



KILGALLEN & PARTNERS

CONSULTING ENGINEERS

John Flanagan Developments Ltd.

**Proposed Residential Development at Puttaghan
Lands, Tullamore**

Report on Irish Water Infrastructure

John Flanagan Developments Ltd. Block 6 Central Business Park Clonminch, Tullamore, Co. Offaly R32F8K0	2009-R-IW Issue PL2	Kilgallen & Partners Consulting Engineers Kylekiproe, Well Road, Portlaoise, Co. Laois R32P668
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REVISION HISTORY

Client	John Flanagan Developments Ltd.
Project	Proposed Residential Development at Puttaghan Lands, Tullamore
Title	Report on Irish Water Infrastructure

Date	Detail of Issue	Issue No.	Origin	Checked	Approved
10/10/22	Pre-planning consultation	PL1	SC	PB	PB
05/04/23	Issued for LRD application	PL2	SC	PB	PB

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1. Introduction

John Flanagan Developments Ltd [the Applicant] is applying to Offaly County Council [the "Planning Authority"] for planning permission for a residential development at Puttaghan Lands, Tullamore, Co. Offaly [the Site].

The purpose of this report is to describe the wastewater and water supply infrastructure that will serve the proposed development. This report has been prepared for planning purposes only.

The following drawings and reports should be read in conjunction with this report:

Type	Ref. No.	Title
Drawing	22009-C-DR-202	Wastewater Drainage – General Layout
Drawing	22009-C-DR-204	Wastewater Sewers - Longitudinal Sections
Drawing	22009-C-DR-301	Water Supply – General Layout

2. Wastewater

Details of the wastewater collection network are shown on Drg. Nos 22009-C-DR-202 & Drg. 22009-C-DR-204.

2.1. Wastewater Collection Network

Separate systems will be provided within the development for the collection and disposal of storm water and foul sewage.

The wastewater sewer network is designed to comply with the 'Code of Practice for Wastewater' published by Irish Water and will be constructed in accordance with this code of practice and associated construction details.

An existing gravity sewer enters the Site at its south boundary and flows in northerly direction, exiting the Site at its north boundary and then discharges to Arden Vale pumping station. This existing sewer will be intercepted as it enters the Site and the intercepted flow will be carried by the wastewater sewer network for the proposed development.

2.2. Disposal of Wastewater

Wastewater generated by the proposed development (and the intercepted wastewater from the existing sewer described in Section 2.1) will discharge to the existing Arden Vale pumping station.

The existing station does not have the capacity to deal with the wastewater that will be generated by the proposed development. Accordingly, the proposed development includes a replacement of the existing Arden Vale pumping station with a sufficiently sized wastewater pumping station compliant with Irish Water standards. Wastewater discharging to the Arden Vale pumping station will be intercepted and discharged to the proposed pumping station.

A preliminary design for the pumping station has been prepared on Drg. 22009-C-DR-206 – Schematic Layout and Section for Wastewater Pumping Station, further to consultation with Martin Quinn, Senior Executive Engineer, Offaly County Council Water Services Section.

2.3. Hydraulic Loading

The Development will generate 60,750 litres of wastewater per day; this is based on an average of 2.7 persons per dwelling with a hydraulic loading of 150 lit/day/person.

The Development will generate a BOD Loading of 9,000 grams/day; this is based on a BOD loading of 60 grams/day/unit.

The loading rates are taken from the Irish Water Code of Practice for Wastewater.

2.4. Feasibility

A pre-connection enquiry has been submitted to Irish Water in regard to the feasibility of connection to Irish Water wastewater infrastructure. A Confirmation of Feasibility letter has been received from Irish Water (CDS22006945). A copy of the Confirmation of Feasibility letter is provided in Appendix A.

2.5. Statement of Design Acceptance

The wastewater design has been submitted to Irish Water for their review. A Statement of Design Acceptance has been received from Irish Water for the development. A copy of this letter is provided in Appendix B.

2.6. Diversion Feasibility

A feasibility of diversion letter (DIV22297) has been received from Irish Water for diversion of existing wastewater sewers traversing the Site. A copy of this letter is provided in Appendix C.

3. Water Supply

Details of the water supply network are shown on Drg. No 22009-C-DR-301.

3.1 Water Supply network

Water supply for the Development will be taken from an existing Irish Water main that traverses the site. The existing watermain will be intercepted as it enters the Site and intercepted into the water supply network for the proposed development.

The water supply network is designed to comply with the 'Code of Practice for Water Supply' published by Irish Water and will be constructed in accordance with this code of practice and associated construction details.

3.2 Irish Water

The Development will generate an average daily demand for 60,750 litres of potable water per day; this is based on an average of 2.7 persons per dwelling with a hydraulic demand of 150 lit/day/person.

The hydraulic demand is based on the hydraulic loading rates provided in the Irish Water Code of Practice for Water Supply.

3.3 Feasibility

A pre-connection enquiry has been submitted to Irish Water in regard to the feasibility of connection to Irish Water water infrastructure. A Confirmation of Feasibility letter has been received from Irish Water (CDS22006945). A copy of the Confirmation of Feasibility letter is provided in Appendix A.

3.4 Statement of Design Acceptance

The water supply design has been submitted to Irish Water for their review. A Statement of Design Acceptance has been received from Irish Water for the development. A copy of this letter is provided in Appendix B.

3.5 Diversion Feasibility

A feasibility of diversion letter (DIV22297) has been received from Irish Water for diversion of existing water supply infrastructure traversing the Site. A copy of this letter is provided in Appendix C.

Appendix A
Irish Water Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

Paul Bergin
 Kylekiproe
 Well Road
 Portlaoise
 Laois
 R32P668

25 November 2022

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: CDS22006945 Pre-Connection Enquiry
 Wellwood, Arden, Tullamore, Offaly**

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 150 unit(s) at Wellwood, Arden, Tullamore, Offaly, (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
Please note that according to our records there is existing water infrastructure running through the site. At application stage you must enter a diversion agreement with Irish Water and divert the pipes to accommodate your development. Detailed design drawings should be submitted to Irish Water at Diversions@water.ie before submitting your planning application.	

Wastewater Connection	- Feasible Subject to upgrades
There is sufficient capacity available at the Tullamore Wastewater Treatment Plant to facilitate your proposed development.	
As outlined previously in our Confirmation of Feasibility letter (CDS220006330). A wastewater connection from your proposed development can be facilitated. Please note the existing Ardan Vale Pumping Station would need to be replaced to facilitate the significant wastewater loading from your proposed development. Accordingly, your proposed development should include the provision of a new pumping station located adjacent to, and replace the existing Ardan Vale Pumping Station, as per the brown arrow on the enclosed map. Please liaise with Irish Water for further details of the design requirements for the new pumping station.	

Please note that according to our records there is existing sewer infrastructure running through the site. At application stage you must enter a diversion agreement with Irish Water and divert the pipes to accommodate your development. Detailed design drawings should be submitted to Irish Water at Divisions@water.ie before submitting your planning application.

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/

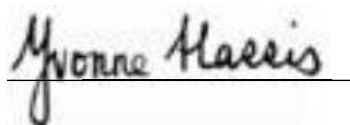
Where can you find more information?

- **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,



Yvonne Harris
Head of Customer Operations

Section A - What is important to know?

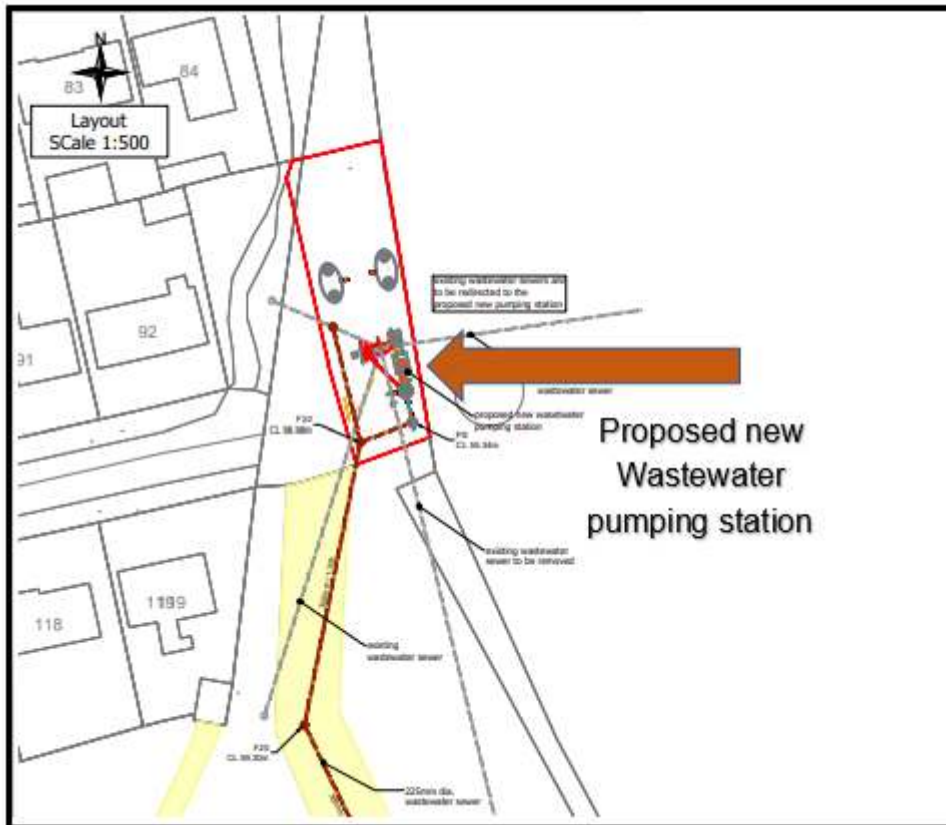
What is important to know?	Why is this important?
Do you need a contract to connect?	<ul style="list-style-type: none"> • Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Irish Water's network(s). • Before the 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

Wastewater Infrastructure



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

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.

Appendix B
Irish Water Statement of Design Acceptance



Paul Bergin
Kylekiproe
Well Road
Portlaoise,
Laois
R32P668

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

22 December 2022

**Re: Design Submission for Wellwood, Arden, Tullamore, Offaly (the “Development”)
(the “Design Submission”) / Connection Reference No: CDS22006945**

Dear Paul Bergin,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at www.water.ie/connections. Irish Water’s current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU) (https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water’s network(s) (the “**Self-Lay Works**”), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water representative:

Name: Kyle Jackson

Email: kyle.jackson@water.ie

Yours sincerely,

Yvonne Harris
Head of Customer Operations

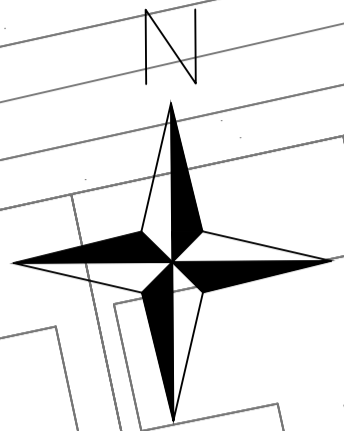
Appendix A

Document Title & Revision

- [22009 C DR-202-PL3]
- [22009 C DR-204-PL2]
- [22009 C DR-301-PL2]

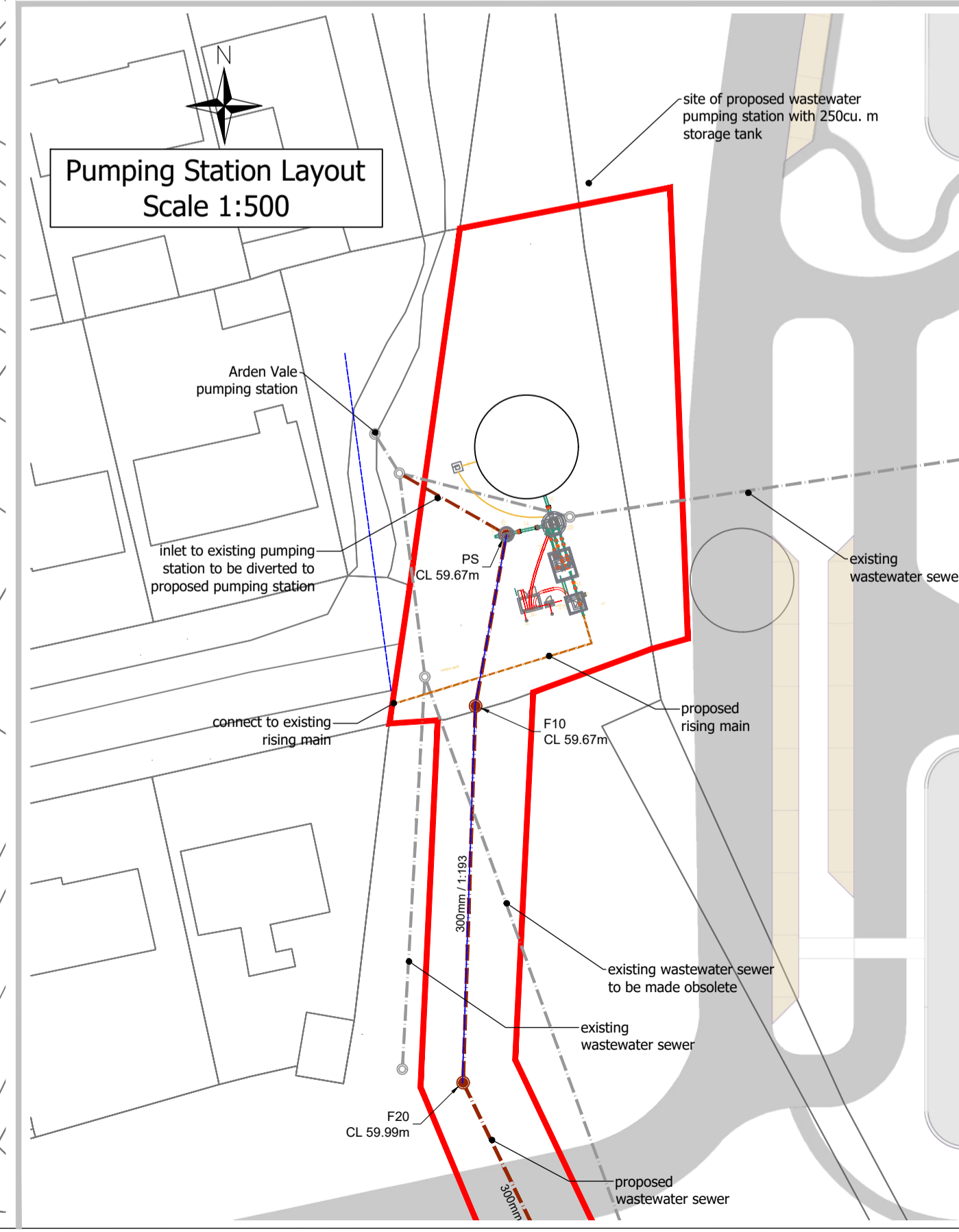
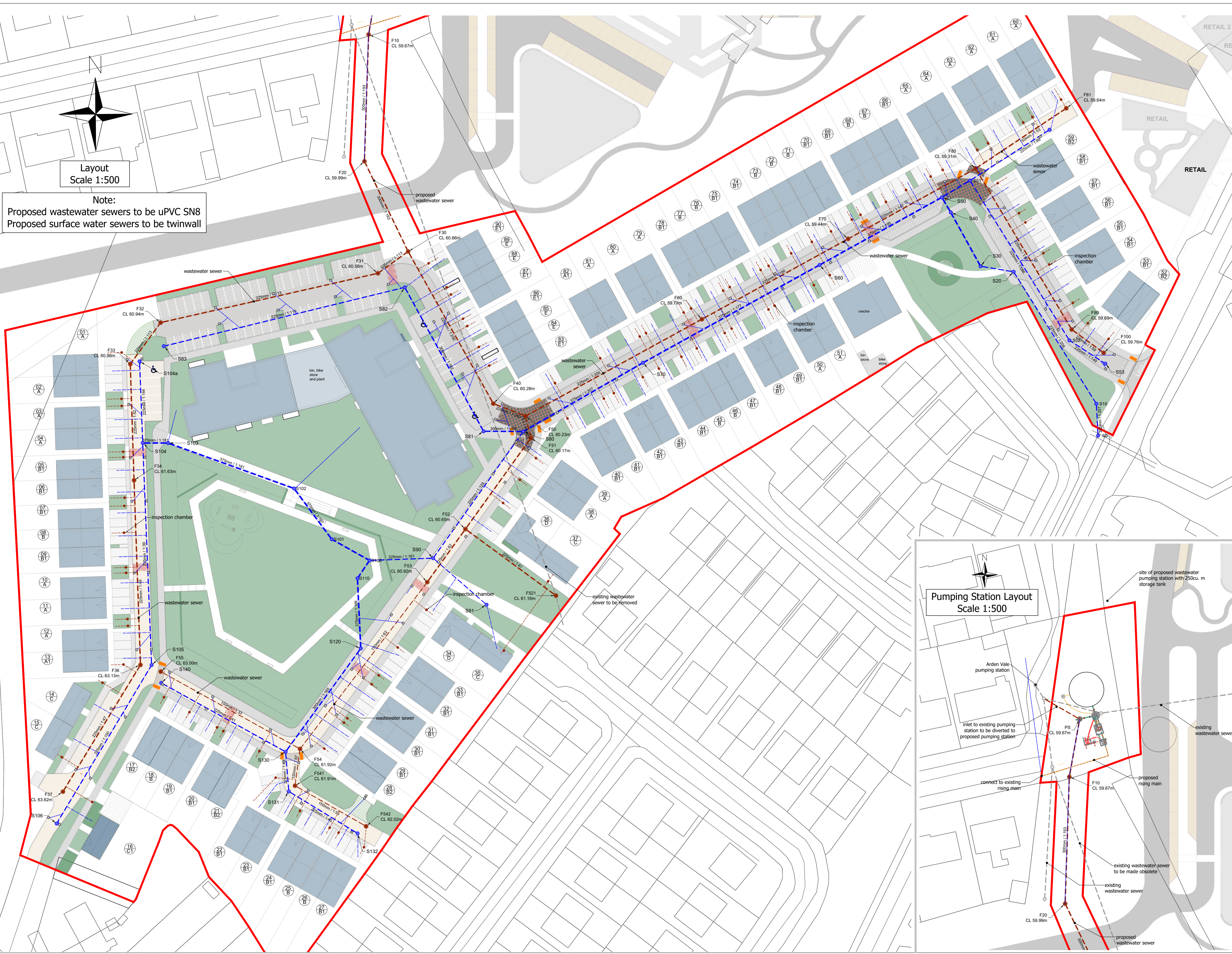
For further information, visit www.water.ie/connections

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.



Layout
Scale 1:500

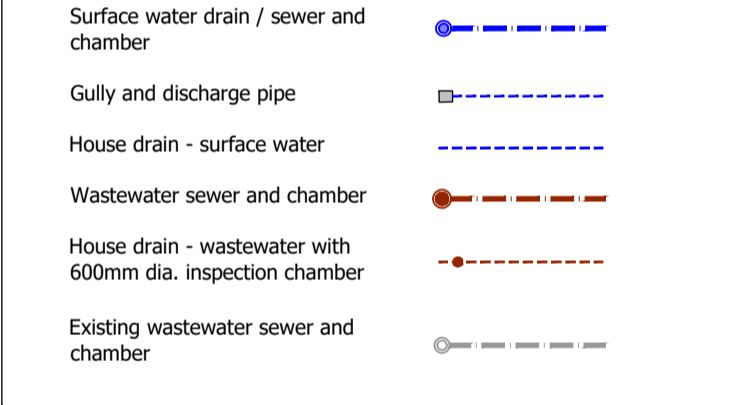
Note:
Proposed wastewater sewers to be uPVC SN8
Proposed surface water sewers to be twinwall



- GENERAL**
- Datum for levels is OS Malin Head.
 - Verify existing levels prior to commencement of works. Report any discrepancies immediately to the Employer's Representative.
 - The locations shown for existing services are indicative only and may not be accurate. Furthermore, uncharted services may also be present. The Contractor should assume the existence of services unless proven otherwise.
 - It is the Contractor's responsibility to determine the existence and precise location of any service located within the site. All works shall be carried out in strict accordance with the document 'Code of Practice for Avoiding Danger from Underground Services' as published by the Health and Safety Authority.

- SURFACE WATER**
- The Specification for surface water drainage works shall be Specification for Roadworks published by Transport Infrastructure Ireland.
 - All surface water drains and sewers to be constructed in accordance with Detail D1.
 - Discharge pipes from gullies to drains and sewers shall be 150mm dia. Saddle connection for discharge pipes in accordance with Detail D3.
 - Chambers to be 1200mm dia. PCC in accordance with the 'Code of Practice for Chamber and Gully Top Installations' published by Laois County Council.
 - Road gullies shall be in accordance with TII Detail CC-SCD-00510 and CC-SCD-00512.
 - Separators to be installed in accordance with Detail D5 and manufacturer's recommendations.
 - Each house to be served by a separate drain of min. diameter 100mm dia. and laid to a minimum grade of 1 in 100.
 - Infiltration Trenches to be constructed in accordance with Detail D4.

- WASTEWATER**
- Construction of wastewater infrastructure to comply with the Irish Water Code of Practice for Wastewater Infrastructure.
 - Pipes for wastewater gravity sewers shall be uPVC pipes application area code "UD", stiffness class 8kN/m² in accordance with 3.13 of the Irish Water 'Wastewater Code of Practice'.
 - Wastewater drains and sewers to be constructed in accordance with Detail W1.
 - The minimum separation between wastewater pipes and other services shall not be less than either that shown in STD-WW-05 or that shown on M&E drawings.
 - Each house to be served by a separate drain of min. diameter 100mm dia. and laid to a minimum grade of 1 in 60.
 - Chambers on wastewater drains and sewers in public areas shall be in accordance with STD-WW-10.
 - Private-side inspection chambers shall be in accordance with STD-WW-02, STD-WW-03 and STD-WW-13 and shall have a minimum depth to invert of 0.5m and a maximum depth to invert of 1.2m.
 - Maximum depth to invert for Access Junctions to be 0.6m.



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REV	DATE	BY	DETAILS
PL3	21/12/22	SC	Issued for Irish Water design approval FI
PL2	01/12/22	SC	Issued for Irish Water design approval
PL1	10/10/22	SC	Issued for pre-planning consultation
PR2	23/09/22	SC	Issued for IW pre-connection enquiry
PR1	03/05/22	AB	Issued for discussion

STATUS
FOR PLANNING APPLICATION PURPOSES ONLY. NOT TO BE USED FOR ANY OTHER PURPOSE.

CLIENT
JOHN FLANAGAN DEVELOPMENTS

PROJECT
PUTTAGHAN LANDS, TULLAMORE

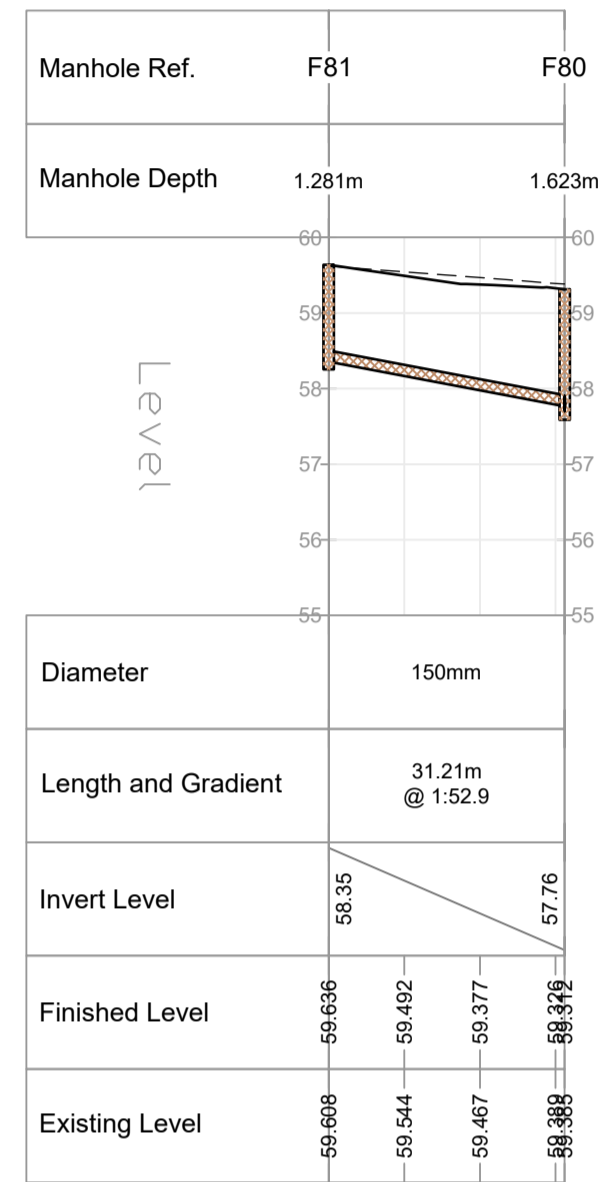
TITLE
WASTEWATER DRAINAGE - GENERAL LAYOUT

KILGALLEN & PARTNERS
CONSULTING ENGINEERS
E-mail: info@kilgallen.ie, Web: www.kilgallen.ie

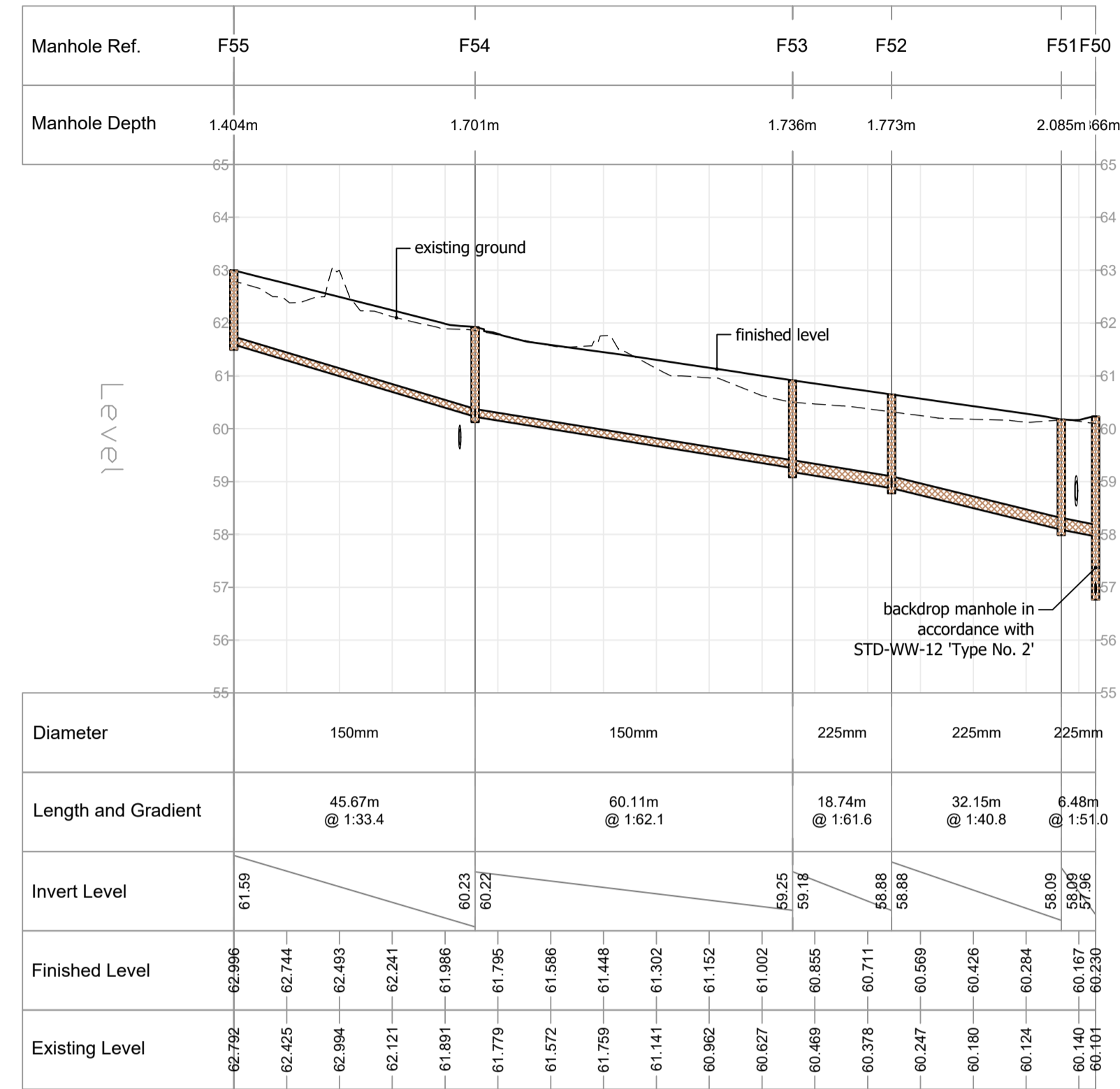
KYLEEPROE
WELL ROAD
PORTLAISHE
T +353 56 866 2860

UNIT 3
DANVILLE BUSINESS PARK
KILKENNY
+353 56 777 0190

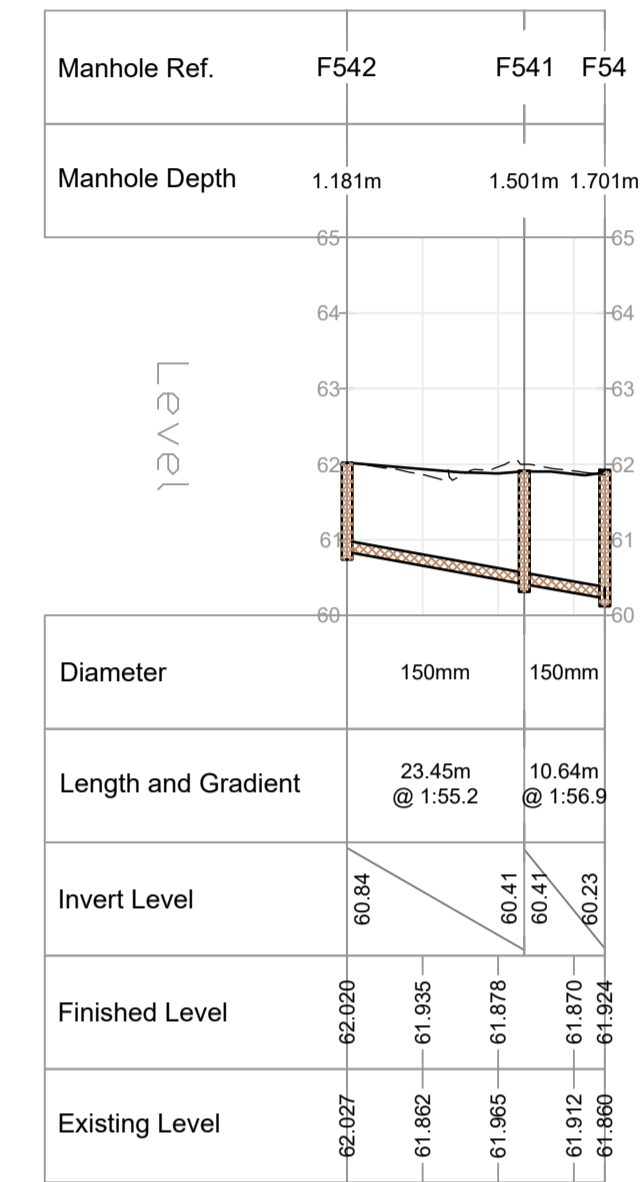
DRN: SC	DRAWING NO.: 22009-C-DR-202	REV: PL3
CHWD: PB	SCALE: 1:500 @ A1	DATE: 03/05/2022



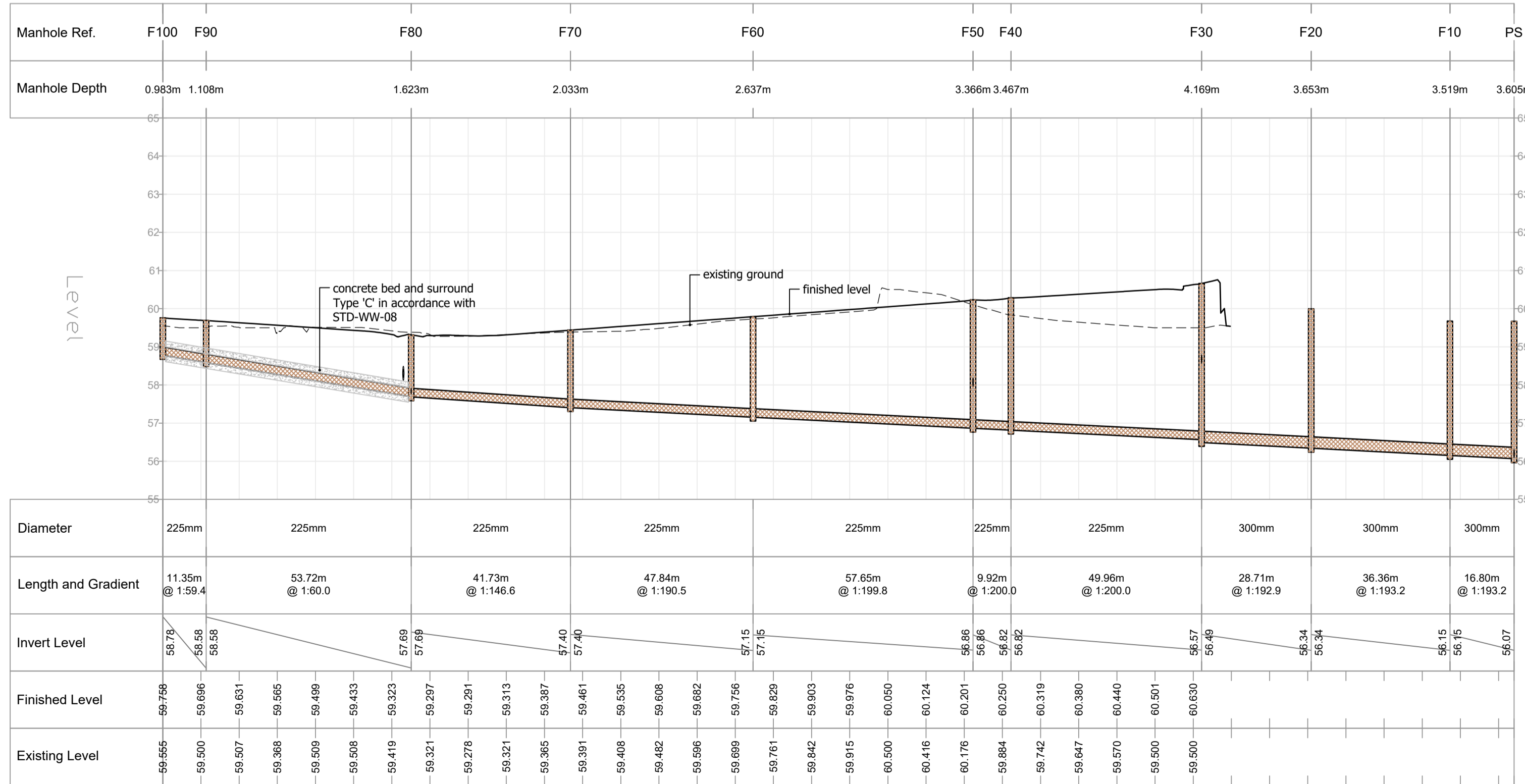
F81 TO F80



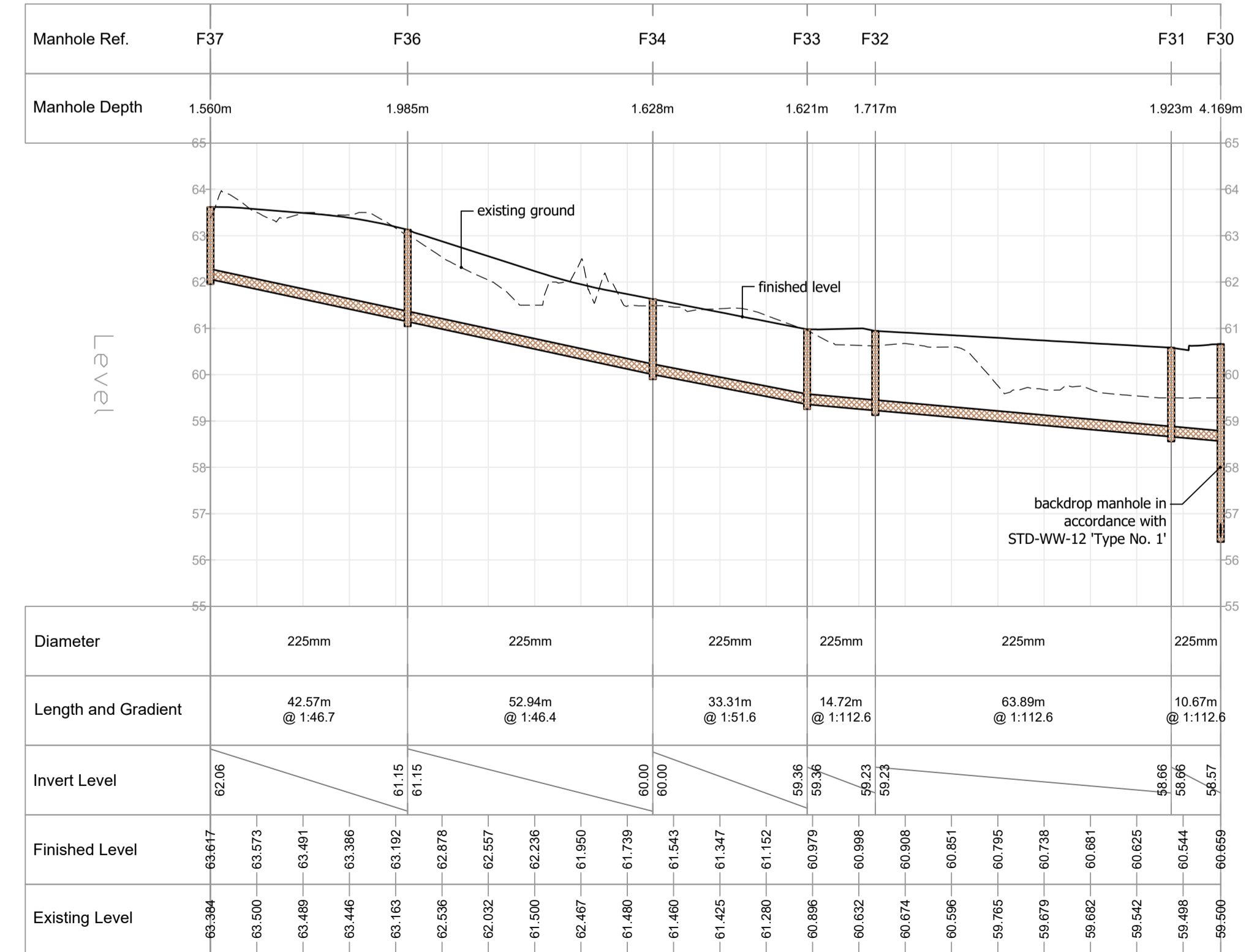
F56 TO F50



F542 TO F54



F61 - PUMP STATION



F37 TO F30

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PL2	21/12/22	SC	Issued for Irish Water design approval F1
PL1	10/10/22	SC	Issued for pre-planning consultation
PR1	03/05/22	SC	Issued for discussion
REV	DATE	BY	DETAILS

STATUS
FOR PLANNING APPLICATION PURPOSES ONLY. NOT TO BE USED FOR ANY OTHER PURPOSE.

CLIENT
JOHN FLANAGAN DEVELOPMENTS

PROJECT
PUTTAGHAN LANDS, TULLAMORE

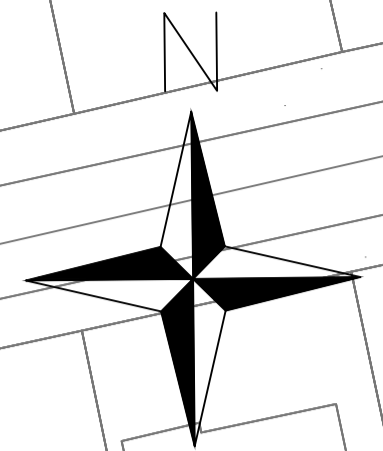
TITLE
WASTEWATER SEWERS - LONGITUDINAL SECTIONS

KILGALLEN & PARTNERS
CONSULTING ENGINEERS
E-mail: Info@kilgallen.ie, Web: www.kilgallen.ie

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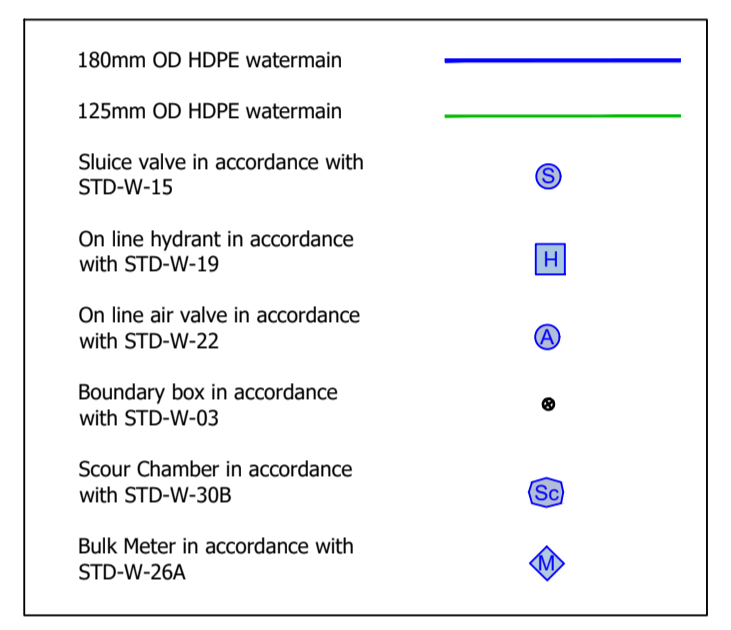
DANVILLE BUSINESS PARK
KILKENNY
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DRN:	SC	DRAWING NO.:	22009-C-DR-204	REV.:	PL2
CHKD:	PB	SCALE:	1:1000H, 1:100V @ A1	SIZE:	A1
		DATE:	03/05/2022		



- GENERAL**
1. Datum for levels is OS Malin Head.
 2. Verify existing levels prior to commencement of works. Report any discrepancies immediately to the Employer's Representative.
 3. The locations shown for existing services are indicative only and may not be accurate. Furthermore, uncharted services may also be present. The Contractor should assume the existence of services unless proven otherwise.
 4. It is the Contractor's responsibility to determine the existence and precise location of any service located within the site. All works shall be carried out in strict accordance with the document 'Code of Practice for Avoiding Danger from Underground Services' as published by the Health and Safety Authority.

- WATER SUPPLY INFRASTRUCTURE**
1. Construction of water supply infrastructure to comply with the Irish Water Code of Practice for Water Supply Infrastructure.
 2. Pipes for watermains shall be HDPE PE-80 with an SDR-11 or SDR-17 rating in accordance with 3.9.2 of Irish water 'Code of Practice for Water Supply Infrastructure'.
 3. The minimum separation between watermains and other services shall not be less than either that shown in STD-W-11 or that shown on M&E drawings.
 7. Each house to be served by a separate service main and Boundary Box in accordance with STD-W-03.



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REV	DATE	BY	DETAILS
PL2	21/12/22	SC	Issued for Irish Water design approval FI
PL1	10/10/22	SC	Issued for pre-planning consultation
PR1	23/09/22	SC	Issued for IW pre-connection enquiry

STATUS
FOR PLANNING APPLICATION PURPOSES ONLY. NOT TO BE USED FOR ANY OTHER PURPOSE.

CLIENT
JOHN FLANAGAN DEVELOPMENTS

PROJECT
PUTTAGHAN LANDS, TULLAMORE

TITLE
WATER SUPPLY - GENERAL LAYOUT

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CONSULTING ENGINEERS
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DANVILLE BUSINESS PARK
KILKENNY
+353 56 777 0190

DRW: SC	DRAWING NO.: 22009-C-DR-301	REV.: PL2
CHKD: PB	SCALE: 1:500 @ A1	DATE: 23/09/2022

Appendix C
Irish Water Feasibility of Diversion



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

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

www.water.ie

Shane Collins,
Kilgallen Partners,
Well Road, Kylekiproe
Port Laois,
Co Laois

13 January 2023

Dear Mr Collins

Re: Diversion Reference DIV22297 Diversion enquiry.

Irish Water has reviewed your enquiry in relation to a diversion of Irish Water's sewer and watermain as part of the proposed Development at Wellwood, Arden, Tullamore, Co. Offaly. as indicated on drawing no. 22009-C-DR-100.

Based upon the details you have provided with your enquiry and as assessed by Irish Water, we wish to advise you that, subject to the below conditions, the proposed diversions can be facilitated.

1. The applicant shall submit a detailed design for both the sewer and watermain diversions to Irish Water for Approval.
2. The applicant shall submit a full CCTV report of the diverted sewer as part of the detailed design submission.
3. The applicant shall provide Irish Water with a wayleave over both the watermain and sewer in order to access for future maintenance purposes.
4. The applicant shall enter into a diversion agreement for both the sewer and watermain prior to any works commencing on site.

If you have any further questions, please contact Paul Roche from the diversions team on 0863018137 or email diversions@water.ie. For further information, visit www.water.ie/connections.

Yours sincerely,

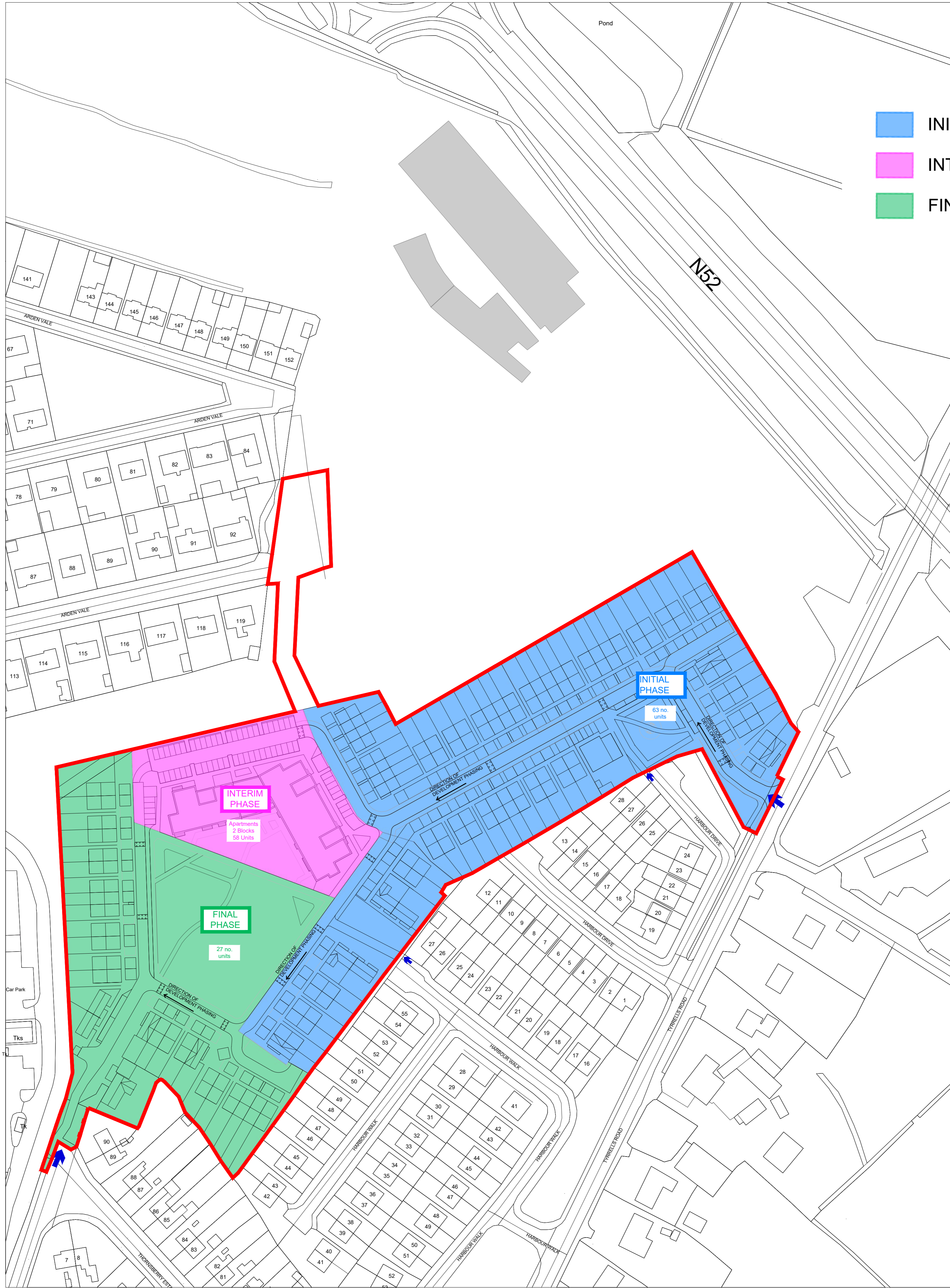
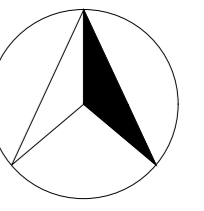
Yvonne Harris
Head of Customer Operations

Appendix D
Indicative Phasing Plan for Wastewater and Water Supply

GENERAL NOTES

THIS DRAWING TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS, CONSULTANT ENGINEER'S DRAWINGS AND SPECIFICATIONS AND LANDSCAPE ARCHITECT'S DRAWINGS AND SPECIFICATIONS. UNITS 0.00M.

APPLICATION SITE BOUNDARY OUTLINED IN RED
4Ha



- INITIAL PHASE
- INTERIM PHASE
- FINAL PHASE

NOTES:
DO NOT SCALE FROM DRAWINGS. WORK TO FIGURED DIMENSIONS ONLY. ARCHITECT TO BE NOTIFIED OF ALL DISCREPANCIES.

REVISIONS		
DATE	DESCRIPTION	No.

 MFCROSSAN O'ROURKE MANNING ARCHITECTS	PROJECT TITLE: Puttaghan Lands, Tullamore	DATE: Jan 23	DRAWN BY: SW/ES
	DRAWING TITLE: Phasing Plan	SCALE: 1:1000	REVISION:
1 Grantham Street, Dublin 8, D08 A8V9, Ireland. Tel: 01-4788700 Fax: 01-4788711 E-Mail: arc@mccorm.com		JOB NO: 18037	DRAWING NO: PL005

Phase	Projected Completion Date		Unit	Quantity	Demand	Average Daily Demand	Average Daily Demand	Average Day / Peak Week Demand	Normal Demand	Peak Demand
			A	B	(lit/day/unit)	(lit/day)	(lit/sec)	(lit/sec)	(lit/sec)	(lit/sec)
					C	D	E	F	G	H
						(= A x C)	(= D / {24 x 60 x 60})	(= E x 1.25)	(= E x {24/16})	(= F x 2.1)
1	2024-2025	Residential units	no.	63	405	25,515	0.30	0.37	0.44	0.78
2	2026	Residential units	no.	58	405	23,490	0.27	0.34	0.41	0.71
3	2027	Residential units	no.	27	405	10,935	0.13	0.16	0.19	0.33
Total						10,935	0.69	0.87	1.04	1.82

Sources:
Irish Water Code of Practice for Water Supply Infrastructure

Firefighting flow: To be determined by Fire Cert

Phase	Projected Completion Date	Development	Wastewater Volume						BOD ₅ Loading		
			Unit	Quantity	Flow / Unit	Average Daily Flow	Average Daily Discharge	Peak Discharge	Loading / Unit	Total Load	Average Concentration
					(lit/day/Unit)	(lit/day)	(lit/sec)	(lit/sec)	(g/day/Unit)	(mg/day)	(mg/lit)
		A	B	C	D (= A x C)	E (= D / {24 x 60 x 60})	F (= E x 6)	G	H (= B x G)	I (= H _{TOTAL} / D _{TOTAL})	
1	2024-2025	Residential Units	no.	63	405	25,515	0.30	1.77	60	3,780,000	
2	2026	Residential Units	no.	58	405	23,490	0.27	1.63	60	3,480,000	
3	2027	Residential Units	no.	27	405	10,935	0.13	0.76	60	1,620,000	
Total						59,940	0.69	4.16		8,880,000	148.1

Sources:

Irish Water Code of Practice for Wastewater Infrastructure