



Comhairle Contae Chorcaí

Cork County Council

Drainage Impact Assessment	
Project	West End, Milford, Co Cork
Date	22/07/2024



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1. INTRODUCTION

1.1 Scope

Cork County Council wish to obtain planning permission for the demolition and redevelopment of an existing terraced property and rear extension at West End, Milford, Co Cork. This Drainage Impact Assessment (DIA) has been prepared to demonstrate how the development successfully uses Sustainable Urban Drainage Systems (SuDS) and nature based solutions to manage Storm Water within and adjacent to the site.

This DIA has been prepared as per the requirements of the Cork County Development Plan 2022 and the guidance given in Cork County Council Advice Note 1 Storm Water Management published in December 2022. As the proposed development is for less than 10 residential units and/or less than 500 square meters of new or additional non-residential floorspace, the development is considered to be a "Small-Scale Development".

Table 1 of *Nature Based Solutions and Small-Scale Development*, Advice Note 1 states that a DIA for development of less than 10 residential units and/or less than 500 square meters of new or additional non-residential floorspace should include, but is not limited to, the following:

- Full drainage details, drawings, and calculations.
- A SuDS statement incorporating Cork County Council SUDS Selection Hierarchy sheet for Small Scale Development, showing how design of SuDS have been integrated successfully into the Storm Water management plan for the site.
- All new developments must allow for Climate Change as set out in Table 11.4 of Chapter 11. (For additional technical advice refer to the Cork County Council Strategic Flood Risk Assessment (SFRA) and the Greater Dublin Strategic Drainage Strategy Technical Documents, Volume 5, Climate Change).
- Show how the 4 pillars of SuDS (Water Quantity, Water Quality, Amenity and Biodiversity) are achieved.

The DIA also outlines the Engineering approach taken for the proposed development in relation to including Waste Water and Water.

2. Site

2.1 Location

The site is located at West End, Milford, Co Cork, P56HP68 within an existing residential developed area.

2.2 Site Topography

The site is approximately 100m above sea level and has a slight fall of 2m from the front of the property to the rear which bounds the river Deel, a distance of 52m approx. Groundwater flow is expected to follow the site topography and flow in a Northwards.

2.3 Adjacent Land Use

The site is surrounded by residential properties.

2.4 Existing Services

The property is served by existing water supply pipes, wastewater drainage, storm water drainage, electrical services and telecom/data services.

3. STORM WATER DRAINAGE


3.1 Storm Water Discharge Philosophy

In order to comply with Objective WM11-10 and paragraph 11.10.4 in the Cork County Development Plan 2022, a softer engineered or 'nature-based approach' shall be used where feasible to manage rainfall runoff on the site i.e., by managing and treating Storm Water above-ground rather than sending rainfall below-ground into drains, pipes, attenuation tanks and other 'hard engineering' solutions.

The approach aims to maximise the retention and/or infiltration of storm water runoff on-site and minimise discharges to the public drainage system, thereby mitigating the drainage impact of the proposed development.

Detailed supporting calculations for the design of the soakaways are included in the appendices. The calculations include a 10% allowance for Climate Change increases.

Table 1 sets out the SuDS measured proposed for this development. Stormwater from the front roof are proposed to drain to the existing stormwater system along the public road.

SuDS Measure	Image	Measures to be used on site	Rationale for selecting/not selecting measure including discharge rate applied with supporting calculations
Water butt – 150L capacity or more (based water use demand) with means of overflow		Yes for rainwater pipes	Cost effective measure, which can be securely positioned on the rear elevations





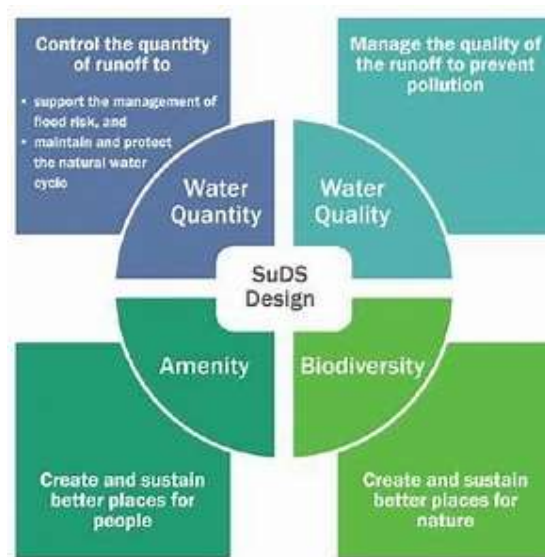
Permeable paving – consider for all hard paved areas without heavy traffic		No	Proposed parking area will be in the public realm and maybe subject to heavy traffic e.g. by refuse lorries when turning
Bio-retention planter – disconnect downpipe connection into drains and allow roof runoff into planter with means of overflow		No	Limited space available Planters will require tenant maintenance
Green / Blue Roof – requires a minimum substrate depth (growth medium) of at least 80 mm excluding the vegetative map		No	No suitable roofs on the development
Rain garden - Disconnect downpipe/RWP into the planted flower bed		No	Planted areas will require tenant maintenance
Soakaways discharging Storm Water collected from roofs and impermeable paving into the ground		Yes	Sites are suitable for discharging surface water to ground via a soakaway positioned in the rear garden – see the appendices for supporting calculations and refer to the proposed drawings

Table 1: Proposed SuDS measures

3.2 SuDS Pillars

The four pillars of SuDS are Water Quantity, Water Quality, Amenity and Biodiversity.



3.3 Water Quantity

This pillar is achieved by controlling the quantity of runoff from the site of the development through feasible SuDS measures in particular the use of water butts and a Soakaway.

3.4 Water Quality

This pillar is achieved by having minimal runoff into the public Storm Water system or watercourse from the development where feasible in order to mimic the natural catchment and groundwater recharge and manage the quality of runoff to prevent pollution. However, the soil conditions at the site do not for soakaways or similar infiltration devices.

3.5 Amenity

This pillar is achieved by creating and sustaining better places for people. The proposed development has green spaces where feasible and is close to existing open green spaces in Glenbower View.

3.6 Biodiversity

This pillar is achieved by creating and sustaining better places for nature. The proposed development has green spaces where feasible and is close to existing open green spaces in Dean McNamara Place.

4. Waste Water

Uisce Eireann have confirmed that a wastewater connection for the proposed property is feasible. All proposed works are to be in accordance with Irish Water Code of Practice for Waste Water Infrastructure. For further details, please refer to the drawings and the Irish Water Confirmation of Feasibility in the appendix 2.



5. Water

Uisce Eireann have confirmed that a water supply connection for the proposed development is feasible.

All proposed works are to be in accordance with Irish Water Code of Practice for Water Infrastructure.


For further details, please refer to the drawings and the Irish Water Confirmation of Feasibility in the appendix 2.



APPENDIX 1

Surface water Infiltration Calculations



 <div>Comhairle Contae Chorcaí Stiúrthóireacht Tithíochta Cork County Council Housing Directorate</div>	Project:	West End, Milford, Co Cork	Sheet No:	1
	Project Number:	Project 2023_Milford	Date:	22/07/2024
	Subject:	Infiltration Tank Calculation	Prepared By:	CG
			Check By:	LR

REFERENCE	DESIGN CALCULATIONS	OUTPUT																																																																																																																																																																																																																																																																																																																																																																																																
N/A	<p>The following is proposed:</p> <p>Demolish the existing mid-terrace structure and associated rear extension and develop a three bedroom mid terraced property with no additional hardstanding areas or driveways.</p> <p>It is proposed to match the existing surface water system for the front sloping roof, i.e. for the surface water to discharge to the existing surface water system on the public road.</p> <p>It is proposed to drain the surface water for the rear roofs and paths to a soakaway in the rear garden.</p> <p>The proposed soakaways are sized to cater for run-off due for a storm event with a 30 year return period and with a 10% increase in intensity due to climate change using the methodology and criteria given in BRE Digest 365.</p> <p>SOAKAWAY DESIGN INPUT</p> <p>The proposed soakaways will be excavated within the Dense angular GRAVEL / weathered SILTSTONE (shale) stratum encountered.</p> <p>Conservatively, the coefficient of permeability for this soil is taken to be 44x10-6 m/s (lower value of range from BS 8004)</p> <p>Rainfall</p> <p>From Met Eireann online database:</p> <div>Met Eireann Return Period Rainfall Depths for sliding Durations Irish Grid: Easting: 141570, Northing: 121342,</div> <table><tr><th>DURATION</th><th>Interval</th><th>2</th><th>3</th><th>4</th><th>5</th><th>10</th><th>20</th><th>30</th><th>50</th><th>75</th><th>100</th><th>150</th><th>200</th><th>250</th><th>500</th></tr><tr><td>5 mins</td><td>2.7, 3.8</td><td>4.3</td><td>5.2</td><td>5.8</td><td>6.2</td><td>7.7</td><td>9.3</td><td>10.4</td><td>11.9</td><td>13.3</td><td>14.3</td><td>15.9</td><td>17.2</td><td>18.2</td><td>N/A</td></tr><tr><td>10 mins</td><td>3.8, 5.3</td><td>6.1</td><td>7.2</td><td>8.1</td><td>8.7</td><td>10.7</td><td>13.0</td><td>14.5</td><td>16.6</td><td>18.5</td><td>20.0</td><td>22.2</td><td>23.9</td><td>25.4</td><td>N/A</td></tr><tr><td>15 mins</td><td>4.4, 6.2</td><td>7.1</td><td>8.5</td><td>9.5</td><td>10.2</td><td>12.6</td><td>15.3</td><td>17.1</td><td>19.6</td><td>21.8</td><td>23.5</td><td>26.1</td><td>28.2</td><td>29.9</td><td>N/A</td></tr><tr><td>30 mins</td><td>5.9, 8.1</td><td>9.2</td><td>10.9</td><td>12.1</td><td>13.0</td><td>15.8</td><td>18.9</td><td>21.0</td><td>23.9</td><td>26.4</td><td>28.3</td><td>31.3</td><td>33.6</td><td>35.5</td><td>N/A</td></tr><tr><td>1 hour</td><td>7.9, 10.6</td><td>12.0</td><td>14.0</td><td>15.4</td><td>16.4</td><td>19.8</td><td>23.4</td><td>25.8</td><td>29.1</td><td>31.9</td><td>34.1</td><td>37.5</td><td>40.0</td><td>42.1</td><td>N/A</td></tr><tr><td>2 hours</td><td>10.5, 13.8</td><td>15.5</td><td>18.0</td><td>19.6</td><td>20.8</td><td>24.7</td><td>29.0</td><td>31.7</td><td>35.4</td><td>38.7</td><td>41.1</td><td>44.9</td><td>47.7</td><td>50.0</td><td>N/A</td></tr><tr><td>3 hours</td><td>12.5, 16.2</td><td>18.1</td><td>20.8</td><td>22.6</td><td>23.9</td><td>28.2</td><td>32.8</td><td>35.8</td><td>39.8</td><td>43.3</td><td>45.9</td><td>49.9</td><td>52.9</td><td>55.3</td><td>N/A</td></tr><tr><td>4 hours</td><td>14.1, 18.1</td><td>20.1</td><td>23.1</td><td>25.0</td><td>26.4</td><td>31.0</td><td>35.9</td><td>39.0</td><td>43.2</td><td>46.8</td><td>49.6</td><td>53.7</td><td>56.9</td><td>59.4</td><td>N/A</td></tr><tr><td>6 hours</td><td>16.7, 21.2</td><td>23.4</td><td>26.7</td><td>28.8</td><td>30.4</td><td>35.3</td><td>40.6</td><td>44.0</td><td>48.5</td><td>52.4</td><td>55.3</td><td>59.7</td><td>63.0</td><td>65.7</td><td>N/A</td></tr><tr><td>9 hours</td><td>19.7, 24.8</td><td>27.3</td><td>30.9</td><td>33.2</td><td>34.9</td><td>40.3</td><td>46.0</td><td>49.6</td><td>54.5</td><td>58.6</td><td>61.7</td><td>66.3</td><td>69.8</td><td>72.7</td><td>N/A</td></tr><tr><td>12 hours</td><td>22.2, 27.7</td><td>30.4</td><td>34.2</td><td>36.7</td><td>38.5</td><td>44.3</td><td>50.3</td><td>54.0</td><td>59.1</td><td>63.4</td><td>66.7</td><td>71.5</td><td>75.1</td><td>78.0</td><td>N/A</td></tr><tr><td>18 hours</td><td>26.3, 32.4</td><td>35.4</td><td>39.6</td><td>42.3</td><td>44.3</td><td>50.5</td><td>57.0</td><td>61.0</td><td>66.4</td><td>70.9</td><td>74.3</td><td>79.4</td><td>83.2</td><td>86.3</td><td>N/A</td></tr><tr><td>24 hours</td><td>29.7, 36.2</td><td>39.4</td><td>43.9</td><td>46.8</td><td>48.9</td><td>55.4</td><td>62.2</td><td>66.4</td><td>72.0</td><td>76.8</td><td>80.3</td><td>85.6</td><td>89.5</td><td>92.7</td><td>103.2</td></tr><tr><td>2 days</td><td>39.1, 46.7</td><td>50.4</td><td>55.5</td><td>58.7</td><td>61.0</td><td>68.3</td><td>75.8</td><td>80.3</td><td>86.4</td><td>91.5</td><td>95.3</td><td>100.8</td><td>104.9</td><td>108.3</td><td>119.2</td></tr><tr><td>3 days</td><td>47.2, 55.8</td><td>59.8</td><td>65.4</td><td>69.0</td><td>71.6</td><td>79.5</td><td>87.5</td><td>92.4</td><td>98.9</td><td>104.3</td><td>108.3</td><td>114.2</td><td>118.5</td><td>122.0</td><td>133.5</td></tr><tr><td>4 days</td><td>54.7, 64.1</td><td>68.5</td><td>74.5</td><td>78.3</td><td>81.1</td><td>89.6</td><td>98.2</td><td>103.4</td><td>110.3</td><td>116.0</td><td>120.2</td><td>126.4</td><td>130.9</td><td>134.6</td><td>146.5</td></tr><tr><td>6 days</td><td>68.6, 79.3</td><td>84.3</td><td>91.2</td><td>95.5</td><td>98.6</td><td>108.1</td><td>117.6</td><td>123.4</td><td>130.9</td><td>137.2</td><td>141.8</td><td>148.5</td><td>153.4</td><td>157.3</td><td>170.2</td></tr><tr><td>8 days</td><td>81.5, 93.5</td><td>99.1</td><td>106.6</td><td>111.3</td><td>114.8</td><td>125.1</td><td>135.5</td><td>141.7</td><td>149.8</td><td>156.5</td><td>161.4</td><td>168.6</td><td>173.9</td><td>178.0</td><td>191.7</td></tr><tr><td>10 days</td><td>93.9, 107.0</td><td>113.1</td><td>121.3</td><td>126.3</td><td>130.1</td><td>141.2</td><td>152.2</td><td>158.9</td><td>167.5</td><td>174.7</td><td>179.9</td><td>187.5</td><td>193.0</td><td>197.4</td><td>211.8</td></tr><tr><td>12 days</td><td>106.0, 120.1</td><td>126.5</td><td>135.3</td><td>140.7</td><td>144.7</td><td>156.5</td><td>168.3</td><td>175.3</td><td>184.4</td><td>191.9</td><td>197.4</td><td>205.4</td><td>211.2</td><td>215.9</td><td>230.9</td></tr><tr><td>16 days</td><td>129.3, 145.2</td><td>152.5</td><td>162.3</td><td>168.4</td><td>172.8</td><td>185.9</td><td>198.8</td><td>206.6</td><td>216.5</td><td>224.7</td><td>230.7</td><td>239.4</td><td>245.7</td><td>250.7</td><td>266.9</td></tr><tr><td>20 days</td><td>152.0, 169.6</td><td>177.6</td><td>188.3</td><td>194.9</td><td>199.8</td><td>214.0</td><td>228.0</td><td>236.3</td><td>247.1</td><td>255.9</td><td>262.3</td><td>271.5</td><td>278.3</td><td>283.6</td><td>300.9</td></tr><tr><td>25 days</td><td>179.8, 199.3</td><td>208.1</td><td>219.9</td><td>227.1</td><td>232.4</td><td>247.9</td><td>263.1</td><td>272.1</td><td>283.7</td><td>293.2</td><td>300.1</td><td>310.0</td><td>317.2</td><td>322.9</td><td>341.3</td></tr></table> <div>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</div>	DURATION	Interval	2	3	4	5	10	20	30	50	75	100	150	200	250	500	5 mins	2.7, 3.8	4.3	5.2	5.8	6.2	7.7	9.3	10.4	11.9	13.3	14.3	15.9	17.2	18.2	N/A	10 mins	3.8, 5.3	6.1	7.2	8.1	8.7	10.7	13.0	14.5	16.6	18.5	20.0	22.2	23.9	25.4	N/A	15 mins	4.4, 6.2	7.1	8.5	9.5	10.2	12.6	15.3	17.1	19.6	21.8	23.5	26.1	28.2	29.9	N/A	30 mins	5.9, 8.1	9.2	10.9	12.1	13.0	15.8	18.9	21.0	23.9	26.4	28.3	31.3	33.6	35.5	N/A	1 hour	7.9, 10.6	12.0	14.0	15.4	16.4	19.8	23.4	25.8	29.1	31.9	34.1	37.5	40.0	42.1	N/A	2 hours	10.5, 13.8	15.5	18.0	19.6	20.8	24.7	29.0	31.7	35.4	38.7	41.1	44.9	47.7	50.0	N/A	3 hours	12.5, 16.2	18.1	20.8	22.6	23.9	28.2	32.8	35.8	39.8	43.3	45.9	49.9	52.9	55.3	N/A	4 hours	14.1, 18.1	20.1	23.1	25.0	26.4	31.0	35.9	39.0	43.2	46.8	49.6	53.7	56.9	59.4	N/A	6 hours	16.7, 21.2	23.4	26.7	28.8	30.4	35.3	40.6	44.0	48.5	52.4	55.3	59.7	63.0	65.7	N/A	9 hours	19.7, 24.8	27.3	30.9	33.2	34.9	40.3	46.0	49.6	54.5	58.6	61.7	66.3	69.8	72.7	N/A	12 hours	22.2, 27.7	30.4	34.2	36.7	38.5	44.3	50.3	54.0	59.1	63.4	66.7	71.5	75.1	78.0	N/A	18 hours	26.3, 32.4	35.4	39.6	42.3	44.3	50.5	57.0	61.0	66.4	70.9	74.3	79.4	83.2	86.3	N/A	24 hours	29.7, 36.2	39.4	43.9	46.8	48.9	55.4	62.2	66.4	72.0	76.8	80.3	85.6	89.5	92.7	103.2	2 days	39.1, 46.7	50.4	55.5	58.7	61.0	68.3	75.8	80.3	86.4	91.5	95.3	100.8	104.9	108.3	119.2	3 days	47.2, 55.8	59.8	65.4	69.0	71.6	79.5	87.5	92.4	98.9	104.3	108.3	114.2	118.5	122.0	133.5	4 days	54.7, 64.1	68.5	74.5	78.3	81.1	89.6	98.2	103.4	110.3	116.0	120.2	126.4	130.9	134.6	146.5	6 days	68.6, 79.3	84.3	91.2	95.5	98.6	108.1	117.6	123.4	130.9	137.2	141.8	148.5	153.4	157.3	170.2	8 days	81.5, 93.5	99.1	106.6	111.3	114.8	125.1	135.5	141.7	149.8	156.5	161.4	168.6	173.9	178.0	191.7	10 days	93.9, 107.0	113.1	121.3	126.3	130.1	141.2	152.2	158.9	167.5	174.7	179.9	187.5	193.0	197.4	211.8	12 days	106.0, 120.1	126.5	135.3	140.7	144.7	156.5	168.3	175.3	184.4	191.9	197.4	205.4	211.2	215.9	230.9	16 days	129.3, 145.2	152.5	162.3	168.4	172.8	185.9	198.8	206.6	216.5	224.7	230.7	239.4	245.7	250.7	266.9	20 days	152.0, 169.6	177.6	188.3	194.9	199.8	214.0	228.0	236.3	247.1	255.9	262.3	271.5	278.3	283.6	300.9	25 days	179.8, 199.3	208.1	219.9	227.1	232.4	247.9	263.1	272.1	283.7	293.2	300.1	310.0	317.2	322.9	341.3	N/A
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2 hours	10.5, 13.8	15.5	18.0	19.6	20.8	24.7	29.0	31.7	35.4	38.7	41.1	44.9	47.7	50.0	N/A																																																																																																																																																																																																																																																																																																																																																																																			
3 hours	12.5, 16.2	18.1	20.8	22.6	23.9	28.2	32.8	35.8	39.8	43.3	45.9	49.9	52.9	55.3	N/A																																																																																																																																																																																																																																																																																																																																																																																			
4 hours	14.1, 18.1	20.1	23.1	25.0	26.4	31.0	35.9	39.0	43.2	46.8	49.6	53.7	56.9	59.4	N/A																																																																																																																																																																																																																																																																																																																																																																																			
6 hours	16.7, 21.2	23.4	26.7	28.8	30.4	35.3	40.6	44.0	48.5	52.4	55.3	59.7	63.0	65.7	N/A																																																																																																																																																																																																																																																																																																																																																																																			
9 hours	19.7, 24.8	27.3	30.9	33.2	34.9	40.3	46.0	49.6	54.5	58.6	61.7	66.3	69.8	72.7	N/A																																																																																																																																																																																																																																																																																																																																																																																			
12 hours	22.2, 27.7	30.4	34.2	36.7	38.5	44.3	50.3	54.0	59.1	63.4	66.7	71.5	75.1	78.0	N/A																																																																																																																																																																																																																																																																																																																																																																																			
18 hours	26.3, 32.4	35.4	39.6	42.3	44.3	50.5	57.0	61.0	66.4	70.9	74.3	79.4	83.2	86.3	N/A																																																																																																																																																																																																																																																																																																																																																																																			
24 hours	29.7, 36.2	39.4	43.9	46.8	48.9	55.4	62.2	66.4	72.0	76.8	80.3	85.6	89.5	92.7	103.2																																																																																																																																																																																																																																																																																																																																																																																			
2 days	39.1, 46.7	50.4	55.5	58.7	61.0	68.3	75.8	80.3	86.4	91.5	95.3	100.8	104.9	108.3	119.2																																																																																																																																																																																																																																																																																																																																																																																			
3 days	47.2, 55.8	59.8	65.4	69.0	71.6	79.5	87.5	92.4	98.9	104.3	108.3	114.2	118.5	122.0	133.5																																																																																																																																																																																																																																																																																																																																																																																			
4 days	54.7, 64.1	68.5	74.5	78.3	81.1	89.6	98.2	103.4	110.3	116.0	120.2	126.4	130.9	134.6	146.5																																																																																																																																																																																																																																																																																																																																																																																			
6 days	68.6, 79.3	84.3	91.2	95.5	98.6	108.1	117.6	123.4	130.9	137.2	141.8	148.5	153.4	157.3	170.2																																																																																																																																																																																																																																																																																																																																																																																			
8 days	81.5, 93.5	99.1	106.6	111.3	114.8	125.1	135.5	141.7	149.8	156.5	161.4	168.6	173.9	178.0	191.7																																																																																																																																																																																																																																																																																																																																																																																			
10 days	93.9, 107.0	113.1	121.3	126.3	130.1	141.2	152.2	158.9	167.5	174.7	179.9	187.5	193.0	197.4	211.8																																																																																																																																																																																																																																																																																																																																																																																			
12 days	106.0, 120.1	126.5	135.3	140.7	144.7	156.5	168.3	175.3	184.4	191.9	197.4	205.4	211.2	215.9	230.9																																																																																																																																																																																																																																																																																																																																																																																			
16 days	129.3, 145.2	152.5	162.3	168.4	172.8	185.9	198.8	206.6	216.5	224.7	230.7	239.4	245.7	250.7	266.9																																																																																																																																																																																																																																																																																																																																																																																			
20 days	152.0, 169.6	177.6	188.3	194.9	199.8	214.0	228.0	236.3	247.1	255.9	262.3	271.5	278.3	283.6	300.9																																																																																																																																																																																																																																																																																																																																																																																			
25 days	179.8, 199.3	208.1	219.9	227.1	232.4	247.9	263.1	272.1	283.7	293.2	300.1	310.0	317.2	322.9	341.3																																																																																																																																																																																																																																																																																																																																																																																			



 cork county council cork	Project Westend Milford				Job no.	
	Calcs for Soakaway design				Start page no./Revision 1	
	Calcs by CG	Calcs date 20/08/2024	Checked by	Checked date	Approved by	Approved date

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.05

Design rainfall intensity

Location of catchment area Other
Impermeable area drained to the system $A = 80.0 \text{ m}^2$
Return period Period = 50 yr
Ratio 60 min to 2 day rainfall of 5 yr return period $r = 0.260$
5-year return period rainfall of 60 minutes duration $M5_{60\text{min}} = 17.8 \text{ mm}$
Increase of rainfall intensity due to global warming $p_{\text{climate}} = 10 \%$

Soakaway / Infiltration trench details

Soakaway type Rectangular
Minimum depth of pit (below incoming invert) $d = 1200 \text{ mm}$
Width of pit $w = 1500 \text{ mm}$
Length of pit $l = 1500 \text{ mm}$
Percentage free volume $V_{\text{free}} = 95 \%$
Soil infiltration rate $f = 44.0 \times 10^{-6} \text{ m/s}$
Wetted area of pit 50% full $a_{50} = l \times d + w \times d = 3600000 \text{ mm}^2$

Table equations

Inflow (cl.3.3.1) $I = M50 \times A$
Outflow (cl.3.3.2) $O = a_{50} \times f \times D$
Storage (cl.3.3.3) $S = I - O$

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	50 year rainfall, M50 (mm)	Inflow (m³)	Outflow (m³)	Storage required (m³)
5	0.32;	6.3;	1.64;	10.4;	0.83;	0.05;	0.78
10	0.47;	9.3;	1.68;	15.6;	1.25;	0.10;	1.15
15	0.57;	11.2;	1.69;	19.0;	1.52;	0.14;	1.38
30	0.76;	14.8;	1.70;	25.2;	2.01;	0.29;	1.73
60	1.00;	19.6;	1.66;	32.6;	2.61;	0.57;	2.04
120	1.28;	25.1;	1.64;	41.1;	3.29;	1.14;	2.15
240	1.66;	32.6;	1.60;	52.0;	4.16;	2.28;	1.88
360	1.92;	37.6;	1.57;	59.1;	4.73;	3.42;	1.31
600	2.29;	44.9;	1.54;	69.2;	5.53;	5.70;	0.00
1440	3.18;	62.3;	1.49;	92.6;	7.41;	13.69;	0.00

Required storage volume $S_{\text{req}} = 2.15 \text{ m}^3$

Soakaway storage volume $S_{\text{act}} = l \times d \times w \times V_{\text{free}} = 2.57 \text{ m}^3$

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{50} = S_{\text{req}} \times 0.5 / (a_{50} \times f) = 1 \text{ hr } 53 \text{ min } 7 \text{ s}$

PASS - Soakaway discharge time less than or equal to 24 hours



APPENDIX 2

Irish Water Confirmation of Feasibility



CONFIRMATION OF FEASIBILITY

Ciaran Galvin
Cork County Council
The Courthouse
Skibbereen
Co. Cork
P81 DX52

26 July 2024

Our Ref: CDS24004868 Pre-Connection Enquiry
Kilmallock Road, Charleville, Co. Cork

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 42 unit(s) at Kilmallock Road, Charleville, Co. Cork (the Development).

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann:

While capacity is currently available to service the Development and comply with Urban Wastewater Treatment requirements, please note that the proposed Development is serviced by a constrained wastewater treatment plant (WWTP) and there are a number of potential developments in the Charleville area.

As the network capacity changes constantly, this review is only valid at the time of its completion. Therefore, this letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected



to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

Where can you find more information?

- Section A - What is important to know?
- Section B - Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit www.water.ie/connections, email newconnections@water.ie or contact 1800 278 278.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'D Phelan', written over a horizontal line.

Dermot Phelan
Connections Delivery Manager

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	<ul style="list-style-type: none"> Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	<ul style="list-style-type: none"> A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	<ul style="list-style-type: none"> Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	<ul style="list-style-type: none"> All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. <p>*Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works</p>
Fire flow Requirements	<ul style="list-style-type: none"> The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. What to do? - Contact the relevant Local Fire Authority
Plan for disposal of storm water	<ul style="list-style-type: none"> The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. What to do? - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	<ul style="list-style-type: none"> Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	<ul style="list-style-type: none"> The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with <i>the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice</i>, available at www.water.ie/connections
Trade Effluent Licensing	<ul style="list-style-type: none"> Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ <p>**trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)</p>

Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie

Existing Water Infrastructure:



Existing Wastewater Infrastructure:



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Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.