Waterman Moylan
Engineering Consultants

Engineering Assessment Report

Phase 2 Proposed Development at Tandy's Lane Village, Adamstown, Co. Dublin

April 2022

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Client Name:	Quintain Developments Ireland Ltd.
Document Reference:	21-058r.001
Project Number:	21-058

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015 and BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
No. 1	April 22	S. Venter	E.Caulwell	

Comments

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

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1. Introduction

Waterman Moylan have been appointed by Quintain Developments Ireland Ltd. to provide Engineering services for **Phase 2** of a proposed residential development at Tandy's Lane Village, located within the Adamstown Strategic Development Zone (**ASDZ**), Co. Dublin.

This report has been prepared as part of a planning application for the development that comprises of 352 No. dwellings in a mixture of terraced and detached houses that are distributed between two sites, namely the western site (8.06 hectares) and the eastern site (2.18 hectares).

This report describes the criteria used to design and detail the options available for the disposal of foul water, disposal of storm water, water supply and roads network to serve the development site.

2. Site Description

2.1 Site Location

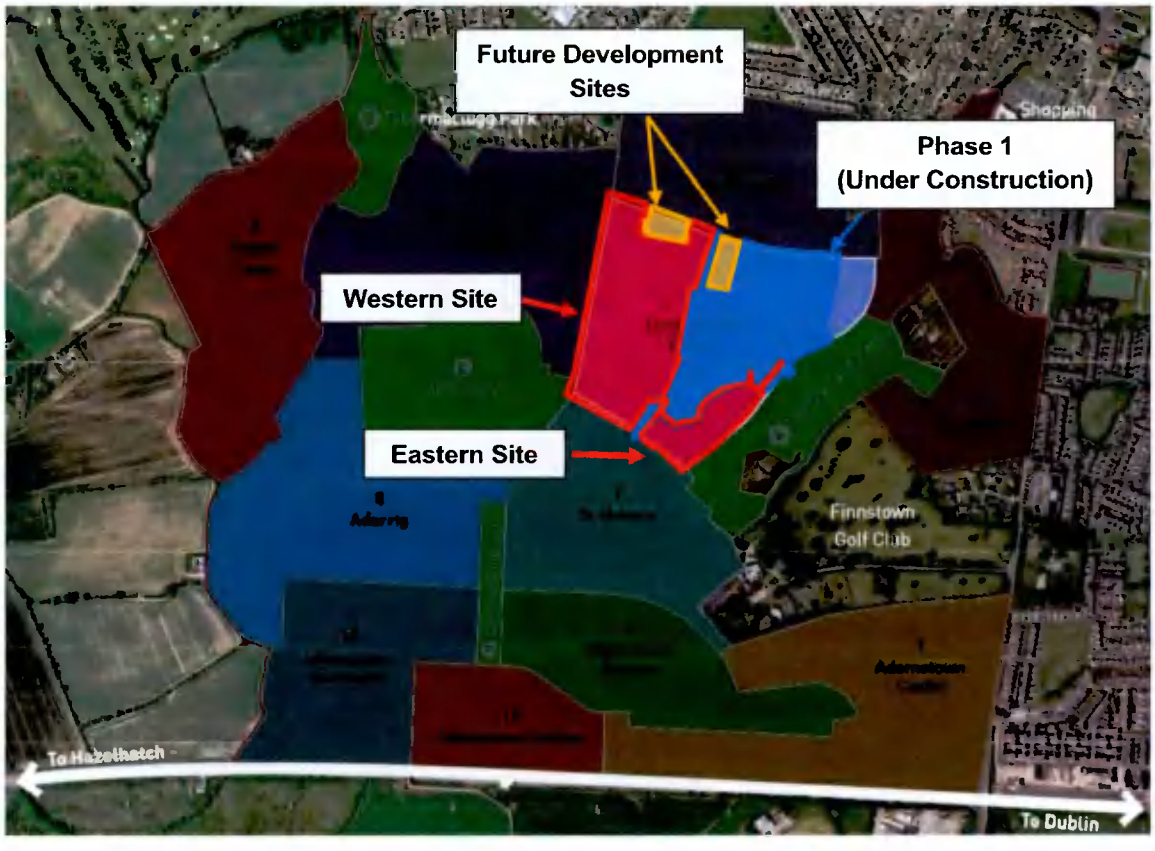
The development lands are located within the Tandy's Lane Village Development Area 6 of the Adamstown Strategic Development Zone (ASDZ) and is situated on 2 No. sites separated by the permitted Tandy's Lane Phase 1 Development (SDCC Reg. Ref. SDZ19A/0011) with a total site area of c. 10.24 hectares at Tandy's Lane, in the townlands of Doddsborough and Finnstown, Adamstown, Lucan, Co. Dublin.

The western site (8.06 hectares) is generally bounded to the west by Adamstown Boulevard, to the north by Adamstown Drive (L1030), to the east by the Tandy's Lane Phase 1 Development which is currently under construction (SDCC Reg. Ref. SDZ19A/0011) and undeveloped lands, and to the south by Tandy's Lane which links Adamstown Boulevard with Adamstown Park Road.

The eastern site (2.18 hectares) is generally bounded to the west / north-west by the permitted Tandy's Lane Phase 1 Development, to the east by Adamstown Park Road and to the south by Tandy's Lane.

Figure 2-1 below shows the Tandy's Lane Village Development Area 6 and subsequent phases. For the exact site location please refer to the accompanying architects' drawings.

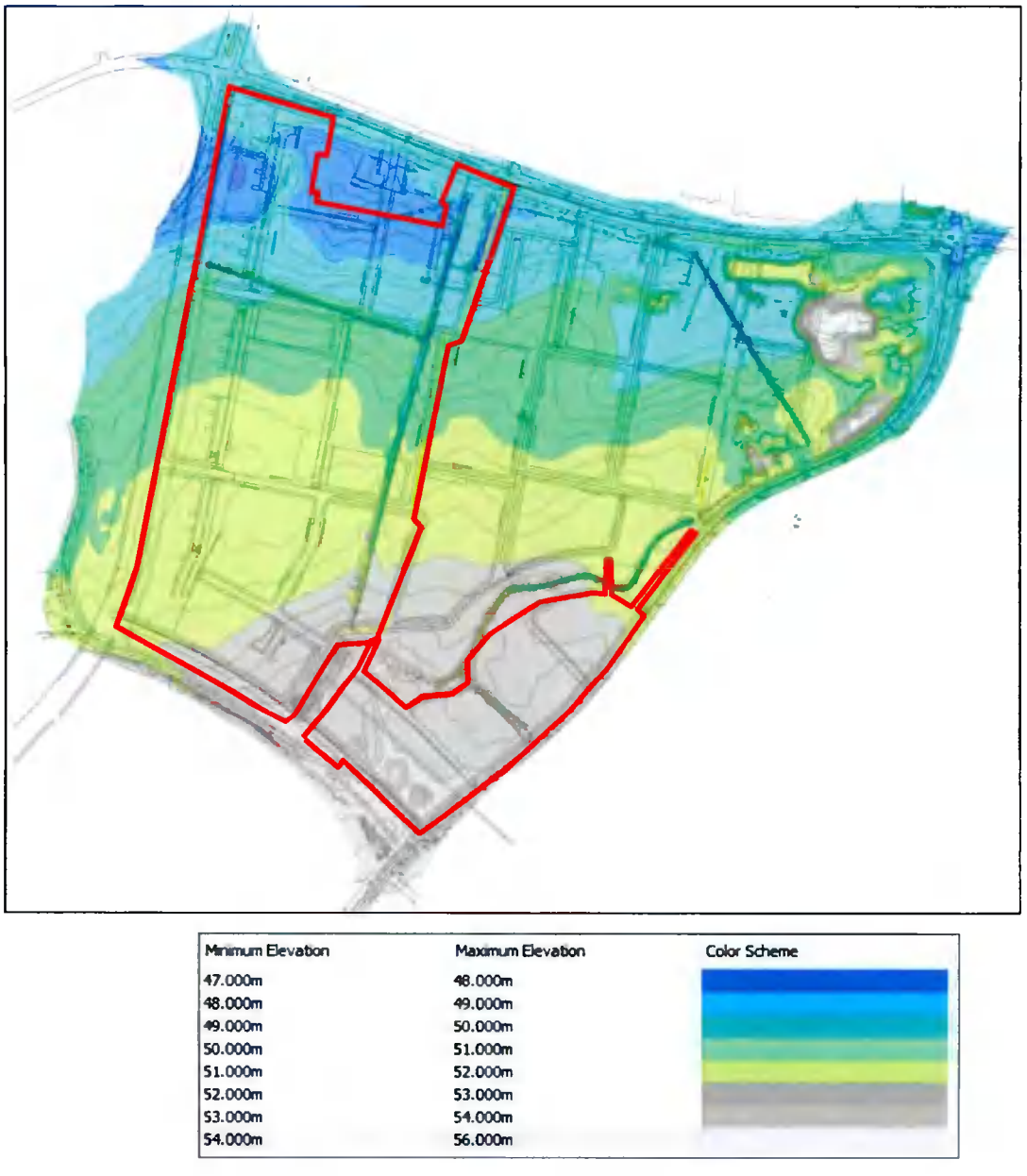
Figure 2-1: Tandy's Lane Village Development Location



2.2 Existing Development

The site is currently green field with a site compound located in the northwest corner that was used during the construction of the surrounding roads. The topography of the subject site is illustrated in Figure 2-2 below. The site is sloped with a gradient of approximately 1.7% from the southern boundary to the north-western boundary with a natural fall of approximately 7.5m from the southern boundary to the north-western boundary. A maximum ground elevation of +55.50m OD Malin exists within the southeast portion of the subject site. A minimum ground elevation of +48.00m OD Malin exists within the northwest portion of the subject site.

Figure 2-2: Site Existing Contours



2.3 Proposed Development

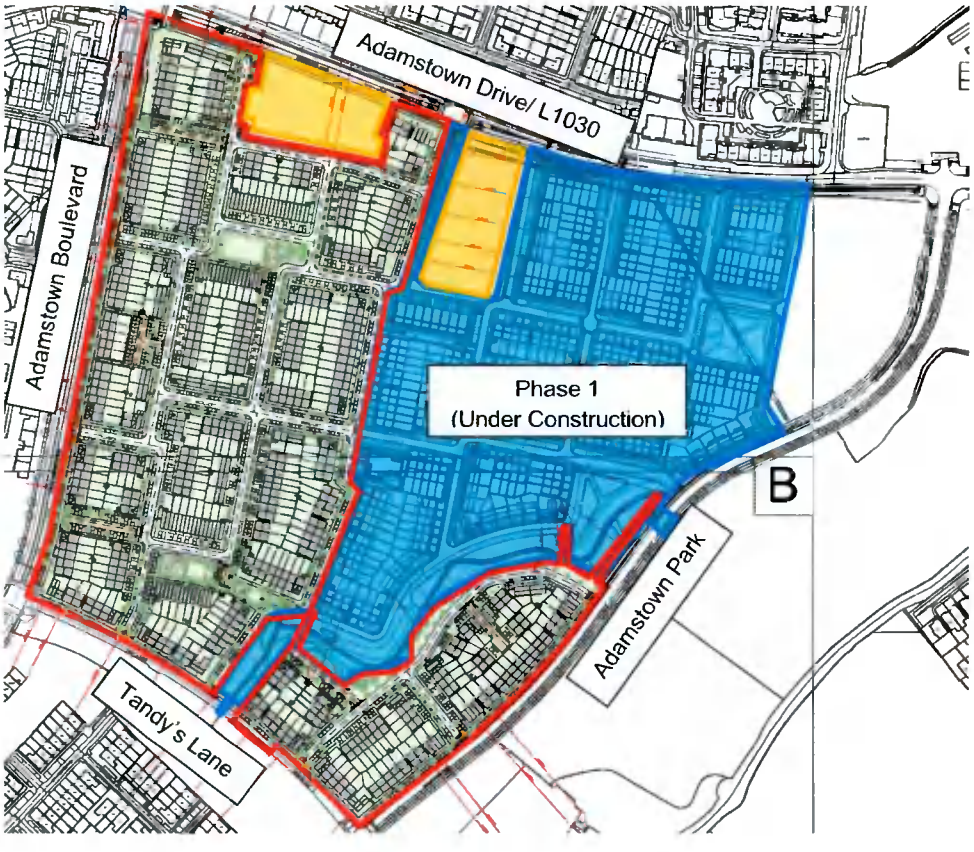
This application is being made in accordance with the Adamstown Planning Scheme 2014, (as amended) and relates to a proposed development within the Adamstown Strategic Development Zone Planning Scheme. The lands are located within the Tandy's Lane Village Development Area.

The development will principally consist of: the construction of 352 No. residential units (terraced, semi-detached and detached) comprising 253 No. two storey houses (15 No. two bed units and 238 No. three bed units ranging in size from c. 86 sq m to c. 118 sq m) and 99 No. three storey houses (18 No. three bed units and 81 No. four bed units and ranging in size from c. 147 sq m to c. 189 sq m). The total gross floor area of the development is c. 43,272 sq m.

The development will also comprise the provision of 2 No. vehicular accesses from Adamstown Boulevard, 1 No. vehicular access from Adamstown Drive (L1030), 2 No. vehicular accesses from Adamstown Park Road and 2 No. vehicular accesses from Tandy's Lane; vehicular connections will also be provided to permitted roads in Tandy's Lane Phase 1; internal routes; 535 No. car parking spaces including on-curtilage and off-curtilage spaces; bicycle parking; bin storage; plant; ESB Substations; boundary treatments; lighting; hard and soft landscaping; and all other associated site works.

The proposed layout of the subject site can be seen in Figure 2-3 below.

Figure 2-3: Proposed Development layout



3. Foul Water Drainage

There is an existing 375mm ø public foul water sewer network located to the north in Adamstown Drive and a 225mm ø public foul water sewer network located to the east in Adamstown Park (Loop Road 1 SDZ 06A/5) of the proposed development, which was constructed as part of the overall ASDZ strategic drainage. A 225mm/300mm ø foul water sewer which was designed to cater for the flows from the Phase 2 development is being constructed along the eastern boundary of the western site as part of Phase 1 and connects to the existing 375mm ø foul water sewer to the north. All sewers link and ultimately drain to the ASDZ Tobermaclugg Pumping Station (SDZ 06A/4) located to the north of Tobermaclugg Park.

Tobermaclugg Pumping Station was completed in 2008 and is located approx. 1.4km northwest of the subject site. The pumping station discharges the foul water from the majority of the ASDZ lands (85%), to the 9B trunk sewer at Balgaddy, via twin rising mains through the ASDZ and then along the Adamstown Link Road (ALR) before discharging into and a gravity sewer at the R136 roundabout.

Figure 3-1: Overview of SDZ Foul Drainage Discharging into Existing 9B Trunk Sewer in Balgaddy

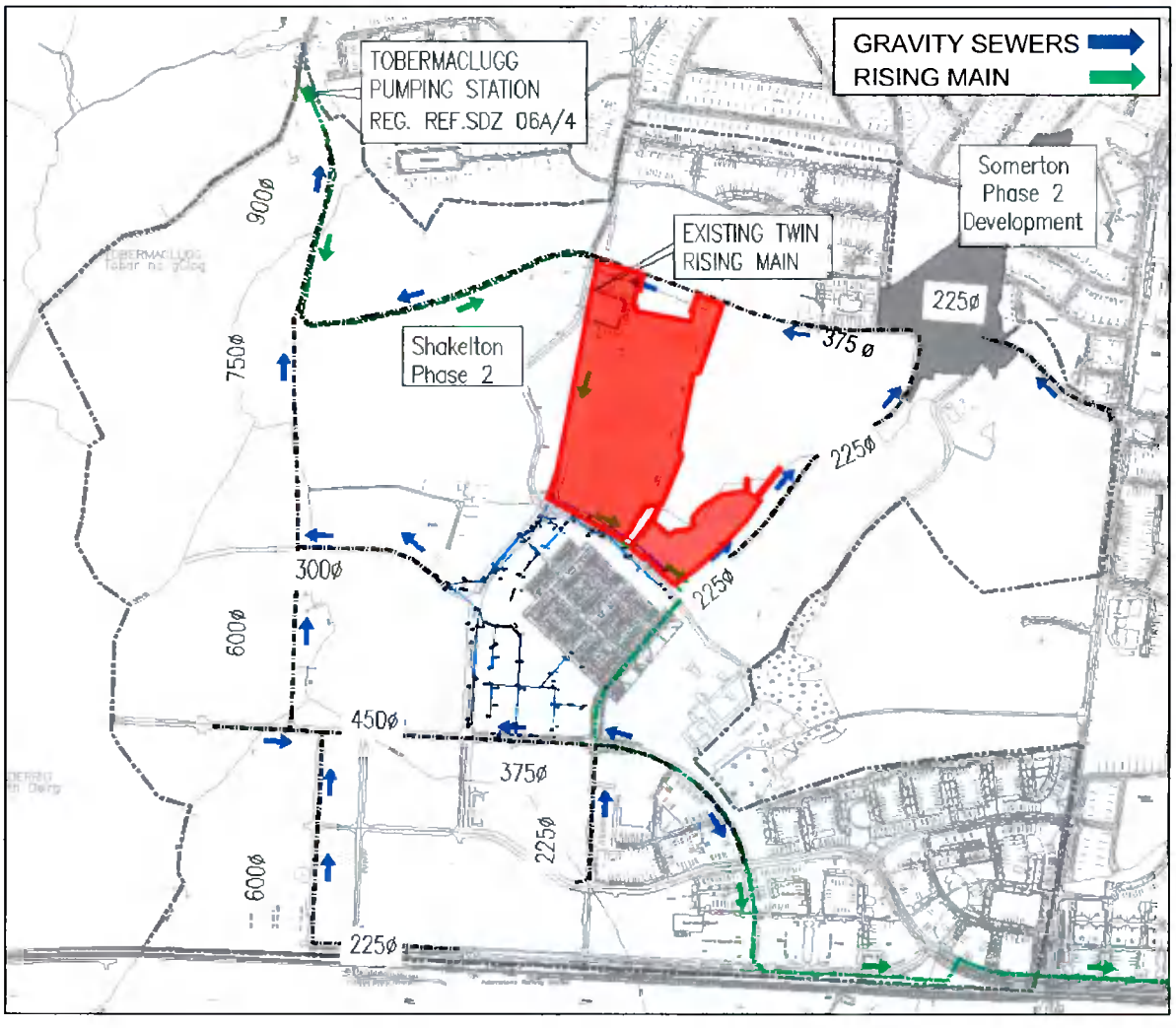
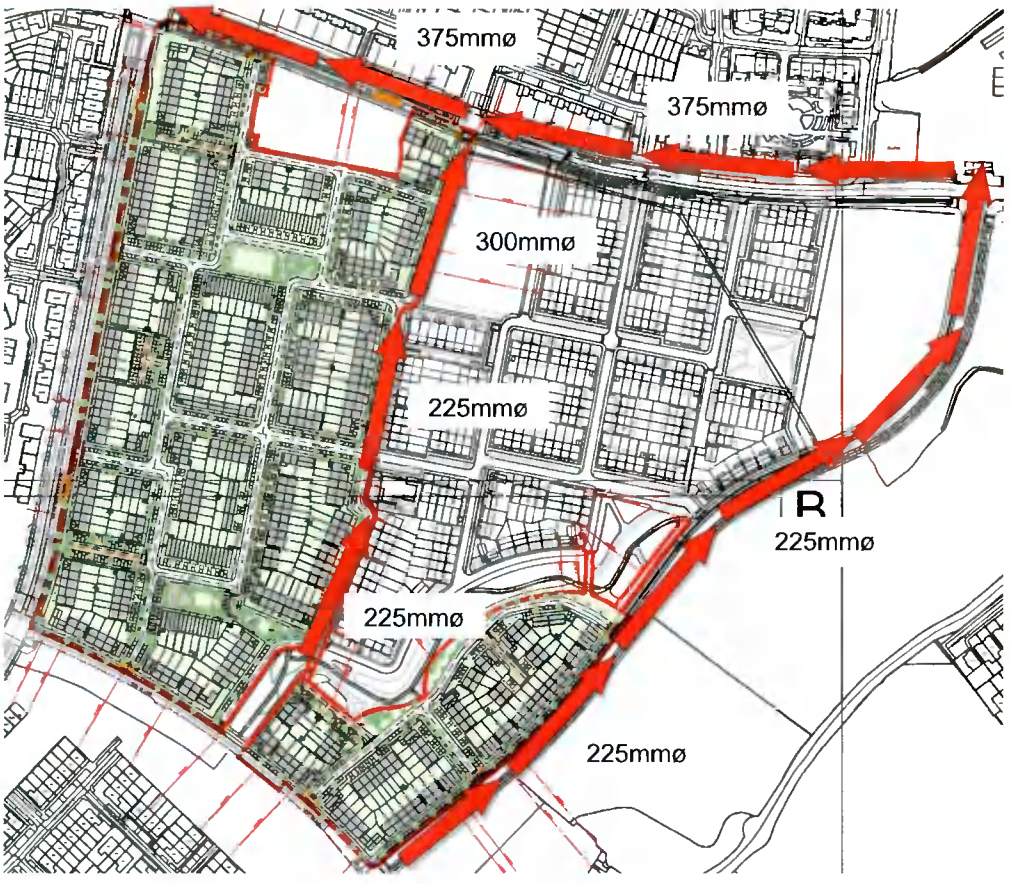


Figure 3-2: Existing Foul Water Drainage at Subject Site



For the majority of the western site, it is proposed that the foul water be discharged at three locations into the infrastructure being constructed as part of Phase 1 along the north-south road dividing the two phases. This sewer 225mm/300mm sewer ultimately discharges into the existing 375mm ø public foul water sewer network located to the north in Adamstown Drive. For the residential units along the north-south road it is proposed to drain the foul water via collector drains and connect into existing spurs constructed during the Phase 1 development.

For the residential units along Adamstown Boulevard (western boundary) and Tandy's Lane (southern boundary), it is proposed that they will utilise existing service connections constructed as part of the Adamstown Boulevard (SDZ18A/0009).

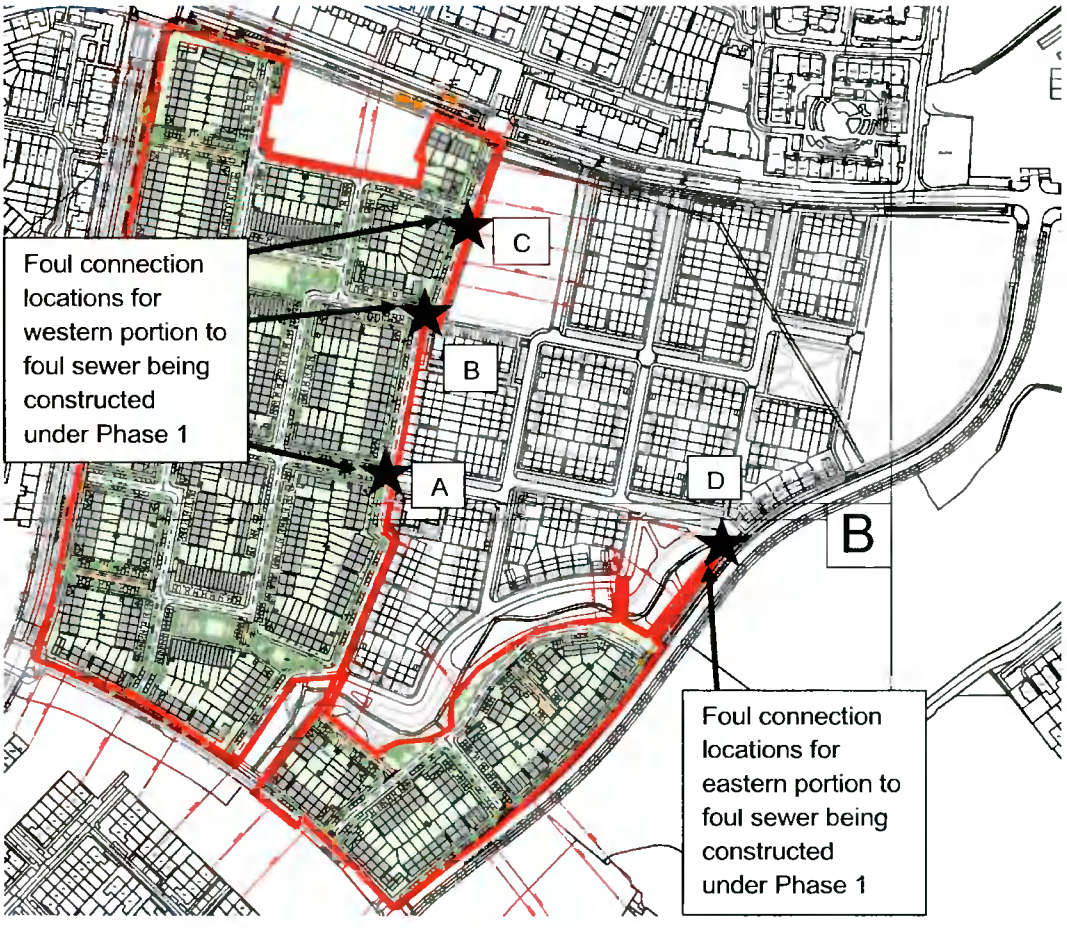
The residential units located within the southeastern portion of the subject development are proposed to discharge into the foul water infrastructure being constructed as part of Phase 1 along the eastern boundary of the Tandy's Lane Village Development tile and ultimately discharges into 225mm ø public foul water sewer network located to the east in Adamstown Park.

A Pre-Connection enquiry was submitted to Irish Water in 2019 for the entire Tandy's Lane Development Area 6. The application included 750 Domestic Units, 13583m2 Offices and Retail Space, and a 500 Pupil School. Subsequently, the Irish Water Confirmation of Feasibility Letter was received on the 31st of October 2019 with Ref CDS19007055. Phase 1 of Tandy's Lane Village development is currently under construction and consists of 245 No. of units, the subject application is Phase 2 and comprises of 352 No. units.

The remaining units commercial area and school will form part of a future application. Appendix A gives the confirmation of feasibility letter received from Irish Water.

Figure 3-3 below shows the discharge locations as described above.

Figure 3-3: Foul water discharge locations



3.1 Foul Water Calculations

The foul water drainage for the proposed development has been designed so that minimum cleansing velocities outlined in the "Irish Water Code of Practice for Wastewater Infrastructure" are achieved for all foul sewers. The peak foul flow is based on Irish Water recommended peak demand/flow factors which are provided in the Irish Water 'Code of Practice for Wastewater Infrastructure', Appendix D - Wastewater Flow Rates for Design. Pipe capacities and velocities have been calculated using Colebrook-White formula with a roughness coefficient (Ks) of 1.5mm.

242 No. units will discharge to the public sewer via the new on site drainage network. 110 No. units will dsicharge via existing spurs into the public sewer network on site.

For the 242 No. units that discharge into the proposed foul water drainage system the estimated foul flows generated are as follows:

Table 3-1: Calculation of proposed Foul Water Flow

Description	No. of Units	Population per unit	PE	Flow l/hd/day	Infiltration Factor	Total Discharge (l/d)
Discharge point A	89	2.7	241	150	1.1	39,650
Discharge point B	55	2.7	149	150	1.1	24,503
Discharge point C	31	2.7	84	150	1.1	13,811
Discharge point D	67	2.7	181	150	1.1	29,849

Table 3-2: Calculation of proposed Foul Water Flow (Continued)

Calculation of Proposed Peak Foul Flow	Discharge point A	Discharge point B	Discharge point C	Discharge point D
Daily Discharge (l/d) *(from Table 1)*	39,650	24,503	13,811	29,849
Dry Weather Flow (l/s) (DWF)	0.459	0.284	0.160	0.345
Peak Foul Flow (l/s) (=6 x DWF)	***2.75***	***1.70***	***0.96***	***2.07***

The proposed foul water outfalls from the subject site are 225 mm-diameter pipes laid at a minimum gradient of 1:200, giving a minimum capacity of 32 l/s. Therefore, the proposed outfalls have adequate capacity to cater for the flows from the development.

For the 110 No. residential units that discharge through the existing spurs provided along the site boundary the calculated peak flow of each unit is 0.03 l/s. The spur connections are designed to be a 100 mm-diameter pipe laid at a minimum gradient of 1:60, giving a minimum capacity of 7.5 l/s. Therefore, the proposed spur connections have adequate capacity to cater for the flows from the various units.

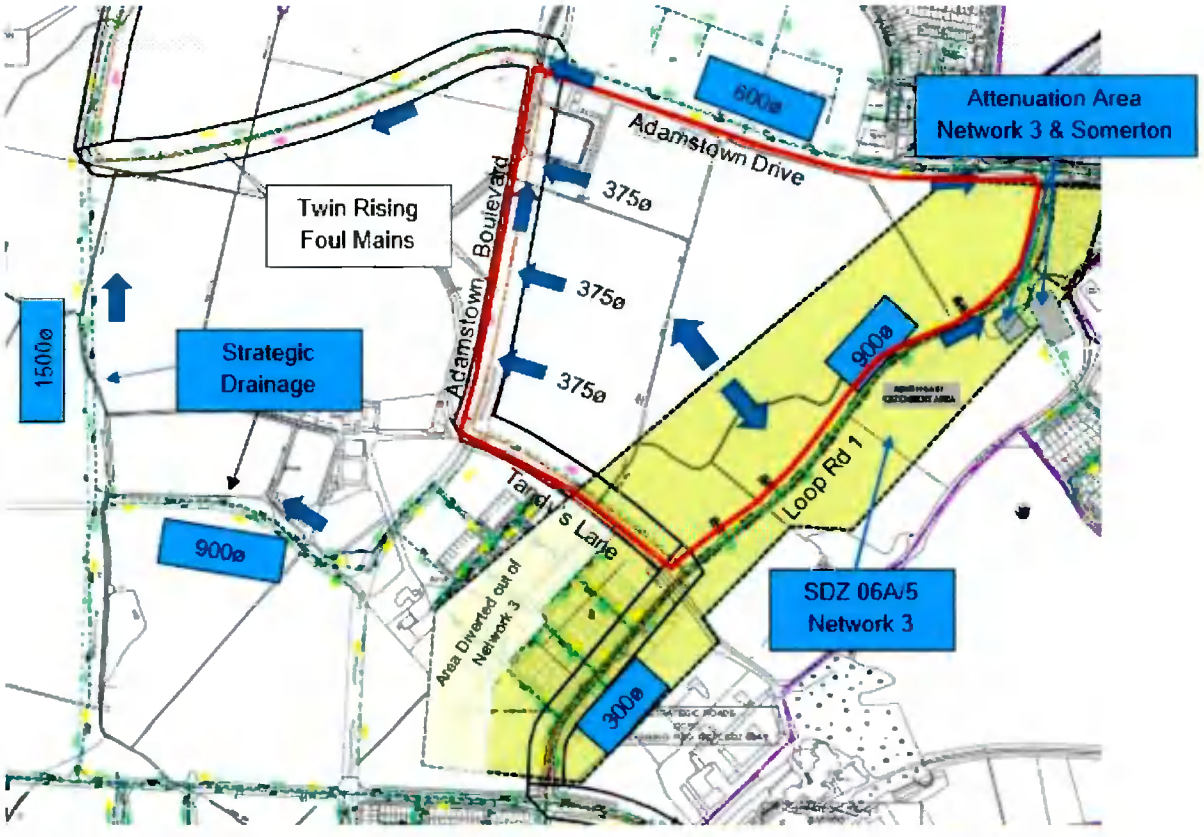
3.2 Network Design

Drains generally will consist of uPVC pipes (to IS 123). Pipes will be laid to comply with the requirement of the Building Regulations 2010, and in accordance with the recommendations contained in the Technical Guidance Documents, Section H. Foul water sewers will consist of PE or concrete pipes (to IS 6) and laid strictly in accordance with Irish Water requirements for taking in charge. All manholes will be constructed in pre-cast concrete in line with Irish Water standard details.

4. Surface Water Drainage

The subject site straddles the natural catchment areas of both the Tobermaclugg Stream (North West) and the Griffeen Tributary (North East) which are tributaries of the River Liffey and lie to the west and northeast of the proposed development respectively. Runoff from the proposed site currently drains to both systems via the existing drainage channels/ditches located within and around the site and to the surface water drainage provided under the ADSZ Strategic Drainage, St Helen's Phase 1 (SDZ 17A/0002) and the Adamstown Park (Loop Road 1) (June 2006 SDZ 06A/5 – referred to as Network 3 – see extract below in Figure 4-1 obtained from the engineering report and drawings reflecting what was then permitted/provided).

Figure 4-1: Network Area 3 relative to Tandy's Lane Development Area 6



There is an existing 900mm ø surface water pipe to the east that drains along Adamstown Park (Loop Road 1) to attenuation area Network 3 & Somerton from where it discharges at 120 ℓ/s into the surface water sewer network in Adamstown Drive to the north. From Adamstown Drive the 600mm ø surface water sewer drains west into a 1500mm ø sewer which then heads north towards Tobermaclugg.

All surface water sewers will ultimately drain towards the Tobermaclugg stream (north-west) past the Tobermaclugg Pump Station. The Tobermaclugg Stream has been mostly culverted by a series of pipes ultimately draining into the constructed 2100mm/2400mm ø surface water pipe through the Lucan Golf Course, permitted under previous permissions, along with an attenuation pond to the northeast of the Golf Course south of the Millstream Road/Dodsborough Road junction before discharging to the River Liffey via an existing culvert under the N4.

The undergrounded stream is brought to the surface at select locations within manmade water features which have a restricted flow of 100 ℓ/s as per the ASDZ Planning Scheme. See Figure 4-2 below for details.

Figure 4-2: ASDZ Attenuation Area at Lucan Golf Course

The surface water drainage network under construction for the Phase 1 development has been designed to accommodate surface water from Phase 2. The western site catchment has been designed to discharge to the 750 mm ø surface water sewer in the north-south road dividing the two phases.

This surface water sewer ultimately discharges into the existing 600mm ø public surface water sewer network located to the north in Adamstown Drive.

The surface water runoff from the eastern site of the subject development is proposed to discharge to the 450mm ø surface water sewer being constructed as part of Phase 1 before discharging into the 900mm ø public surface water sewer network in Adamstown Park.

The *"Adamstown Strategic Zone Consolidated Review of Strategic Surface Water Drainage via the Tobermaclugg Stream and Backstown Stream report (December 2017)"*, which describes the ASDZ surface water drainage strategy in detail, has been added to this planning submission under a separate cover.

4.1 SUDS Assessment

As per South Dublin County Council guidelines and the SDCC Sustainable Drainage Explanatory, Design and Evaluation Guide surface water should be managed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Volume 6, for New Developments and CIRIA

documents. These documents specify that surface water run-off should be managed as close to its source as possible. Sustainable Urban Drainage Systems (SUDS) have been developed and are in use to alleviate the detrimental effects of traditional urban storm water drainage practice that typically consisted of piping run-off of rainfall from developments to the nearest receiving watercourse. Surface water drainage methods that take account of quantity, quality and amenity issues are collectively referred to as SUDS.

They are typically made up of one or more structures, built to manage surface water run-off. The use of SUDS to control run-off also provides the additional benefit of reducing pollutants in the surface water by settling out suspended solids, and in some cases providing biological treatment. A stormwater management or treatment train approach ensures that run-off quantity and quality is improved. The following objectives of the treatment train provide an integrated and balanced approach to help mitigate the changes in stormwater run-off flows that occur as land is urbanised and to help mitigate the impacts of stormwater quality on receiving systems:

1) **Source control:** conveyance and infiltration of run-off; and

2) **Site Control:** reduction in volume and rate of surface run-off, with some additional treatment provided.

The applicant has considered the use of all appropriate SUDS measures as part of the site SUDS strategy, details are outlined in Table 4-1 below.

Table 4-1: SUDS Measures

SUDS Stage	SUDS Measure	Measure Outline	Use on site
Source Control	Swales	Swales are shallow, landscaped depressions designed to store and/or convey run-off and remove pollutants. They may be used as conveyance structures to pass the run-off to the next stage of the treatment train and can be designed to promote infiltration where soil and groundwater conditions allow.	Swales will be used for road surface water treatment, where possible, to treat water at source before conveying it to a downstream attenuation tank.
Site Control	Bio-retention tree pits	These tree pits are engineered pits that allow for the drainage through and retention of water within the tree pit. In some cases, the tree pit is retained by a pre-cast concrete structure. In others, a polymer-based support structure within the root zone of the tree is used, which can also provide for additional aeration. Aeration of the subsoil and overflow drainage pipework within the pit is provided or an adjacent road gully, downstream of the inlet to the tree pit is used.	It is proposed to incorporate tree pits throughout the development at strategic locations to ensure they capture the maximum amount of water from the development roads and footpaths.
	Water butts	A water butt is a structure or barrel with the purpose of collecting surface water runoff from a unit's roof through the downpipes on the perimeter walls.	It is proposed that a water butt be installed at each unit to collect the surface water runoff from the roofs.

4.2 Network Design

As described above the proposed surface water drainage system for this development has been designed as a SUDS system with swales and tree pits to treat run-off and remove pollutants to improve quality, restrict outflow and control quantity of run-off. Strict separation of surface water and wastewater will be implemented within the development. Surface water local drains will be a minimum 225mm dia. and generally will consist of PVC (to IS123) or concrete socket and spigot pipes (to IS 6). These drains will be laid to comply with the requirement of the Building Regulations 2010, and in accordance with the recommendations contained in the Technical Guidance Documents, Section H and will be laid strictly in accordance with the requirements of South Dublin County Council.

4.3 SUDS Maintenance

For the SUDS strategy to work as designed it is important that the entire drainage system is well maintained. It will be the responsibility of the site management team to ensure the drainage system is maintained. Maintenance and cleaning of gullies, manholes (including catch pits) and attenuation areas will ensure adequate performance. The recommended program is outlined in Table 4-2 and Table 4-3 below.

Table 4-2: Swale Maintenance Schedule

	Maintenance Period	Maintenance Task	Frequency
Swale	Regular	Remove the litter and debris	Monthly, or as required
		Cut grass – to retain height within specified design range.	Monthly (during growing season), or as required
		Manage other vegetation and remove nuisance plants.	Monthly at start, then as required
		Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
		Inspect infiltration coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
	Occasional	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if soil is exposed over 10% or more of the swale treatment area
	Remedial actions	Repair erosion or other damage by re-turfing or re-seeding	As required
		Re-level uneven surfaces and reinstate design levels	As required
		Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
		Remove and dispose of oils or petrol residues using safe standards practices	As required

Table 4-3: Bio-retention Tree Pits Maintenance Schedule

	Maintenance Period	Maintenance Task	Frequency
Tree Pits	Regular	Remove the litter and debris	Monthly, or as required
		Manage other vegetation and remove nuisance plants.	Monthly at start, then as required
		Inspect inlets and outlets for blockages, and clear if required.	Monthly
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
	Occasional	Check Tree Health and manage Tree appropriately	Annually
		Remove silt build-up form inlets and surface and replace mulch as necessary	Annually, or as required
		Water	As required (in periods of drought)
	Monitoring	Inspect all silt accumulation rates and establish appropriate removal frequencies.	As required

4.4 Flood Risk Assessment

As part of the planning application for this development a full flood risk assessment has been prepared and is submitted under a separate cover. The flood risk assessment considers tidal, fluvial, pluvial, ground water, and human/mechanical errors as flooding sources and noted that the residual risk of each were rated as low to none.

5. Water Supply

5.1 Water Supply - Existing

It is proposed to connect the **Phase 2 Tandy's Lane Village** site into the water network by connecting into the existing public watermain located along the Adamstown Drive (L1030), north of the development. The connection will be made into the existing 150mmø (ID) and 100mmø (ID) from Tandy's Lane Phase 1 which is currently under construction, all are in accordance with the **Overall ASDZ Watermain Network Strategy** agreed with SDCC as reflected on Drawing 821/06/001 Rev D **"Proposed Network and DMA Design".** (See below the Boulevard **DMA** (District Metered Area) **AD13 and AD14** extracted from the Dwg. 821/06/001 Draft Rev E).

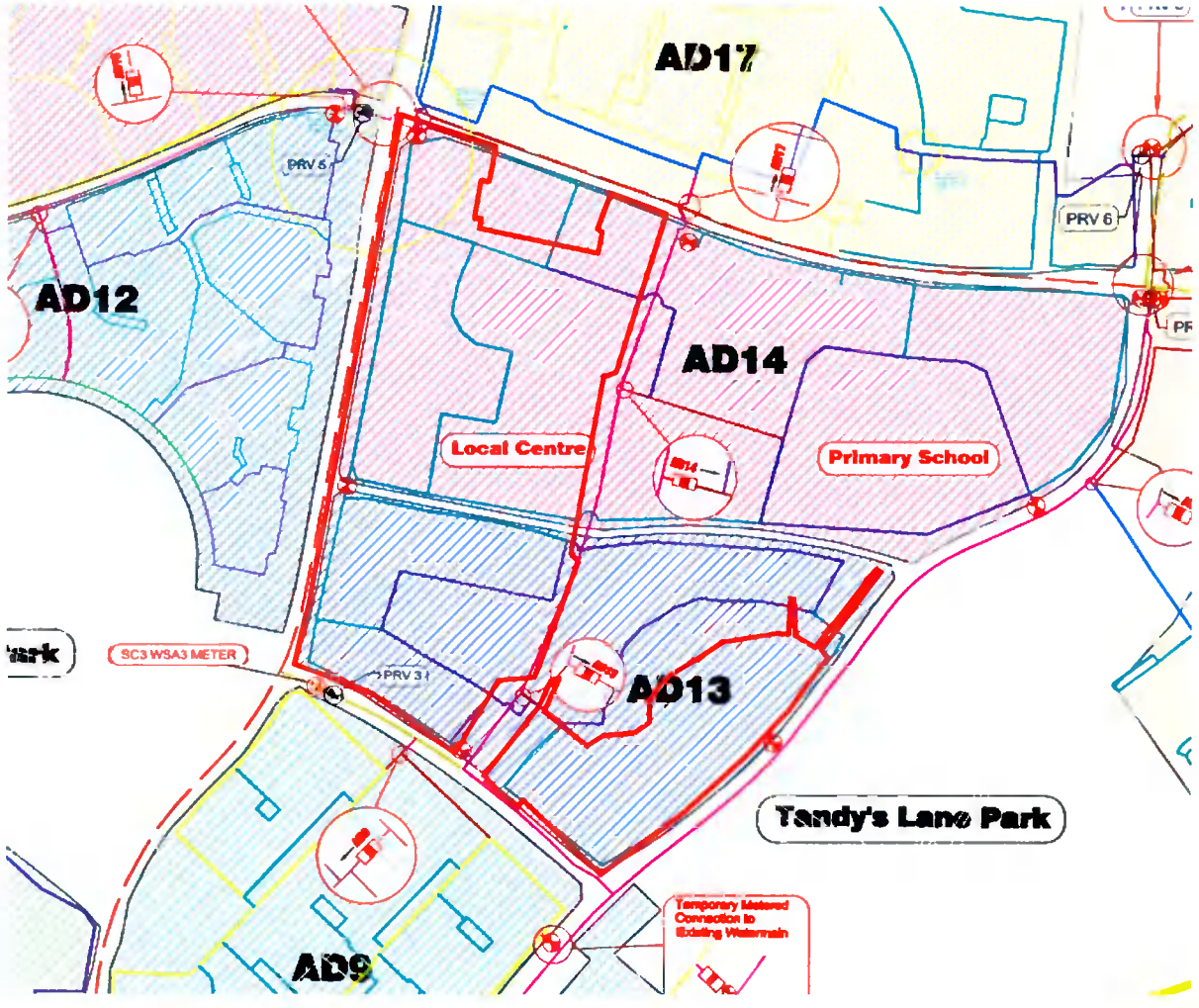


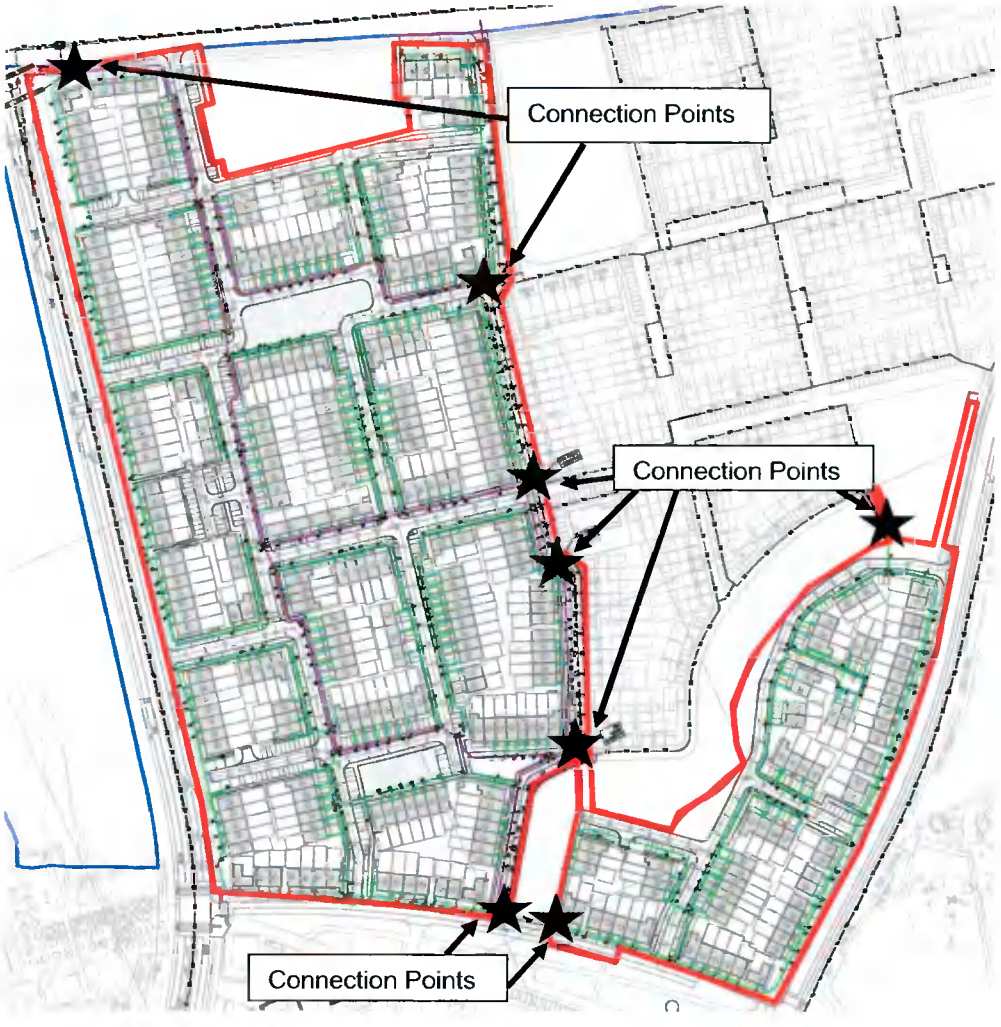
Figure 5-1: Extract from PHMcCarthy Water Schematic Drawing

5.2 Water Supply – Proposed

The proposed development (Tandy's Lane Village Ph1 located within **DMA's AD13 and AD14)** watermain network design follows the approved watermain masterplan as shown on Drawing 821/06/01 Draft Rev E **"Proposed Network and DMA Design."**

It is proposed to serve the development from the existing 150mmø (ID) and 100mmø (ID) watermain spur connections constructed within the common road between the Phase 1 and 2 development and via three other connection points as shown in Figure 5-2 below.

Figure 5-2: Proposed Watermain Design in the vicinity of Phase 2 Tandy's Lane Village



Internal loop networks within Phase 2 will feed the housing units via 100mm ø (ID) and 150mm ø (ID) pipelines. Each internal loop will consist of a maximum of 40 units, as per "Irish Water Code of Practice for Water Infrastructure".

A district area meter (DMA), **AD14**, will be located on the eastern edge of the western site and a second DMA, **AD13**, will be located further south between the eastern and western sites. These metres will be installed off the 250mm ø watermain which is to be installed under Phase 1 Tandy's Lane Village.

Refer to Waterman Moylan Drawings 21-058-P310 to P313 which are included as part of this application and show the existing and proposed watermain network layout for the proposed development.

A Pre-Connection enquiry was submitted to Irish Water in 2019 for the entire Tandy's Lane Development Area 6. The application included 750 Domestic Units, 13583m^2 Offices and Retail Space, and a 500 Pupil School. Subsequently, the Irish Water Confirmation of Feasibility Letter was received on the 31st of October 2019 with Ref CDS19007055. Phase 1 of Tandy's Lane Village development is currently under construction and consists of 245 No. of units, the subject application is Phase 2 and comprises of 352 No. units. The remaining units commercial area and school will form part of a future application. Appendix A gives the confirmation of feasibility letter received from Irish Water.

All water supply details shall be in accordance with Irish Water requirements and Code of Practice.

5.3 Water Demand Calculation

Water calculations providing details of the anticipated water consumption for the proposed development are illustrated in Table 5-1 below.

Table 5-1: Total Water Demand

Description	No. of Units	Population per Unit	PE	Flow l/h/day	Total Demand (l/d)
Residential Units	352	2.7	950	150	142,560
				Total	**142,560**

The total water requirement from the public supply, for the development, is estimated at 142.6 m^3/day.

5.4 Water Supply – General

Watermains suitable for Works and approved by Irish Water shall be either ductile iron (DI) or polyethylene (PE), with PE80 or PE100 rating (MDPE, HDPE or HPPE).

The minimum depth of cover from the finished ground level to the external crown of a Watermain shall be 900mm. A greater depth of cover and/or greater strength pipe and/or a higher class of bedding may be required where high traffic loading is anticipated. Depths may be altered to avoid obstructions, including separation distances between other utility services. The desirable maximum cover for a Service Connection pipe or a Water Main should be 1200mm, where practicable.

Sluice valves will be provided so that no more than 40 houses can be isolated at any time and hydrants provided so that each part of the dwellings are within 46 metres of a hydrant.

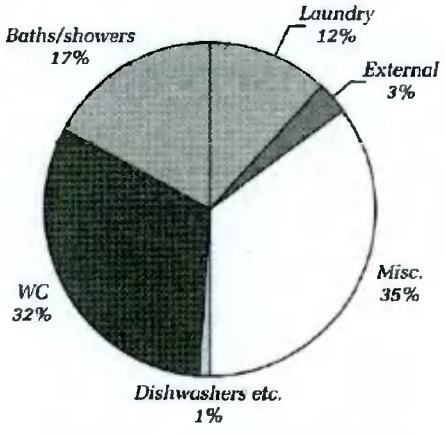
5.5 Water Conservation

The water demand for the development can be subdivided as follows:

- Potable / Non-potable Breakdown

Detailed studies have quantified the breakdown between potable and non-potable uses for residential uses.

The following diagram illustrates the current percentage breakdown of water usage in domestic circumstances and is from Griggs and Shouler 1994 as published in Chapter 11 of 'Water, Sanitary & Waste Services for Buildings' by Wise and Sheffield.



It is proposed, as part of this development, to provide rainwater butts on all properties to cater for the external water demand.

In addition, water conservation measures will be used, to further reduce overall water demand, including:

- Low volume flush / dual flush WC's
- Aerated shower heads
- Spray taps
- Draw off tap controls
- Rainwater reuse – water butts, as outlined above
- Leak detection measures – through the metering of supply

6. Transport

6.1 Existing and Proposed Road Network

The proposed development is located to the south of Adamstown Drive and to the west of Adamstown Park (Loop Road 1), 1km from the proposed Adamstown District Centre and 1.5km from the center of Lucan Village.

As recommended by both DMURS and outlined in the ASDZ roadwidths have been minimised to encourage vehicular speeds. Side streets are 5.5m wide, backstreets are a minimum of 4.8m wide, and footpaths throughout the site are 2.2m wide. Carriageways within the 'homezones'/shared surface areas will be 6m (4.8m wide with a 1.2m wide services strip/pedestrian refuge on one side of the carriageway).

The proposed radii at junctions reflect recommendations raised by SDCC in recent planning conditions with a radius of 4.5m required between local streets and a radius of 6m between link streets and local streets.

Crossing points will be located along desire lines at various points within the development such that unimpeded pedestrian movement is facilitated. Drop kerbs and pedestrian crossings will be provided throughout the site at indicated crossing points.

6.2 Site Access

The proposed development will benefit from multiple access points. For the western site these include two vehicular and two pedestrian accesses from Adamstown Boulevard to the west, one vehicular and pedestrian access from Adamstown Drive to the north, two vehicular accesses from Tandy's Lane to the south (one accessing the east site and one accessing the west site) and one pedestrian access, and three vehicular and one pedestrian access from the north-south road that splits the subject development and Phase 1 of Tandy's Lane Village development tile.

For the eastern site these include two vehicular and two pedestrian accesses from Adamstown Park to the east and one vehicular and pedestrian access from Tandy's Lane to the south.

6.3 Public Transport

6.3.1 Bus

The proposed development is located 765m west of Newcastle Road that hosts the 7168 bus stop which is utilised by the P29 Dublin Bus service, and the L51 Go-Ahead Ireland bus service. The proposed development is also located 330m east of Dodsborough Road that hosts the 7800 Go-Ahead Ireland bus stop which is utilised by L51 and L52 TFI services.

The relevant services and their frequency are stipulated in Table 6-1 below.

At present the TII are undertaking a review of the bus service in Adamstown and providing additional bus stops and bus services to accommodate the developments currently under construction. At present it is indicated that a new bus stop will be provided along Adamstown Boulevard.

Table 6-1: Bus Timetable

Bus Timetables	
Service	Frequency
P29 (Adamstown Station – Ringsend Road)	Every 10 minutes from 07.21 to 07.51
P29 (Ringsend Road – Adamstown Station)	Every 20 minutes from 17.00 to 18.00
L51 (Liffey Valley SC – Adamstown Station)	Every hour from 05.55 to 23.00
L51 (Adamstown Station – Liffey Valley SC)	Every hour from 05.50 to 22.55
L52 (Blanchardstown SC – Adamstown Station)	Every hour from 06.15 to 23.25
L52 (Adamstown Station – Blanchardstown SC)	Every hour from 06.25 to 23.25

6.3.2 Train

The Adamstown Train Station is located 880m from the proposed site location. The relevant services and their frequency are stipulated in Table 6-2 below.

Table 6-2: Train Timetables

Adamstown Train Station	
Service	Frequency
Dublin Heuston - Cork (all intermediate stations)	Every hour from 06:25 to 23:10
Grand Canal Dock and Dublin Heuston - Portlaoise	Every hour from 06:35 to 23:22

Figure 6-1: Train Station & Bus Stop Locations

APPENDICES

A. Irish Water Confirmation of Feasibility Letter

Ian Swartz,
Waterman Moylan Consultant Engineers,
Block S East Point Business Park,
Alfie Byrne Road,
Dublin 3

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

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

www.water.ie

31 October 2019

Dear Ian Swartz,

Re: Connection Reference No CDS19007055 pre-connection enquiry -
Subject to contract | Contract denied

Connection for Mixed Use Development of 750 Domestic Units, 13583m^2 Offices and Retail Space and a 500 Pupil School and at Tandy's Lane, Adamstown, Co. Dublin.

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Tandy's Lane, Adamstown, Co. Dublin.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the networks, as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water networks can be facilitated.

In advance of submitting your full application to the Planning Authority for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available 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.

If you have any further questions, please contact Aidan Tierney from the design team on 022 52257 or email aitierney@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

UK and Ireland Office Locations