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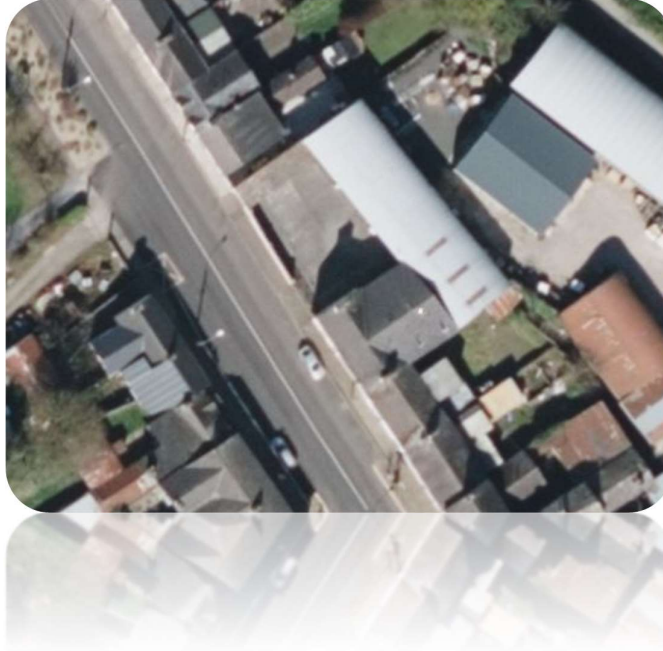
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Alan Traynor
Consulting Engineers Ltd.



23-103

CAVAN COUNTY COUNCIL

**RESIDENTIAL DEVELOPMENT AT
MAINSTREET, KILNALECK,
Co. CAVAN**

**Foul Water, Surface Water,
Attenuation Calculations & Details**



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1.0 Introduction

Alan Traynor Consulting Engineers Ltd have been engaged by Cavan County Council to carry out engineering services design for the proposed 8-unit residential development at Main Street, Kilnaleck, Co. Cavan. This report addresses the foul, surface water drainage and water supply for this application.

1.1 Site Description

The site is a brownfield site, has an area of 0.094 hectares, all of which is hardstanding, and is located at Main Street Kilnaleck, just northwest of the junction between Mainstreet (R154) and the Green road. The site is made up of a former hardware store and accompanying storage shed and yard. It is adjoined by residential dwellings in all directions apart from the northeast where it shares a boundary with a farm supplies store/yard. All the buildings in the vicinity of the site are of two storey construction.

2.0 Surface Water Drainage

2.1 Surface Water Drainage - Existing

There is existing surface water drainage on site taking the runoff from the roof of the store and shed along with the runoff from the yard area which is concrete construction. The surface water discharges to a 225mm public surface water sewer running in MainStreet just outside the front of the existing building.

2.2 Surface Water Drainage – Proposed

The existing building, shed and yard are all to be demolished and the existing surface water drainage infrastructure removed. The surface water from the roofs of the new buildings and the alleyway running between them will be collected in a suitably sized network and discharged to the public surface water sewer in Mainstreet. The overall surface water discharge from the site will be reduced compared to existing volumes due to the introduction of rear gardens which will result in the site having less hard standing area than is currently present.



3.0 Foul Drainage

3.1 Foul Drainage – Existing

There is an existing 225mm diameter concrete foul sewer running through the site from the southeast to the northwest. The sewer passes under the existing building to be demolished. There is an existing manhole on the sewer just outside the building in the existing yard.

3.2 Foul Drainage – Proposed

It is proposed to divert the existing foul sewer, starting from the existing manhole to the north and then back to the west to connect back into the existing sewer just inside the northwestern boundary to avoid clashes with the new units to be built in the existing yard area. Three new manholes will be required for the diversion to allow the sewer to circumvent the new units. The 8 new units will be individually connected to the new diversion using appropriately sized pipes. A Confirmation of Feasibility letter form Uisce Eireann is included in Appendix A.

4.0 Water

4.1 Water - Existing

There is an existing 125mm watermain running inside the site boundary in Main Street.

4.2 Water - Proposed

It is proposed to make 8 individual connections to the existing watermain in Main Street to serve the new units. A Confirmation of Feasibility letter form Uisce Eireann is included in Appendix A.

Appendix A – Surface Water Calculations

Storm Sewer loadings for Development at Mainstreet Kilnaleck, Co. Cavan

DATA		STORM WATER FLOW Modified Rational Method						Cr = 1.3 Cv = 0.7		SEWER DESIGN K _s = 0.60								
SEWER REFERENCE		Roads	Roofs/yards	Impervious Area	Cumulative Impervious Area	Rainfall : I (mm/hr)	Storm Water Flow Q=Ap*I*Cr*Cv*2.78 lt/sec	Size of drain (mm)	Gradient (1 in x)	Length (m)	Capacity (l/sec)	Pipe full Velocity (m/sec)	Actual Velocity (m/sec)	Half full velocity (m/sec)	Max Velocity (m/sec)	Depth of flow (mm)	Reserve capacity (l/sec)	
From Manhole	To Manhole	Area A1	Area A2															
1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	
AJ7	Snew	0.000	0.045	0.045	0.045	50.00	5.64	150	100	3.700	17.73	1.00	0.89	1.00	1.14	58.59	12.09	

Appendix B – Foul Water Calculations

Foul sewer loadings for existing sewer at Kilnaleck, Co. Cavan

DATA								SEWER DESIGN Ks = 1.50									
SEWER REFERENCE From Manhole To Manhole		HOUSES No.	UNITS/ HOUSE No.	UNITS No.	TOTAL UNITS l/s	TOTAL FLOW l/s	Size of drain (mm)	Gradient (1 in x)	Length (m)	Capacity (l/sec)	Pipe full Velocity (m/sec)	Actual Velocity (m/sec)	Half full velocity (m/sec)	Self cleansing at half full	Max Velocity (m/sec)	Depth of flow (mm)	Reserve capacity (l/sec)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Fnew1	F1	100	14	1400	1400	9.725	225	128.0	8.182	40.297	1.013	0.834	1.013	OK	1.154	75.586	30.571
F1	F2	6	14	84	1484	10.023	225	128.0	23.175	40.297	1.013	0.841	1.013	OK	1.154	76.465	30.273
F2	Fnew2	2	14	28	1512	10.123	225	128.0	6.961	40.297	1.013	0.844	1.013	OK	1.154	76.465	30.174



Foul Discharge Design Calculations

The following calculations are in accordance with Appendix C 'Wastewater Flow Rates for Design' of Irish Water Code of Practice for Wastewater Infrastructure. (IW-CDS_5030-03)

Domestic Dwelling - Flow Rate = 150 litres/occupant/day

Peak Design Flow Rate = 6 x Domestic Flow Rate

Project Name:	Main St Kilnaleck WGG
Project Number:	23.103

1 Bed Unit = Max	2 persons
2 Bed Unit = Max	3 persons
3 Bed Unit = Max	5 persons
4 Bed Unit = Max	6 persons

1 Bed Units =	4
Flow Rate =	0.0035 l/s per unit
Peak Design Flow Rate =	0.0208 l/s per unit
Total Flow from 4 Units =	0.083 l/s

2 Bed Units =	4
Flow Rate =	0.0052 l/s per unit
Peak Design Flow Rate =	0.0313 l/s per unit
Total Flow from 4 Units =	0.125 l/s

3 Bed Units =	0
Flow Rate =	0.0000 l/s per unit
Peak Design Flow Rate =	0.0000 l/s per unit
Total Flow from 0 Units =	0.000 l/s

4 Bed Units =	0
Flow Rate =	0.0000 l/s per unit
Peak Design Flow Rate =	0.0000 l/s per unit
Total Flow from 0 Units =	0.000 l/s

Total Flow From Development (8 Units)(20 Persons) = 3000 litres or 3 m³/day

Peak Design Flow Rate = 0.208 l/s

Average Discharge = 0.0347 l/s

Appendix C – Irish Water Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

Marc McBride

Belturbet Business Park
Creeny
Belturbet
Cavan

28 April 2023

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

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

**Our Ref: CDS23002453 Pre-Connection Enquiry
Main Street, Kilnaleck, Cavan, Co.Cavan**

Dear Applicant/Agent,

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

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 8 unit(s) at Main Street, Kilnaleck, Cavan, Co.Cavan, (the **Development**).

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

- **Water Connection**
 - Feasible without infrastructure upgrade by Irish Water
 - Connection to 125mm HDPE watermain running along Lower main street
 - Feasible Subject to upgrades
 - The Irish water records show that the nearest gravity foul sewer connection is approximately 70m from the proposed development. We note from your pre-connection enquiry drawings that a shorter sewer extension maybe possible which would be established in the extents of the diversion required. Please see <https://www.water.ie/connections/information/connection-charges/> for some further information.
- **Wastewater Connection**
 - As per your knowledge and as per the information supplied with your pre-connection enquiry form, there is an Irish Water wastewater foul sewer running through your site. As you wish to divert the assets as mentioned in your enquiry and so to facilitate the development, you shall have entered into a diversion agreement with Irish Water prior to commencing the Development.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water 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 Irish Water.

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/

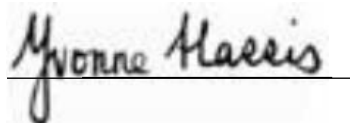
Where can you find more information?

- **Section A** - What is important to know?
- **Section B** - Details of Irish Water's Network(s)

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

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

Yours sincerely,

A handwritten signature in black ink that reads "Yvonne Harris". The signature is written in a cursive style and is positioned above a thin horizontal line.

Yvonne Harris
Head of Customer Operations

Section A - What is important to know?

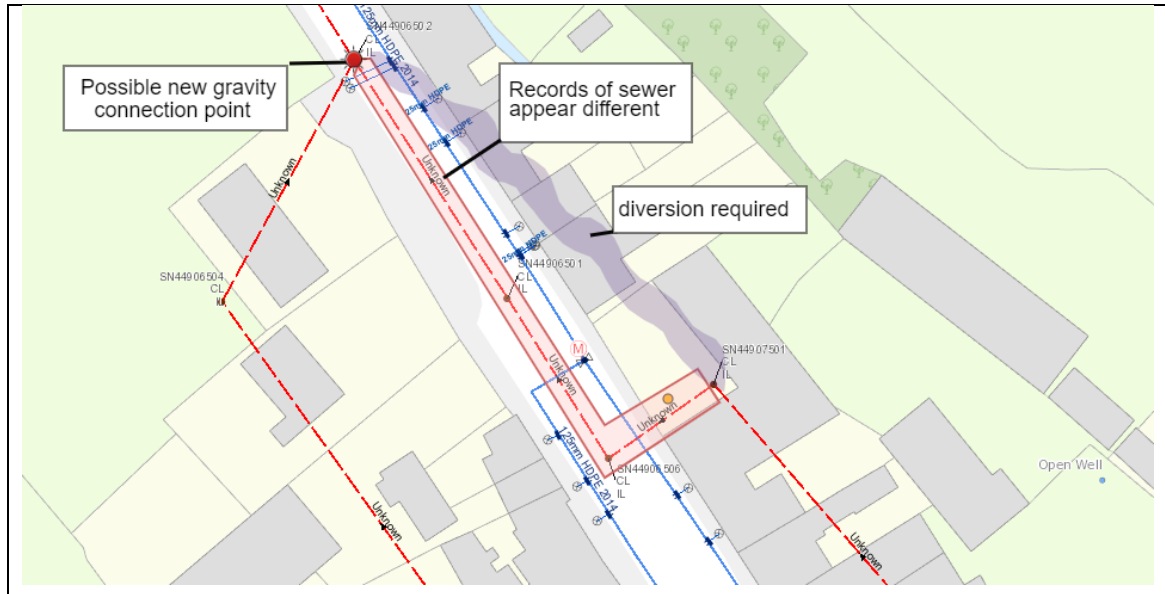
What is important to know?	Why is this important?
Do you need a contract to connect?	<ul style="list-style-type: none"> • Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Irish Water's network(s). • Before the Development can connect to Irish Water's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Irish Water.
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"> • Irish Water 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 Irish Water's network(s), including works in the public space, must be carried out by Irish Water*. <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 Irish Water's network(s)?	<ul style="list-style-type: none"> • Requests for maps showing Irish Water's network(s) can be submitted to: datarequests@water.ie

<p>What are the design requirements for the connection(s)?</p>	<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 Irish Water Connections and Developer Services Standard Details and Codes of Practice</i>, available at www.water.ie/connections
<p>Trade Effluent Licensing</p>	<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 Irish Water’s Network(s)

The map included below outlines the current Irish Water infrastructure adjacent the Development: To access Irish Water Maps email

datarequests@water.ie



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Note: The information provided on the included maps as to the position of Irish Water’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 Irish Water.

Whilst every care has been taken in respect of the information on Irish Water’s network(s), Irish Water 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 Irish Water’s underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Irish Water’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.