change allowance factor:	1.4
Urban creep allowance factor:	1.1
Volume control approach	Flow control to max of 2 l/s/ha or Qbar
Interception rainfall depth (mm):	5
Minimum flow rate (l/s):	2

Methodology

esti	IH124
Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	2	2
SPR:	0.3	0.3

Hydrological characteristics

	Default	Edited
Rainfall 100 yrs 6 hrs:	--	75
Rainfall 100 yrs 12 hrs:	--	93
FEH / FSR conversion factor:	1	1.27
SAAR (mm):	883	883
M5-60 Rainfall Depth (mm):	14	17
'r' Ratio M5-60/M5-2 day:	0.3	0.3
Hydological region:	12	12
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 10 year:	1.72	1.72
Growth curve factor 30 year:	2.13	2.13
Growth curve factor 100 years:	2.61	2.61
Q_{BAR} for total site area (l/s):	0.19	0.19
Q_{BAR} for net site area (l/s):	0.1	0.1

Figure 2.4 Storm Water Storage Requirements

HR Wallingford
Working with water

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Martin Jancek
Site name:	124
Site location:	Templeville Drive

Site Details

Latitude:	53.30015° N
Longitude:	6.30697° W
Reference:	1131839012
Date:	Nov 30 2022 18:54

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 0.1

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

Hydrological characteristics	Default	Edited
SAAR (mm):	883	883
Hydrological region:	12	12
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.13	2.13
Growth curve factor 100 years:	2.61	2.61
Growth curve factor 200 years:	2.86	2.86

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates	Default	Edited
Q_{BAR} (l/s):	0.24	0.24
1 in 1 year (l/s):	0.2	0.2
1 in 30 years (l/s):	0.51	0.51
1 in 100 year (l/s):	0.62	0.62
1 in 200 years (l/s):	0.68	0.68

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m^3):	0	0
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m^3):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m^3):	0	0

This report was produced using the storage estimation tool developed by HRWallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at http://uksuds.com/terms-and-conditions.htm. The outputs from this tool have been used to estimate storage volume requirements. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 312905, Northing: 229068,

	Interval		Years											
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.6,	3.8,	4.4,	5.5,	6.2,	6.7,	8.5,	10.7,	12.1,	14.2,	16.0,	17.5,	19.7,	21.5,	23.0,	N/A ,
10 mins	3.6,	5.3,	6.2,	7.6,	8.6,	9.4,	11.9,	14.9,	16.9,	19.7,	22.3,	24.3,	27.5,	30.0,	32.1,	N/A ,
15 mins	4.2,	6.2,	7.3,	8.9,	10.1,	11.0,	14.0,	17.5,	19.9,	23.2,	26.3,	28.6,	32.4,	35.3,	37.7,	N/A ,
30 mins	5.6,	8.1,	9.4,	11.5,	12.9,	14.1,	17.8,	22.0,	24.9,	28.9,	32.6,	35.4,	39.8,	43.3,	46.2,	N/A ,
1 hours	7.4,	10.5,	12.2,	14.8,	16.6,	18.0,	22.5,	27.7,	31.1,	36.0,	40.4,	43.8,	49.0,	53.1,	56.6,	N/A ,
2 hours	9.7,	13.7,	15.9,	19.1,	21.3,	23.0,	28.5,	34.8,	39.0,	44.9,	50.1,	54.1,	60.4,	65.2,	69.3,	N/A ,
3 hours	11.4,	16.0,	18.5,	22.1,	24.6,	26.5,	32.8,	39.8,	44.5,	51.0,	56.8,	61.3,	68.2,	73.5,	78.0,	N/A ,
4 hours	12.9,	17.9,	20.6,	24.6,	27.3,	29.4,	36.2,	43.8,	48.8,	55.9,	62.1,	66.9,	74.3,	80.1,	84.8,	N/A ,
6 hours	15.1,	20.9,	24.0,	28.5,	31.5,	33.9,	41.5,	50.1,	55.7,	63.5,	70.4,	75.8,	83.9,	90.3,	95.5,	N/A ,
9 hours	17.8,	24.4,	27.9,	33.0,	36.5,	39.1,	47.7,	57.3,	63.5,	72.2,	79.9,	85.8,	94.8,	101.7,	107.5,	N/A ,
12 hours	20.0,	27.3,	31.1,	36.7,	40.4,	43.3,	52.7,	63.0,	69.8,	79.1,	87.4,	93.7,	103.3,	110.8,	116.9,	N/A ,
18 hours	23.6,	31.8,	36.2,	42.5,	46.8,	50.0,	60.5,	72.1,	79.6,	90.0,	99.1,	106.1,	116.7,	124.9,	131.6,	N/A ,
24 hours	26.4,	35.5,	40.3,	47.2,	51.9,	55.4,	66.8,	79.3,	87.3,	98.5,	108.3,	115.8,	127.2,	136.0,	143.2,	168.0,
2 days	32.9,	43.3,	48.6,	56.4,	61.5,	65.3,	77.7,	91.1,	99.7,	111.5,	121.8,	129.6,	141.4,	150.4,	157.7,	182.9,
3 days	38.1,	49.5,	55.3,	63.7,	69.2,	73.4,	86.6,	100.8,	109.9,	122.2,	132.9,	141.1,	153.3,	162.6,	170.2,	196.1,
4 days	42.7,	55.0,	61.2,	70.1,	76.0,	80.4,	94.3,	109.2,	118.7,	131.6,	142.7,	151.2,	163.8,	173.4,	181.2,	207.8,
6 days	50.6,	64.5,	71.4,	81.3,	87.7,	92.5,	107.7,	123.8,	134.0,	147.9,	159.7,	168.7,	182.1,	192.2,	200.5,	228.3,
8 days	57.7,	72.8,	80.3,	91.0,	97.9,	103.1,	119.4,	136.6,	147.4,	162.0,	174.5,	183.9,	198.0,	208.6,	217.2,	246.2,
10 days	64.2,	80.4,	88.4,	99.9,	107.2,	112.7,	129.9,	148.1,	159.4,	174.8,	187.9,	197.7,	212.3,	223.4,	232.3,	262.4,
12 days	70.2,	87.5,	96.0,	108.1,	115.8,	121.6,	139.7,	158.7,	170.6,	186.6,	200.2,	210.3,	225.6,	237.0,	246.2,	277.2,
16 days	81.4,	100.5,	109.9,	123.2,	131.6,	138.0,	157.6,	178.1,	190.9,	208.0,	222.5,	233.4,	249.6,	261.7,	271.5,	304.2,
20 days	91.8,	112.6,	122.7,	137.0,	146.1,	152.9,	173.9,	195.7,	209.3,	227.4,	242.8,	254.3,	271.3,	284.0,	294.3,	328.6,
25 days	103.9,	126.6,	137.6,	153.0,	162.8,	170.2,	192.7,	216.0,	230.5,	249.8,	266.1,	278.2,	296.2,	309.6,	320.4,	356.5,

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

Figure 2.5 Green Field Runoff Rate

APPENDIX C

Proposed Sedum Green Roof Detail

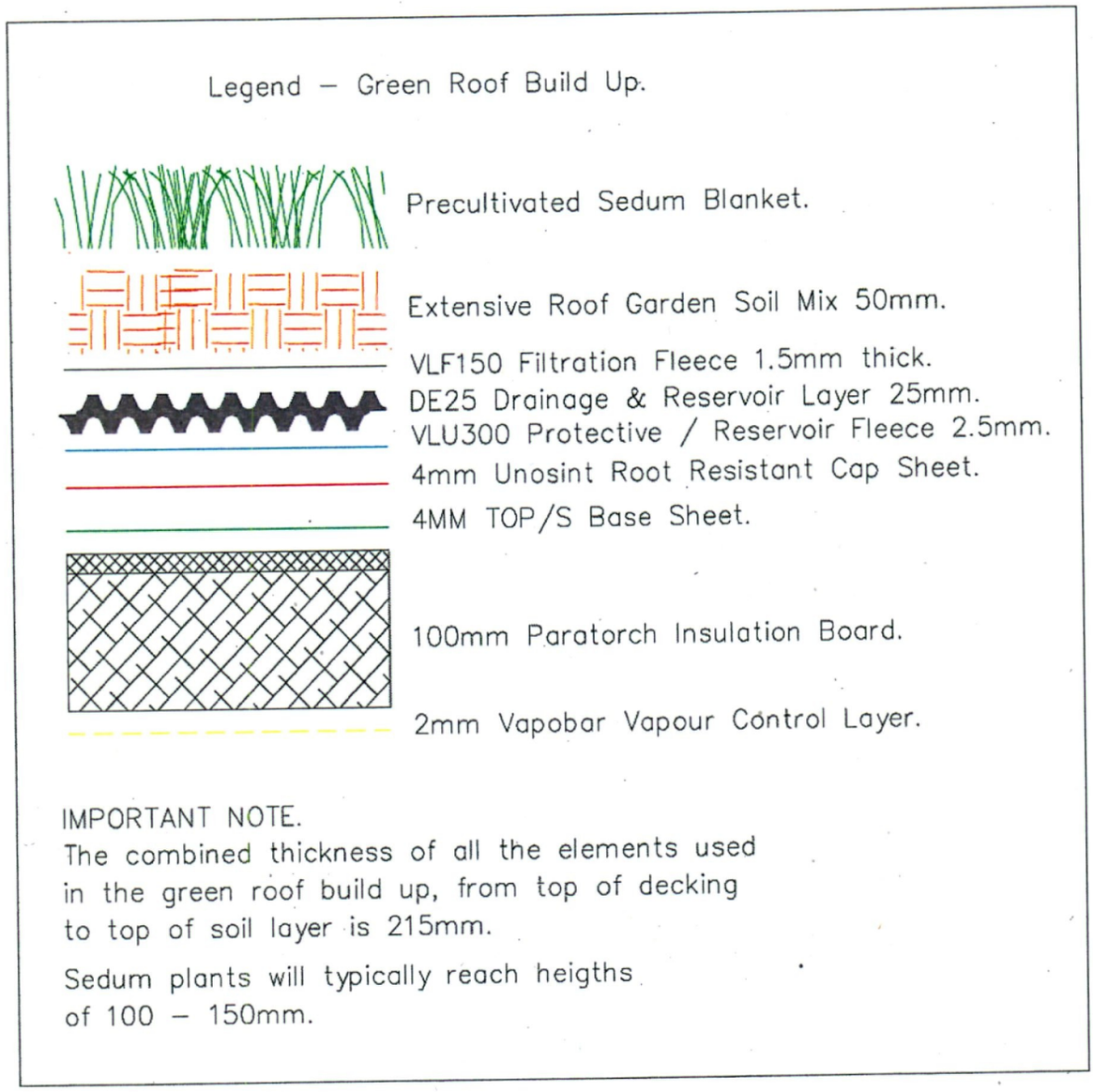


Figure 2.6 Sedum Green Roof Buildup

MOYMATERIALS

Waterproofing & Insulation Specialists

Rainwater Attenuation with Moy Materials Ltd. Diadem 150 Extensive Green Roof System.

The ability of the Diadem Extensive Green Roof to absorb rainfall is a function of many dynamic factors, the most important of which are the elements used in the green roof build up and their specific ability to absorb rainfall.

The standard Diadem 150 Extensive Green Roof constructed utilising the Moy Materials Ltd. pre-cultivated Sedum Blanket, has a maximum rainwater retention capacity of 44 litres per M2. Each 1mm of rainfall recorded is the equivalent of 1 litre per M2.

Rainfall Attenuation Capacity of Moy Diadem 150 Extensive Green Roof.

Rainfall Intensity (mm / hour).	Attenuation Time (Minutes).
25	105
75	35

These figures may be augmented by utilising larger capacity reservoir boards, heavier protection and filtration fleeces and deeper zones of growing media.

Maximum Water Storage Capacity Moy Materials Diadem Extensive Green Roof Elements:

- Sedum Blanket 20mm 9 Lt / M2.
- Growing Media 50mm 22.5 Lt / M2.
- VLF200 Filtration Fleece 1.2 Lt / M2.
- DE25 Reservoir & Drainage Board 10 Lt / M2.
- VLU300 Protection Fleece 1.8 Lt / M2.

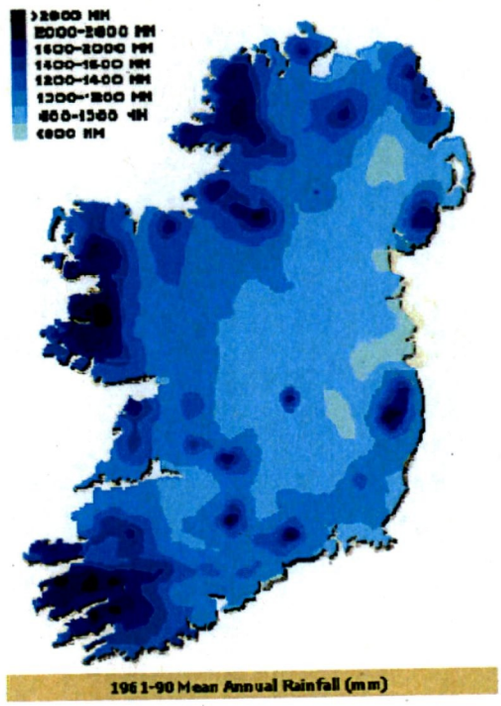
Unit K, South City Business Park, Whitestown Way, Tallaght, Dublin 24.
Ph. 01 451 9077 Fax. 01 450 0033
E Mail : info@moymaterials.com Website: www.moymaterials.com

Figure 2.7 Sedum Green Roof Specification

APPENDIX D

Rainfall Amounts

Data on Rainfall



How Often Does it Rain?

The general impression is that it rains quite a lot of the time in Ireland but in fact two out of three hourly observations will not report any measurable rainfall. The average number of wet days (days with more than 1mm of rain) ranges from about 150 days a year along the east and south-east coasts, to about 225 days a year in parts of the west.

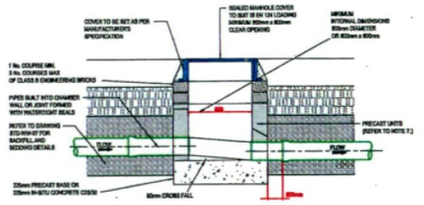
How Heavy is the Rain? Unlike the rain in many other countries, especially in the tropics, average hourly rainfall amounts in Ireland are quite low, ranging from 1 to 2mm. Short-term rates can of course be much higher: for example, an hourly total of 10mm is not uncommon and totals of 15 to 20mm in an hour may be expected to occur once in 5 years. *Hourly totals exceeding 25mm are rare in this country and when they do occur they are usually associated with heavy thunderstorms.*

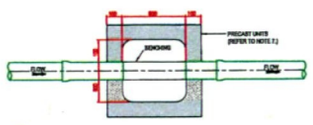
Rainfall in Ireland - Download '2008 Summer Rainfall in Ireland' [PDF] Report
Most of the eastern half of the country has between 750 and 1000 millimetres (mm) of rainfall in the year. Rainfall in the west generally averages between 1000 and 1250 mm. In many mountainous districts rainfall exceeds 2000mm per year. The wettest months, in almost all areas are December and January. April is the driest month generally across the country. However, in many southern parts, June is the driest. Hail and snow contribute relatively little to the precipitation measured.

Figure 2.8 Rainfall Rates

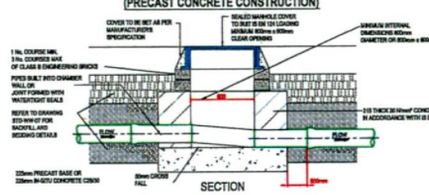
APPENDIX E

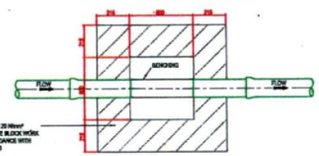
Proposed Drainage and Watermain Layout





INSPECTION CHAMBER
(PRECAST CONCRETE CONSTRUCTION)

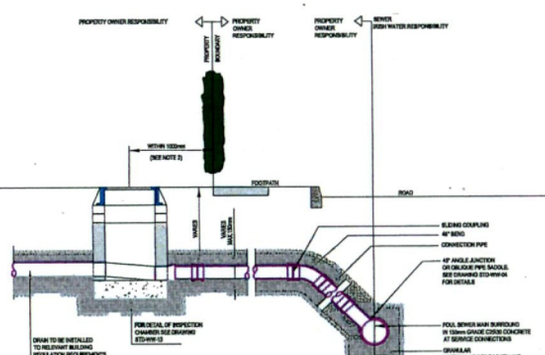




INSPECTION CHAMBER
(BLOCK WORK CONSTRUCTION)

PRIVATE FOUL SITE INSPECTION CHAMBER (STD-WW-13)

SCALE NTS



PIPE SIZE (mm)	GRADIENT
100	1:80
150 TO 225	1:150 MINIMUM

DRAIN & SERVICE PIPE CONNECTION PIPEWORK (STD-WW-03)

SCALE NTS

NOTES:

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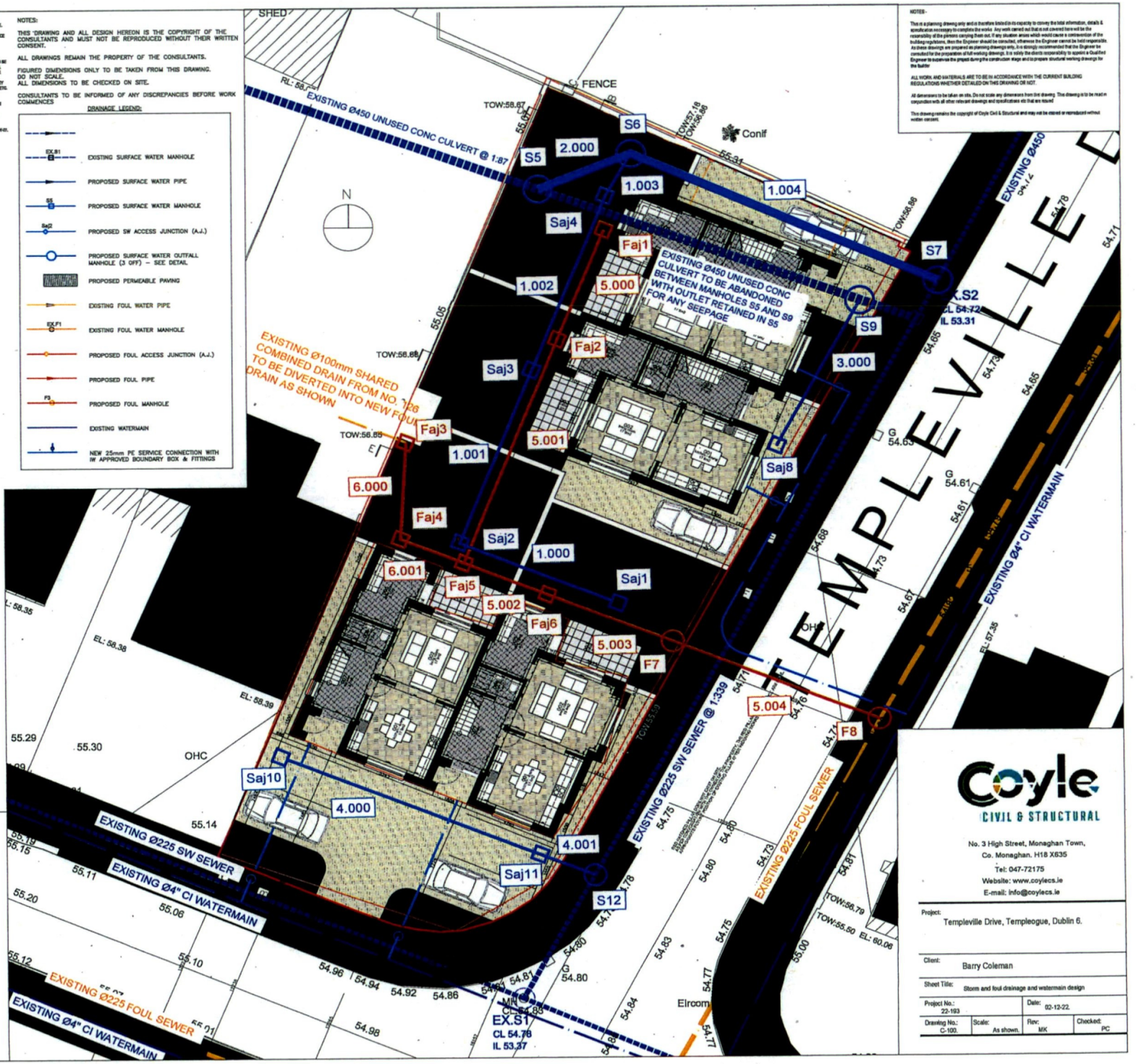
FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING. DO NOT SCALE.
ALL DIMENSIONS TO BE CHECKED ON SITE.

CONSULTANTS TO BE INFORMED OF ANY DISCREPANCIES BEFORE WORK COMMENCES

DRAINAGE LEGEND:

- EX.S1 — EXISTING SURFACE WATER MANHOLE
- PROPOSED SURFACE WATER PIPE
- S5 — PROPOSED SURFACE WATER MANHOLE
- Saj2 — PROPOSED SW ACCESS JUNCTION (A.J.)
- PROPOSED SURFACE WATER OUTFALL MANHOLE (3 OFF) – SEE DETAIL
- PROPOSED PERMEABLE PAVING
- EXISTING FOUL WATER PIPE
- EX.F1 — EXISTING FOUL WATER MANHOLE
- PROPOSED FOUL ACCESS JUNCTION (A.J.)
- PROPOSED FOUL PIPE
- F3 — PROPOSED FOUL MANHOLE
- EXISTING WATERMAIN
- NEW 25mm PE SERVICE CONNECTION WITH IW APPROVED BOUNDARY BOX & FITTINGS



NOTES -

This is a planning drawing only and is therefore limited in its capacity to convey the total information, details & specification necessary to complete the works. Any work carried out that is not covered here will be the responsibility of the persons carrying them out. If any situation arises which would cause a contravention of the building regulations, then the Engineer should be consulted, otherwise the Engineer cannot be held responsible. As these drawings are prepared as planning drawings only, it is strongly recommended that the Engineer be consulted for the preparation of full working drawings. It is solely the clients responsibility to appoint a Qualified Engineer to supervise the project during the construction stage and to prepare structural working drawings for the builder.

ALL WORK AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS WHETHER DETAILED ON THIS DRAWING OR NOT.

All dimensions to be taken on site. Do not scale any dimensions from this drawing. This drawing is to be read in conjunction with all other relevant drawings and specifications etc that are issued.

Coyle
CIVIL & STRUCTURAL
No. 3 High Street, Monaghan Town,
Co. Monaghan, H18 X635
Tel: 047-72175
Website: www.coylecs.ie
E-mail: info@coylecs.ie

Project: Templeville Drive, Templeogue, Dublin 6.

Client: Barry Coleman

Sheet Title: Storm and foul drainage and watermain design

Project No.:	Date:
22-193	02-12-22.

Drawing No.:	Scale:	Rev:	Checked:
C-100.	As shown.	MK	PC

APPENDIX F

Appraisal of existing 450mm stormwater drain at the rear of No124 Templeville Drive, Templeogue, Dublin 6W

EXISTING 450MM UNUSED CULVERT

APPRAISAL REPORT

For a 4no dwelling development
at Templevillle Drive, Templeogue, Dublin 6W

1. Executive Summary

A South Dublin county council unused culvert traverses the rear of No 124 Templeville Drive. The drawing information relating to the culvert is limited on the Irish water services available. It shows the culvert terminating at the inside boundary of No 124/126. See below

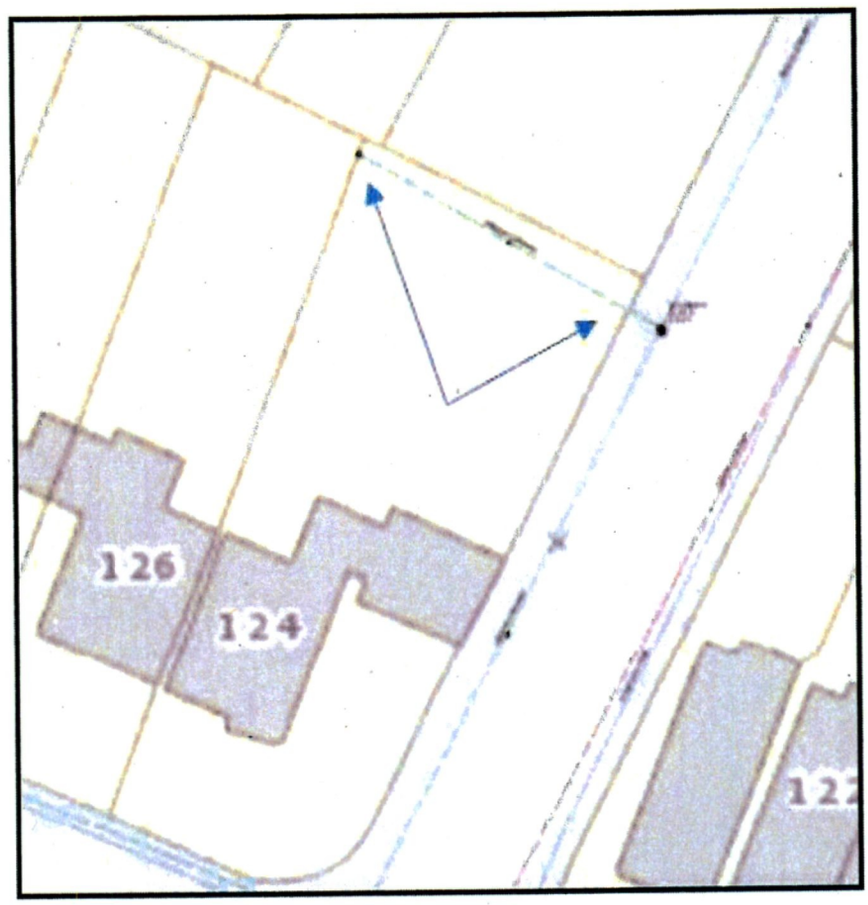


Fig. 1 - Extract from Council record map.

To facilitate the construction of a new dwelling house in the rear of No 124 the diversion of the unused culvert is required. The proposed diversion entails a slight adjustment to the pipe alignment as it enters the site to provide a wayleave for future access for maintenance. (as illustrated below)

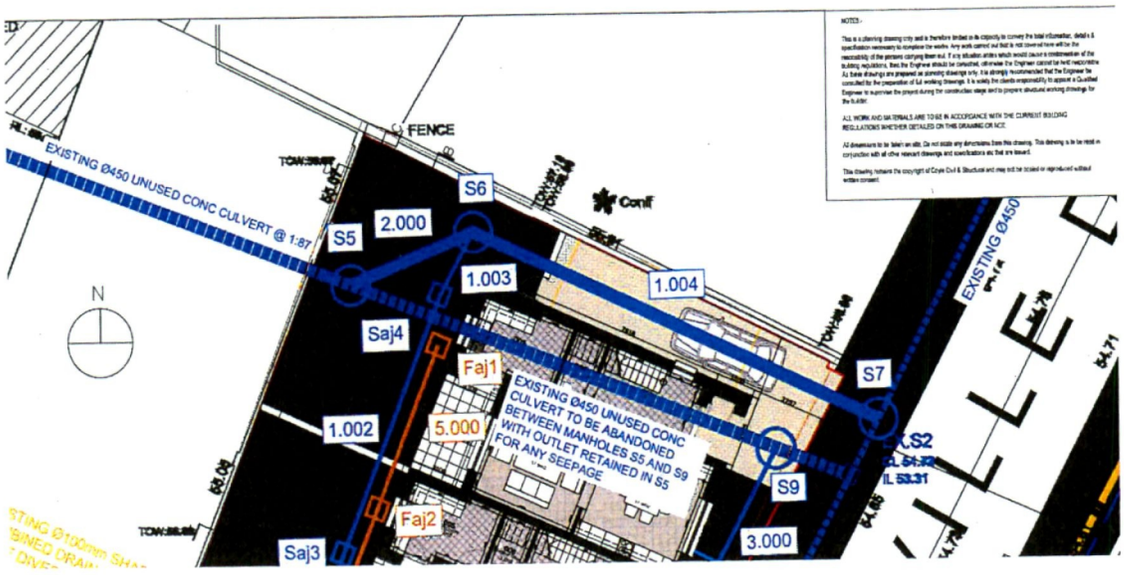


Fig. 2 - Proposed diversion.

A previous application proposed a diversion to the south of the proposed house which entailed a number of bends. The current diversion to the north of the proposal dwelling will have negligible effect to the hydraulic capacity of the drain.

Our assessment of the culvert has shown that it terminates in the middle of a rear garden at 135.5 metres from the connecting manhole on Templeville Drive, it has no incoming connections and has a significant amount of root growth at the base of the pipe. It is very clear that the drain has not been maintained by the council and seems to be only servicing ground water which is infiltrating the culvert through the joints in the concrete pipes.

It is our opinion that the culvert was placed during the construction of the Templeville estate as a temporary measure to accommodate an old agricultural ditch which has now been fully removed.

It is clear from our investigations that the culvert provides no service to the local houses or road surfaces. The culvert may be acting as a DeFacto attenuation device during a surcharging of the network. If this is the case, the proposed diversion of the culvert will not affect the capacity of the culvert as an attenuation device.

Section 7 of the Greater Dublin Regional Code of Practice for Drainage Works sets out clearly the requirements necessary for the diversion of any culvert. Agreement is required from the local authority with the main proviso being no effect to the hydraulic capacity of the culvert or the ability to maintain the pipe. The culvert in question has no connections, no branch connections or the ability to connect to any drain, it terminates in the middle of a garden, is infested with roots and debris, has numerous structures built over or in very close proximity and is not being maintained.

In our opinion the pipe is not providing the normal function of a typical culvert and the size of the pipe does not reflect its true use and is exaggerating its importance.

It is our opinion that the proposed diversion will not affect its hydraulic capacity of the culvert and the provision of an acceptable way leave is being provided.

Given our findings. It is our opinion that the council in this case is being unreasonable in not agreeing to the diversion of the drain to allow the development of badly need housing.

2. Findings

2.1 Location of Culvert

A camera survey of the full length of the surface water drain has been undertaken. A schedule of photographs along the full length of the pipe is set out below.

The pipe runs in a North West to South East direction in the rear garden of 124 Templeville Drive and connects into a manhole located on Templeville Drive link road.

Fig. 3 – Extract from IW drainage map.

Fig. 5 – Google map with culvert plotted.

Fig 6 - Extract from google maps 3D view with the culvert line plotted, running under existing buildings

As can be seen in the above aerial view there are a significant number of existing structures over or within a 6 metre wayleave.

2.2 Camera Survey – Observations and Review

1. No sign of any connections into the pipe
2. Significant root growth into the pipe
3. Clearly no maintenance of the pipe occurring
4. Debris noted in the pipe
5. Pipe terminates at 135.5m metres in the middle of a rear garden
6. Only ground water ingress into the pipe

Fig. 7 - Snapshot from Camera Survey at termination.

2.3 Historical Review

We have examined an old OS map for the area and have identified that a now removed agricultural ditch aligns with the pipe. It is our opinion that there is a relationship between the old ditch and the pipe. As noted above there are no connections into the pipe and it terminates in an arbitrary fashion in the middle of a garden. It is our opinion that the pipe was probably installed during the construction of the estate to allow a temporary continuation of the ditch during the construction phasing of the Templeville drive.

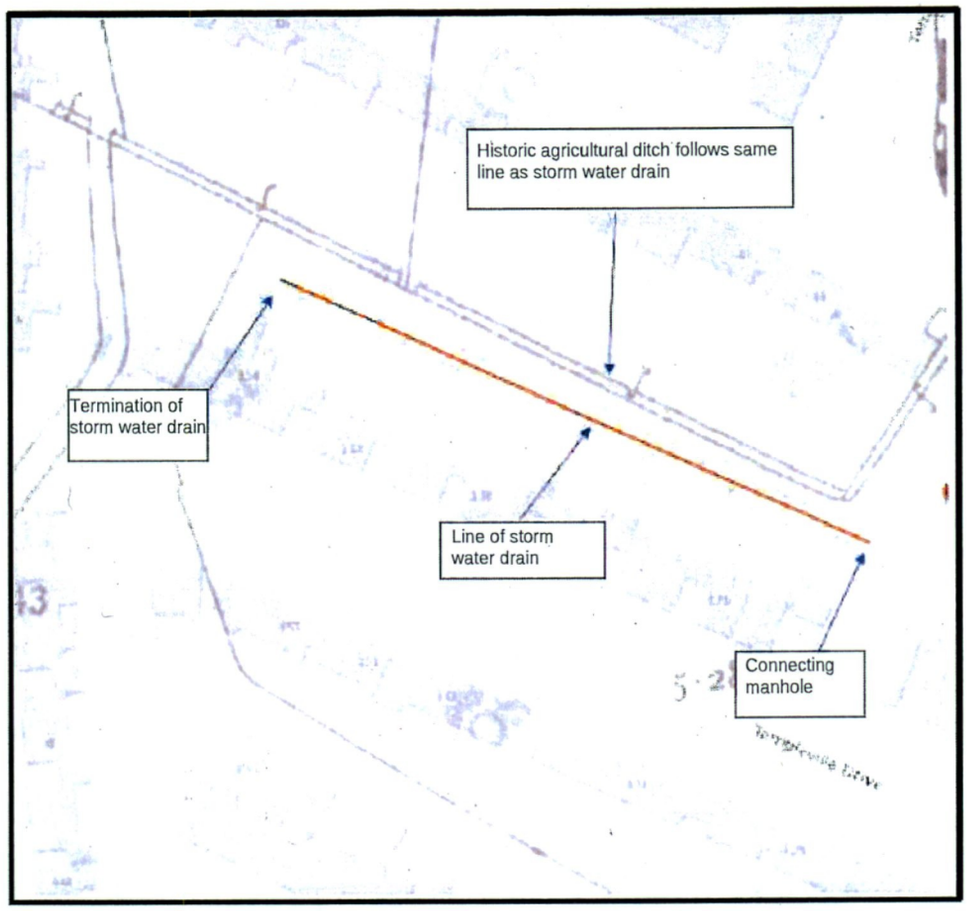


Fig 8. - Overlay of historic OS Map, Current OS Map and alignment of the pipe.

2.4 Camera Survey Snap Shots at Intervals Along the Culvert

The snapshots of the camera survey shows the condition of the pipe at various intervals along its length.

Distance 3.1m Standing water. No connection.

Distance 9.3m Standing water. No connections

Distance 14.5m Standing water. No connections

Distance 19.1m Standing water. No connections

Distance 37.2m Debris in pipe. No connections

Distance 44.0m. Standing water, No connections

Distance 27.3m Debris & standing water. No connections

Distance 33.8m Debris in pipe. No connections

Distance 37.2m Debris in pipe. No connections

Distance 44.0m. Standing water, No connections

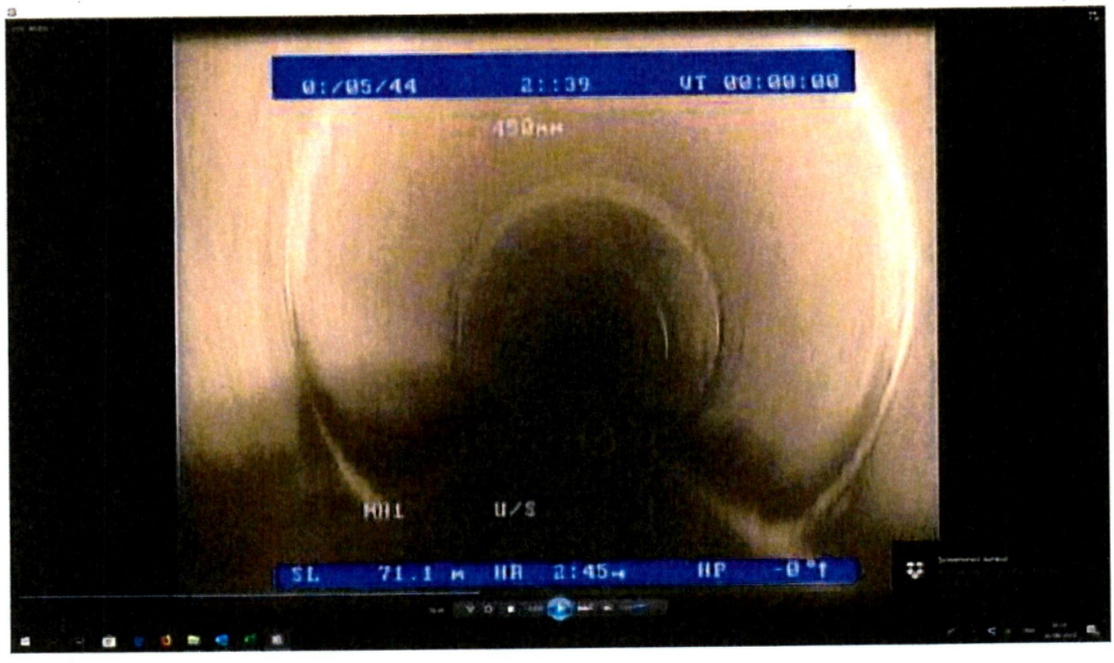
Distance 50.7m No Connections

Distance 57.0m No Connections

Distance 62.1m Extensive root growth. No Connections

Distance 67.0m Extensive root growth. No Connections

Distance 70.6m Extensive root growth. No Connections



Distance 71.1m No Connections

Distance 102.1m Extensive root growth. No Connections

Distance 103.8m Extensive root growth. No Connections

Distance 122.8m. Root growth. No Connections

Distance 129.1m No Connections

Distance 131.5m Debris in pipe. No Connections

135m Termination of pipe. Blocked up with brick, block and concrete.

APPENDIX G

Correspondence with SDCC Drainage

From: Ronan Toft <rtoft@SDUBLINCOCO.ie>
Sent: 27 January 2020 14:46
To: ciaran@obaconsulting.ie
Cc: 'alan obaconsulting.ie' <alan@obaconsulting.ie>; Chris Galvin <cgalvin@SDUBLINCOCO.ie>; Brian Harkin <bharkin@SDUBLINCOCO.ie>
Subject: RE: coleman - draft drainage drawings

Hi Ciaran,

Apologies for the delay in getting back to you. Having reviewed this proposal there doesn't appear to be any major objections at this time.

If you are re-submitting can you submit the findings of the CCTV survey you have carried out on the existing 450mm storm sewer and also adhere to the fact that current surcharging / attenuation volumes in the existing 450mm storm sewer won't be adversely affected by the diversion.

Kind regards,

Ronan Toft

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Environment, Water and Climate Change
South Dublin County Council
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| T: +353 1 414 9000 | Ext: 4333
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<image001.png>

From: ciaran@obaconsulting.ie
Sent: 17 January 2020 12:04
To: Ronan Toft <rtoft@SDUBLINCOCO.ie>; Chris Galvin <cgalvin@SDUBLINCOCO.ie>
Cc: 'alan obaconsulting.ie' <alan@obaconsulting.ie>
Subject: coleman - draft drainage drawings

Hi Chris, Ronan

Happy new year.

Further to our meeting prior to the Christmas break we now attach as requested an updated drainage drawing with the relocation of the third house to allow a more gentle and shorter diversion of the 450mm pipe in the rear. We have allowed for a 6000mm wayleave. Can you review the proposal and revert with any comments and your earlier convenience.

Also please find attach email memo of meeting notes between Michael McKenna (agent) and Michael McAdam in 2017 regarding the diversion of the sewer

Kindest regards

Ciaran

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APPENDIX H

Proposed Mircodrainage Detail

Document Ref; **Surface and Foul drainage.xlsx**

Templeville Drive
Pipe Network and Chamber Schedules

Project: Templeville Drive
Zone: -
Description: Surface and Foul Drainage
Network: As shown
Area: -

Schedule Rev.: P0
Drawing Ref.: P0
(including rev.) -

	Issued;	Checked;	Approved;
Name	MJ	MJ	PC
Date	01/12/2022	01/12/2022	01/12/2022

	Pipe Details					*Upstream*						*Downstream*				
Network	Pipe Ref.	Length (m)	Gradient (1:xxx)	Internal Dia. (mm)	Bedding Type[1]	Chamber Ref.	Chamber Type	Cover Type[4]	Pipe Invert Level (mAOD)	Cover Level (mAOD)	Pipe Cover Depth (m)	Chamber Ref.	Pipe Invert Level (mAOD)	Cover Level (mAOD)	Pipe Cover Depth (m)	Notes
Surface Drainage	1.000	8.678	58.5	100	Type S	Saj1	Access Junction	C1	54.239	55.220	0.881	Saj2	54.091	55.230	1.039	
	1.001	10.033	58.5	100	Type S	Saj2	Access Junction	C1	54.091	55.230	1.039	Saj3	53.919	55.200	1.181	
	1.002	10.095	58.5	100	Type S	Saj3	Access Junction	C1	53.919	55.200	1.181	Saj4	53.747	55.100	1.253	
	1.003	2.627	58.5	100	Type S	Saj4	Access Junction	C1	53.747	55.100	1.253	S6	53.702	55.100	1.298	
	2.000	5.091	25.6	450	Type S	S5	Type C	C1	53.800	55.100	0.850	S6	53.601	55.100	1.049	
	1.004	17.039	407.7	450	Type S	S6	Type C	C1	53.352	55.100	1.298	S7	53.310	54.720	0.960	Outfall to proposed manhole S7
	3.000	8.936	58.5	100	Type S	Saj8	Access Junction	C1	53.553	54.850	1.197	S9	53.400	54.900	1.400	Outfall to proposed manhole S9
	4.000	14.239	58.5	100	Type S	Saj10	Access Junction	C1	53.850	55.150	1.200	Saj11	53.607	55.100	1.393	
	4.001	2.992	58.5	100	Type S	Saj11	Access Junction	C1	53.607	55.100	1.393	S12	53.555	54.900	1.245	Outfall to proposed manhole S12
Foul Drainage	5.000	6.409	44.1	100	Type S	Faj1	Access Junction	C1	54.417	55.200	0.683	Faj2	54.271	55.150	0.779	
	5.001	12.956	44.1	100	Type S	Faj2	Access Junction	C1	54.271	55.150	0.779	Faj5	53.977	55.250	1.173	
	6.000	5.206	44.1	100	Type S	Faj3	Access Junction	C1	54.176	55.150	0.874	Faj4	54.058	55.220	1.062	
	6.001	3.435	42.6	100	Type S	Faj4	Access Junction	C1	54.058	55.220	1.062	Faj5	53.977	55.250	1.173	
	5.002	4.631	42.6	100	Type S	Faj5	Access Junction	C1	53.977	55.250	1.173	Faj6	53.869	55.200	1.231	
	5.003	6.802	42.6	100	Type S	Faj6	Access Junction	C1	53.869	55.200	1.231	F7	53.709	54.900	1.091	
	5.004	11.331	58.4	225	Type S	F7	Type C	C1	53.584	54.900	1.091	F8	53.390	54.820	1.205	Outfall to proposed manhole F8

Notes

1. All covers to new chambers shall be positioned to be opened and the chamber accessed without obstruction. Chamber covers to be orientated to avoid obstructing access where located in close proximity to a safety barrier, where applicable.
2. All man entry chambers shall have access arranged such that the user faces oncoming traffic when entering and exiting.
3. Pipe Cover Depth is distance between finished ground surface level and pipe soffit level.

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