

Unit 6
Belturbet Business Park
Creeny
Belturbet
Co. Cavan
H14AY94

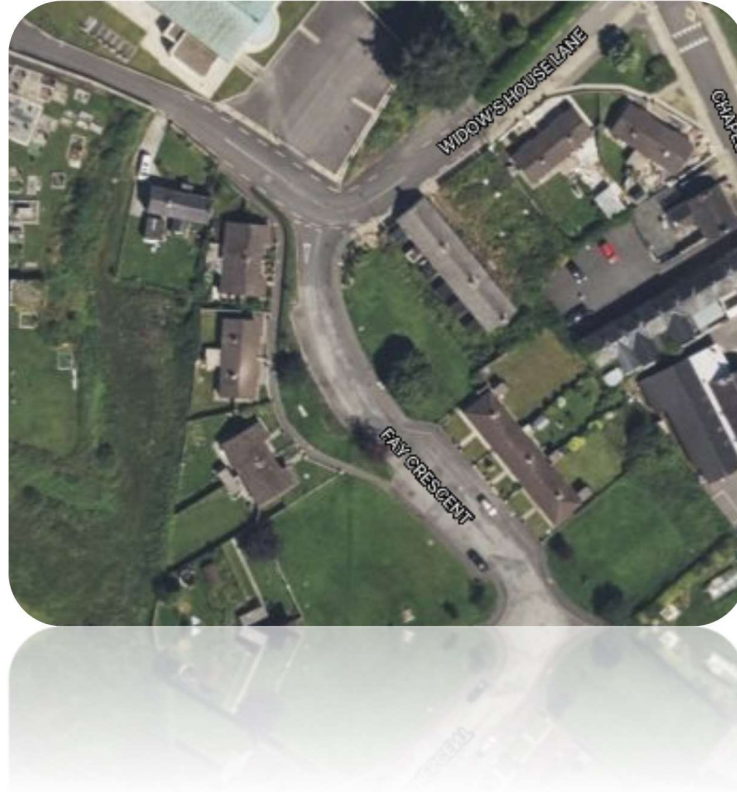
T: +353 49 9522236
E: info@alantraynor.com
W: www.alantraynor.com

2nd Floor
67-70
Meath St
Dublin 8
D08XY53

T: +353 1 6750850
E: dublin@alantraynor.com
W: www.alantraynor.com



Alan Traynor
Consulting Engineers Ltd.



22-028

CAVAN COUNTY COUNCIL

**PROPOSED HOUSING DEVELOPMENT AT
WIDOW'S ROW, BELTURBET,
Co. CAVAN**

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

Table of Contents

1.0	Introduction	2
1.1	Site Description	2
2.0	Surface Water Drainage	2
2.1	Surface Water Drainage - Existing.....	2
2.2	Surface Water Drainage – Proposed.....	2
3.0	Foul Drainage	2
3.1	Foul Drainage – Existing.....	2
3.2	Foul Drainage – Proposed	3
4.0	Water	3
4.1	Water - Existing.....	3
4.2	Water - Proposed.....	3
Appendix A	- Surface Water Calculations	
Appendix B	- Foul Water Calculations	
Appendix C	- Irish Water Pre-Connection Application	

1.0 Introduction

Alan Traynor Consulting Engineers Ltd have been engaged by Cavan County Council to carry out engineering services design for the proposed 9-unit residential development at Widow's Row, Belturbet, Co. Cavan. This report addresses the surface and foul water drainage and water supply for this application.

1.1 Site Description

The site has an area of approximately 0.143 hectares and is located adjacent to The Church of the Immaculate Conception in Belturbet town at the junction of Widow's House Lane and Fay Crescent. There are currently 6 bungalows present on the site in a single terrace. The site is adjoined by the church to the North and residential dwellings to the South, East and West of one-two storey height.

2.0 Surface Water Drainage

2.1 Surface Water Drainage - Existing

The site has existing sections of hard surface area, made up of the roofs of the six houses. It is unclear where the surface water currently discharges to. There are existing public surface water sewers in Railway Road to the east of the site and Fay Crescent to the south of the site.

2.2 Surface Water Drainage – Proposed

It is proposed to collect the surface water from the hard standing areas of the development, both roofs and new carparking area, in a suitably sized network and discharge it into the existing public surface water sewer in Railway Road.

3.0 Foul Drainage

3.1 Foul Drainage – Existing

It is unclear where the existing houses connect to the public foul water sewer. There is a public foul water sewer running in Widows House Lane along the north boundary of the site, which proceeds to cut across the northeast section of the site into Martin's Row. There is also an existing foul water sewer running in Railway Road a short distance from the site.

3.2 Foul Drainage – Proposed

It is proposed to replace the public foul water sewer running along the north boundary of the site in Widow's House Lane and divert the section running through the northeast part of the site to the existing foul water sewer in Railway Road. The 9 new units will be connected to the new foul sewer.

4.0 Water

4.1 Water - Existing

There is an existing watermain running by the boundary of the site in Widow's House Lane.

4.2 Water - Proposed

It proposed to make a 100mm diameter connection to the existing watermain in Widow's House Lane and construct a loop in the carparking area of the new development. The nine units will then be connected to the new section of watermain.

Appendix A – Surface Water Calculations

Storm Sewer loadings for Development at Widow's Row, Belturbet, Co. Cavan

DATA		STORM WATER FLOW Modified Rational Method						SEWER DESIGN K _s = 0.60										
SEWER REFERENCE																		
From Manhole	To Manhole	Roads Area A1	Roofs/yards Area A2	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)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	
S1	S2	0.011	0.017	0.028	0.028	50.00	3.54	225	100	27.990	51.94	1.31	0.75	1.31	1.48	39.55	48.39	
S2	S3	0.000	0.023	0.023	0.051	50.00	6.40	225	20	26.330	116.82	2.94	1.59	2.94	3.33	35.60	110.42	
S3	S4	0.000	0.010	0.010	0.061	50.00	7.67	225	20	42.275	116.82	2.94	1.68	2.94	3.33	38.67	109.15	
S4	Sext	0.000	0.000	0.000	0.061	50.00	7.67	225	134	6.700	44.79	1.13	0.85	1.13	1.28	62.40	37.13	

Appendix B – Foul Water Calculations

Foul Sewer loadings for Development at Widow's Row, Belturbet, Co. Cavan

DATA							SEWER DESIGN Ks = 1.50										
SEWER REFERENCE From To Manhole 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
F1	F2	3	14	42	42	3.267	150	60.0	32.035	20.000	1.132	0.831	1.132	OK	1.291	41.016	16.733
F2	F3	5	14	70	70	3.662	150	20.0	25.760	34.715	1.964	1.267	1.964	OK	2.240	32.813	31.053
F3	F4	1	14	14	126	4.148	150	20.0	42.865	34.715	1.964	1.315	1.964	OK	2.240	35.156	30.567
F4	Fext3	0	14	0	126	4.148	150	43.0	8.180	23.643	1.338	1.003	1.338	OK	1.526	42.188	19.495

Unit 6
Belturbet Business Park
Creeny
Belturbet
Co. Cavan
H14AY93

T: +353 49 9522236
E: info@alantraynor.com
W: www.alantraynor.com

Bond House
9-10
Lower Bridge St
Dublin 8
D08TH76

T: +353 1 9697881
E: dublin@alantraynor.com
W: www.alantraynor.com



Alan Traynor
Consulting Engineers Ltd.

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:	Widow's Row, Belturbet
Project Number:	22-028

1 Bed Unit = Max	2 persons
2 Bed Unit = Max	4 persons
3 Bed Unit = Max	6 persons
4 Bed Unit = Max	7 persons

1 Bed Units =	3
Flow Rate =	0.0035 l/s per unit
Peak Design Flow Rate =	0.0208 l/s per unit
Total Flow from 3 Units =	0.063 l/s

2 Bed Units =	6
Flow Rate =	0.0069 l/s per unit
Peak Design Flow Rate =	0.0417 l/s per unit
Total Flow from 6 Units =	0.250 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 (9 Units)(30 Persons) = 4500 litres or 4.5 m³/day

Peak Design Flow Rate = 0.313 l/s

Average Discharge = 0.0521 l/s

Appendix C – Irish Water Pre-Connection Application

Pre-connection enquiry form

Business developments, mixed use developments, housing developments

This form is to be filled out by applicants enquiring about the feasibility of a water and/or wastewater connection to Irish Water infrastructure. If completing this form by hand, please use BLOCK CAPITALS and black ink. Please note that this is a digital PDF form and can be filled in electronically

Please refer to the **Guide to completing the pre-connection enquiry form** on page 14 of this document when completing the form.

*** Denotes mandatory/ required field. Please note, if mandatory fields are not completed the application will be returned.**

Section A | Applicant details

1 *Applicant details:

Registered company name (if applicable):

Trading name (if applicable):

Company registration number (if applicable):

Parent company registered company name (if applicable):

Parent company registration number (if applicable):

If you are not a registered company/business, please provide the applicant's name:

*Contact name:

*Postal address:

*Eircode:

Please provide either a landline or a mobile number

Landline:

*Mobile:

*Email:

2 Agent details (if applicable):

The fields marked with * in this section are mandatory if using an agent

*Contact name: J O H N O ' R E I L L Y

Company name (if applicable): A L A N T R A Y N O R C O N S E N G

*Postal address: B E L T U R B E T B U S I N E S S P A R K

C R E E N Y , B E L T U R B E T , C O . C A V A N

*Eircode:

Please provide either a landline or a mobile number

Landline: 0 4 9 9 5 2 2 2 3 6

*Mobile

*Email: j o h n @ a l a n t r a y n o r . c o m

3 *Please indicate whether it is the applicant or agent who should receive future correspondence in relation to the enquiry:

Applicant

Agent

Section B | Site details

4 *Site address 1 (include Site name/Building name/Building number):

W I D O W ' S R O W

*Address 2

*Address 3

*City/Town B E L T U R B E T

*County C A V A N Eircode

5 *Irish Grid co-ordinates (proposed connection point):

Eastings (X) 2 3 6 3 9 2 Northings (Y) 3 1 6 8 0 3

Note: Values for Eastings must be between 015,900 and 340,000. Northings, between 029,000 and 362,000
Eg. co-ordinates of GPO, O'Connell St., Dublin: E(X) 315,878 N(Y) 234,619

6 *Local Authority where proposed development is located:

C A V A N C O U N T Y C O U N C I L

7 *Has full planning permission been granted? Yes No

If 'Yes', please provide the current or previous planning reference number:

Section D | Water connection and demand details

- 13 ***Is there an existing connection to public water mains at the site?** Yes No
- 13.1 If yes, is this enquiry for an additional connection to one already installed? Yes No
- 13.2 If yes, is this enquiry to increase the size of an existing connection? Yes No

14 **Approximate date water connection is required:** / /

15 ***What diameter of water connection is required to service the development?** mm

- 16 ***Is more than one connection required to the public infrastructure to service this development?** Yes No
- If 'Yes', how many?

17 **Please indicate the business water demand (shops, offices, schools, hotels, restaurants, etc.):**

Post-development peak hour water demand	0.313	l/s
Post-development average hour water demand	0.0521	l/s

Please include calculations on the attached sheet provided. Where there will be a daily/weekly/seasonal variation in the water demand profile, please provide all such details.

18 **Please indicate the industrial water demand (industry-specific water requirements):**

Post-development peak hour water demand		l/s
Post-development average hour water demand		l/s

Please include calculations on the attached sheet provided. Where there will be a daily/weekly/seasonal variation in the water demand profile, please provide all such details.

19 **What is the existing ground level at the property boundary at connection point (if known) above Malin Head Ordnance Datum?** . m

20 **What is the highest finished floor level of the proposed development above Malin Head Ordnance Datum?** . m

21 **Is on-site water storage being provided?** Yes No

Please include calculations on the attached sheet provided.

Section F | Supporting documentation

Please provide the following additional information (all mandatory):

- > Site location map: A site location map to a scale of 1:1000, which clearly identifies the land or structure to which the enquiry relates. The map shall include the following details:
 - i. The scale shall be clearly indicated on the map.
 - ii. The boundaries shall be delineated in red.
 - iii. The site co-ordinates shall be marked on the site location map.
- > Details of planning and development exemptions (if applicable).
- > Calculations (calculation sheets provided below).
- > Site layout map to a scale of 1:500 showing layout of proposed development, water network and wastewater network layouts, additional water/wastewater infrastructure if proposed, connection points to Irish Water infrastructure.
- > Conceptual design of the connection asset from the proposed development to the existing Irish Water infrastructure, including service conflicts, gradients, pipe sizes and invert levels.
- > Any other information that might help Irish Water assess this pre-connection enquiry.

Section G | Declaration

I/We hereby make this application to Irish Water for a water and/or wastewater connection as detailed on this form.

I/We understand that any alterations made to this application must be declared to Irish Water.

The details that I/we have given with this application are accurate.

I/We have enclosed all the necessary supporting documentation.

Any personal data you provide will be stored and processed by Irish Water and may be transferred to third parties for the purposes of the water and/or wastewater connection process. I hereby give consent to Irish Water to store and process my personal data and to transfer my personal data to third parties, if required, for the purposes of the connection process.

If you wish to revoke consent at any time or wish to see Irish Water's full Data Protection Notice, please see <https://www.water.ie/privacy-notice/>

Signature:

John O'Reilly
Digitally signed by John O'Reilly
 Date: 2022.10.12 15:13:28
 +01'00'

Date:

/ /

Your full name (in BLOCK CAPITALS):

J O H N O ' R E I L L Y

Irish Water will carry out a formal assessment based on the information provided on this form. Any future connection offer made by Irish Water will be based on the information that has been provided here.

Please submit the completed form to newconnections@water.ie or alternatively, post to:

**Irish Water
 PO Box 860
 South City Delivery Office
 Cork City**