MHL & ASSOCIATES LTD.

For: **Clockstrike Ltd.**

Proposed Residential Development- Phase 2, Ringwood, Blarney.



Planning Engineering Design Report
RFI

July 2026

MHL & Associates Ltd.
Consulting Engineers

MHL & ASSOCIATES LTD.

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1 INTRODUCTION

1.1 Background

This report was prepared by MHL & Associates Ltd. in response to an instruction from Clockstrike Ltd. to carry out a Planning Engineering Design Report for development lands (Phase 2) in Blarney, Cork.

This client's site is an existing green field site, located in Blarney to the north of Cork City. The site is well located between the N20, Station Road and the R617 Regional Road, in an advantageous setting with premier road access. The development of the site is in keeping with CCC Development Plan which focuses on developing Blarney into an important Hub Town to the west of the city, fulfilling a role regionally in urban employment.

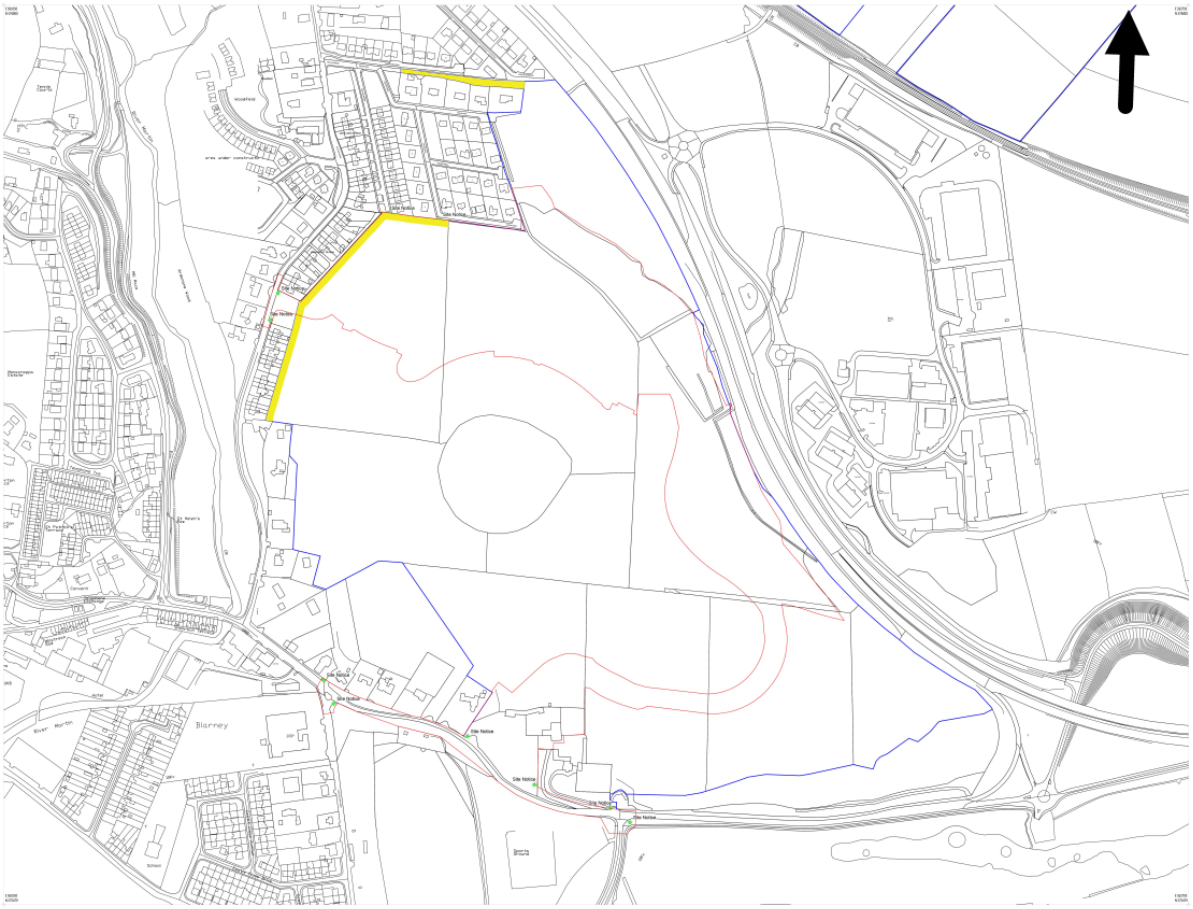


Figure 1.1 Site Location Map. (c: CCK Architects)

This report examines the engineering design requirements that must be satisfied for the development of the land under the client's ownership. The Engineering elements accessed for planning are the following:

- Existing services and proposed foul, water, etc. service connections to the site.
- Existing Site Conditions
- Road and junction access designs
- On site infiltration and attenuation of storm flows
- Public lighting
- Construction Access/Phasing

The housing site layout for Phase 2 has been developed by CCK Architects. Please refer to the drawing pack as submitted for further details.

2 PROPOSED SITE LAYOUT / FOLIO

As per Cork City Council planning strategies, the applicant intends to phase the development, based on a carefully developed overarching Masterplan strategy. The layout shows the proposed residential unit mix and locations, radiating off the connecting internal estate roads and abounded by the proposed development spine road.

2.1 Site Description- Phase 2

The proposed development will consist of a large-scale residential development (LRD), representing Phase 2 of development in the Blarney East/Ringwood Expansion Area. The development will comprise the construction of 319 residential dwellings, including 157 terraced, end-of-terrace and semi-detached houses (129 three-bedroom and 28 four-bedroom units), 48 back-to-back duplexes in four blocks (32 two-bedroom and 16 three-bedroom units), and 114 apartments within two five-storey buildings (54 one-bedroom and 60 two-bedroom units). The proposal also includes the construction of a two-storey Primary Care Centre with a gross floor area of 1,724 sq m incorporating GP services, together with the refurbishment and redevelopment of existing farm outbuildings to provide an 80 sq m retail/pharmacy unit and a 380 sq m café/restaurant. Access to the site will be provided via a new roadway from the R617, including associated pedestrian and cyclist infrastructure, forming the first phase of the proposed Stoneview Access Link Road. The development also includes a new signalised junction on the R617, providing a single-lane approach from the west and a two-lane approach from the east, comprising one through-traffic lane on the R617 and a right-turn lane into the site, together with associated footpath improvements and cycle lane provision. Additional road infrastructure works include a new signalised junction at the R617/Killard Road junction, providing a two-lane approach from the west with one eastbound through lane and a right-turn lane onto Killard Road, associated pedestrian and cyclist infrastructure, a new junction arrangement at Castle Close Lawn with associated footpath and active travel improvements, and a new signalised junction on Station Road consistent with that permitted under the Phase 1 LRD scheme (Reg. Ref. 2443031). The proposal further includes private, communal and public open spaces, hard and soft landscaping, boundary treatments and amenity areas, including a new wetland public amenity area; drainage works and nature-based Sustainable Drainage Systems (SuDS); foul sewer infrastructure including a new combined pump station serving Phases 1 and 2, a secondary pump station for the Primary Care Centre, the diversion of existing foul and water sewers and associated network works; car parking including electric vehicle charging points, bicycle parking and motorcycle bays; two substations; and all associated ancillary site, drainage and development works. An Environmental Impact Assessment Report (EIAR) accompanies the planning application and will be available for inspection or purchase, at a fee not exceeding the reasonable cost of making a copy, during office hours at the offices of the Local Authority.



Figure 2.1 Development Site Layout Phase 2 (c: CSR/ CCK Architects).

2.2 Phase 2 integration with Phase 1

The red line boundary for Phase 2 includes key design elements from Phase 1, such as junction accesses, road connections, wastewater, surface water infrastructure, and proposed pump station/s. This integration ensures a seamless transition between the two phases, allowing for efficient traffic flow, utility connectivity, and future scalability.

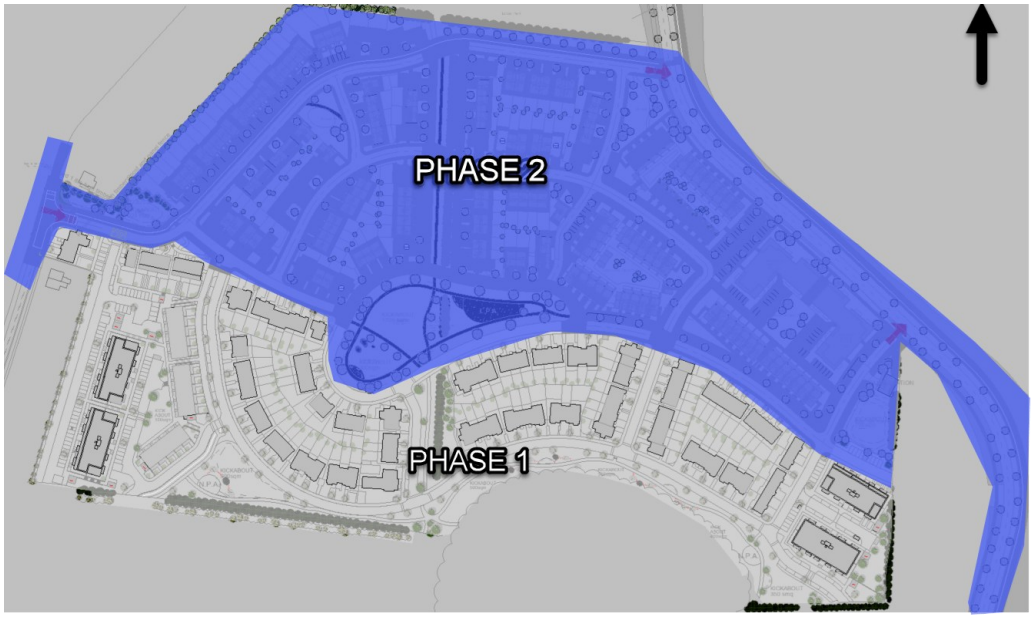


Figure 2.2 Phase Two / Phase One (c: CCK Architects)

The design also addresses increased traffic and utility demands, with adjustments as needed to handle the expanded traffic load while ensuring continuity for residents in Phase 1.



Figure 2.3 Coordination of Phase 1 and Phase 2 (1)

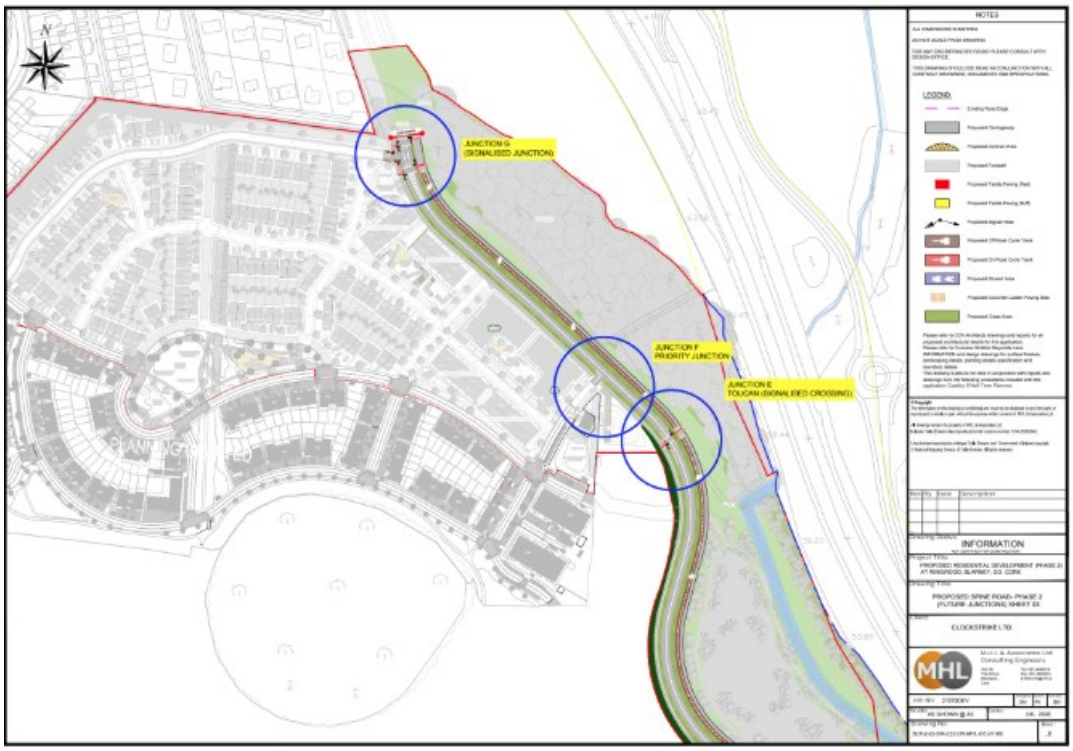


Figure 2.4 Coordination of Phase 1 and Phase 2 (2)

It is proposed to develop a new signalised junction with Station Road, a new signalised development junction with the R617 and upgrading the existing priority T junction Killard / R617 junction to a signalised junction as part of the phase 2 application. Please refer to Chapter 8 of this report for details.

It is proposed to upgrade Station Road / Development Junction to a fully signalised junction for phase one development works. See drawings included in this submission which show the proposed access and egress circulation routes for the site. This arrangement has been arrived at following discussions with Cork City Council, with entry/exit junction onto Station Road designed in accordance with TII Standards.

The development access for phase 2 onto Station Road matches that submitted for phase 1, with minor changes to account for cycle lanes provision. Included in the proposals are to construct a signalised junction with the R617 / Development Spine Road, upgrading the existing Killard Priority Junction to a fully signalised junction.

Internally the build out of the spine for Phase 2 will include for 2no. priority T junctions, 2no. signalised junctions and a toucan crossing.

3 EXISTING SITE CONDITIONS

Figure 3.1 shows the site in relation to the Blarney Village environs and the wider regional road network. The site is 0.5-1.0 km east of the village centre.

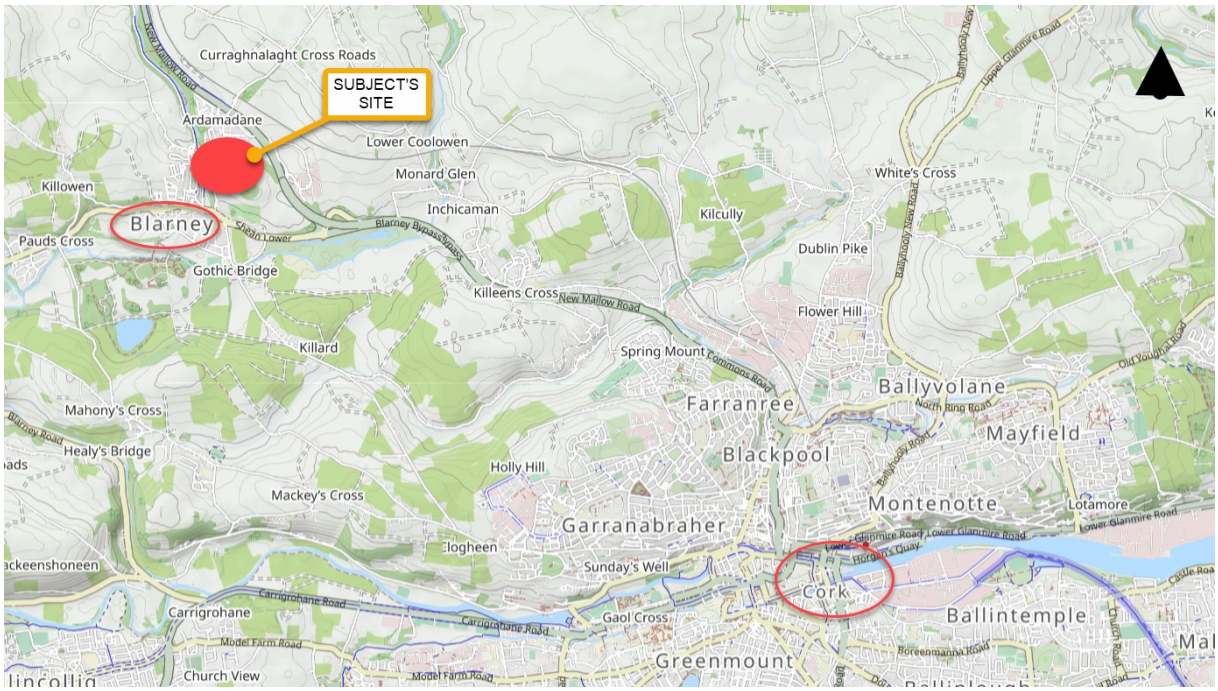


Figure 3.1 Site Location Map

A topographical survey carried out by Murphy's Land Surveyors was used as the basis of the site assessment. The topography of the site comprises of two distinct areas, split by the public transport infrastructure running west-east through the site.

3.1 Existing Topography assessment

The Ringwood site can be seen by the level banding assessment in the figure below, to have a plateau area to the north of the Ringwood tree area. The site drops in level from north to south.

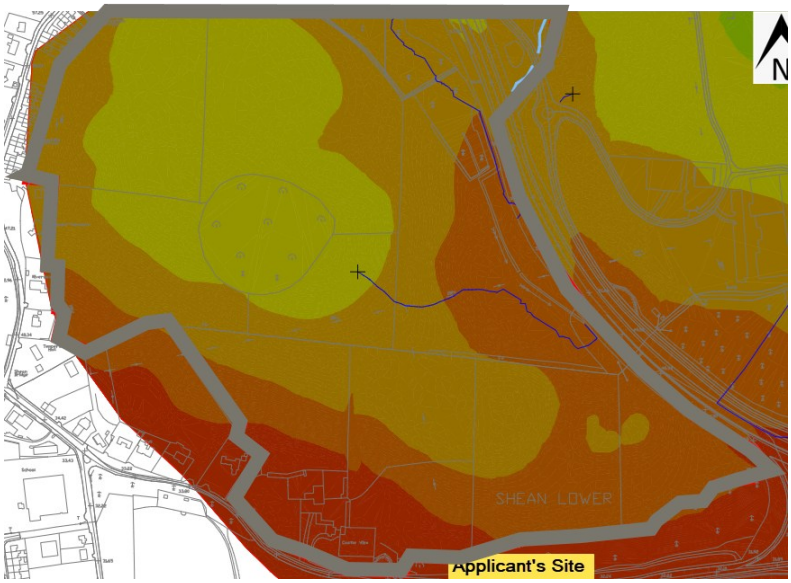
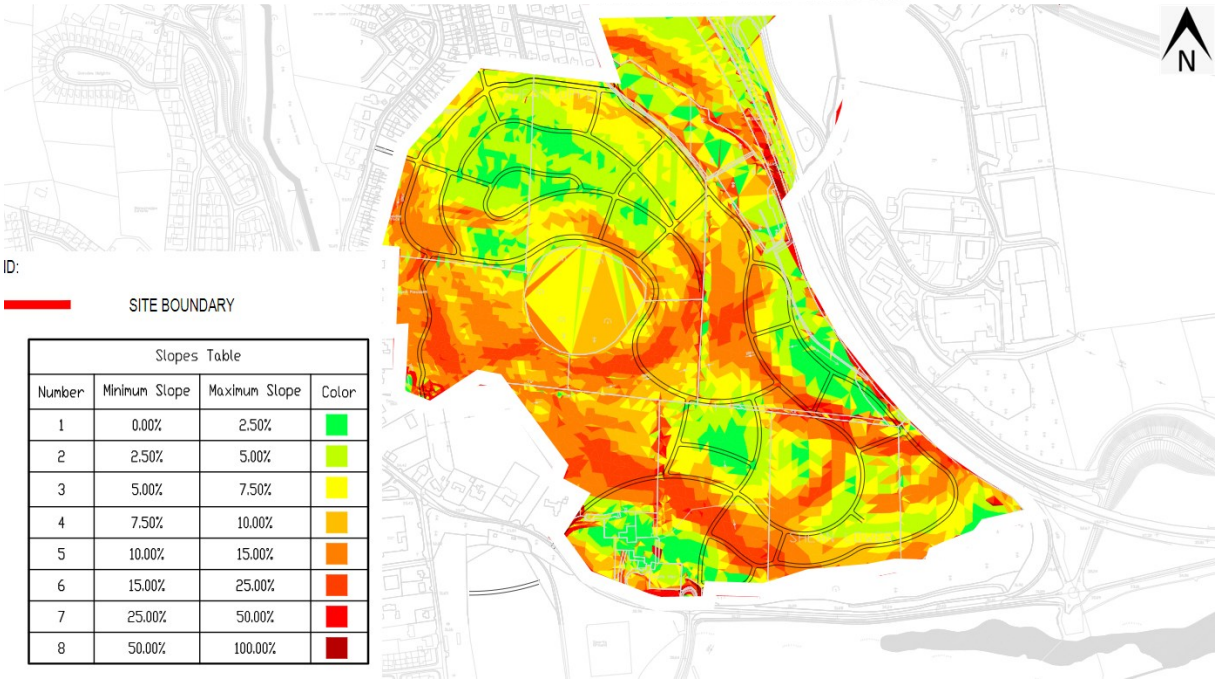


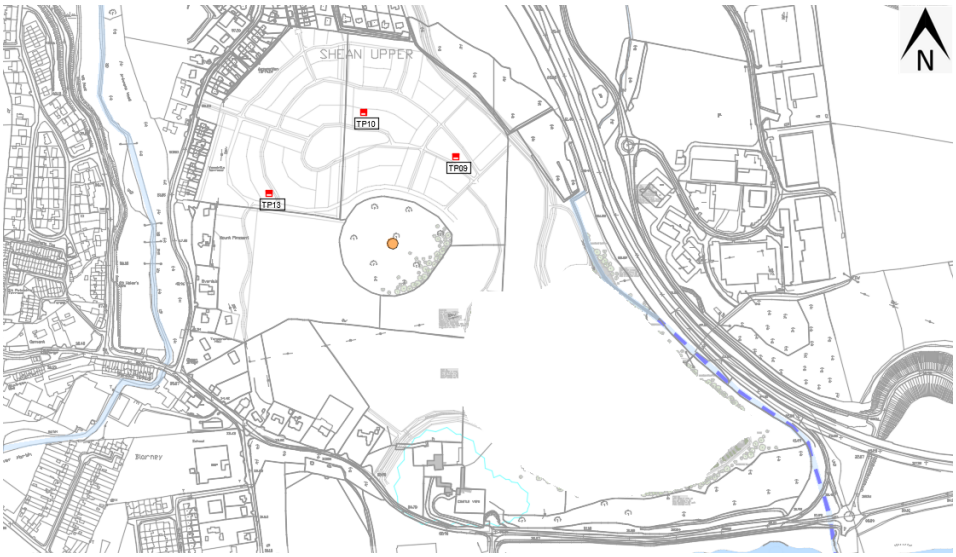
Figure 3.2 Topographical Site Survey Banding Assessment.

The site topography is very steep in locations, as noted below by the red banding. Where these red banding areas interact with the development layout, earthworks will be necessary to facilitate the development.



Slopes Table			
Number	Minimum Slope	Maximum Slope	Color
1	0.00%	2.50%	
2	2.50%	5.00%	
3	5.00%	7.50%	
4	7.50%	10.00%	
5	10.00%	15.00%	
6	15.00%	25.00%	
7	25.00%	50.00%	
8	50.00%	100.00%	

Figure 3.3 Topographical Site (%Grading) Assessment of full Ringwood site



CASTLE VIEW NW-SE - LONGSECTION
SCALE: H 1:1000,V 1:200. DATUM: 50.000



Figure 3.4 Topographical Site Ringwood NW-SE ground profile.

Site areas where the development works coincided with excessive ground gradients were assessed and reprofiled using 3D design software to increase the developable land for phase 2 of this site. The image below shows the gain in workable site area (noted in green) due to reprofiling of excessive ground features in the vicinity of the proposed housing/internal roads.

4 TRANSPORT CONNECTIVITY

4.1 Existing Transport Connectivity

WALKING: The Ringwood site is located within walking distance of Blarney town centre, close to existing pedestrian networks. This location will naturally promote pedestrian activity to, from and within the Masterplan area. Pedestrian facilities around the periphery of the Masterplan site are currently limited to footways on Station Road and on the north side of R617 Convent Road.

CYCLING: There are two existing cycle routes close to the Masterplan site, Waterloo Road, and Blarney Bog, both of which are segregated shared paths. Other than this, existing cycle facilities in the area are limited. Cork City Council is investigating development of a potential Blarney-wide pedestrian and cycle network, which, if implemented, would improve cycling infrastructure in the town.

ROADS: The nearby N20, which is accessed via R617 Convent Road, provides a strategic north-south link to Cork City Centre. This proximity ensures that residents of Blarney enjoy good access to destinations throughout the North Cork area. Access to the Stoneview area is currently via Station Road, which runs north-south to the west of the Masterplan site. It is a minor road that can become congested at peak times.

PUBLIC TRANSPORT: The primary public transport route in the area is the R617 / N20 between Blarney and Cork. Buses run at a 30-minute frequency on a typical weekday, passing along the southern boundary of the Masterplan site.

RAIL: The Dublin to Cork Rail Line passes through the Masterplan site, but there is no rail station within Blarney. This represents a significant opportunity to positively influence future travel from the site, the existing Blarney residents and commuters travelling from the wider North Cork area.

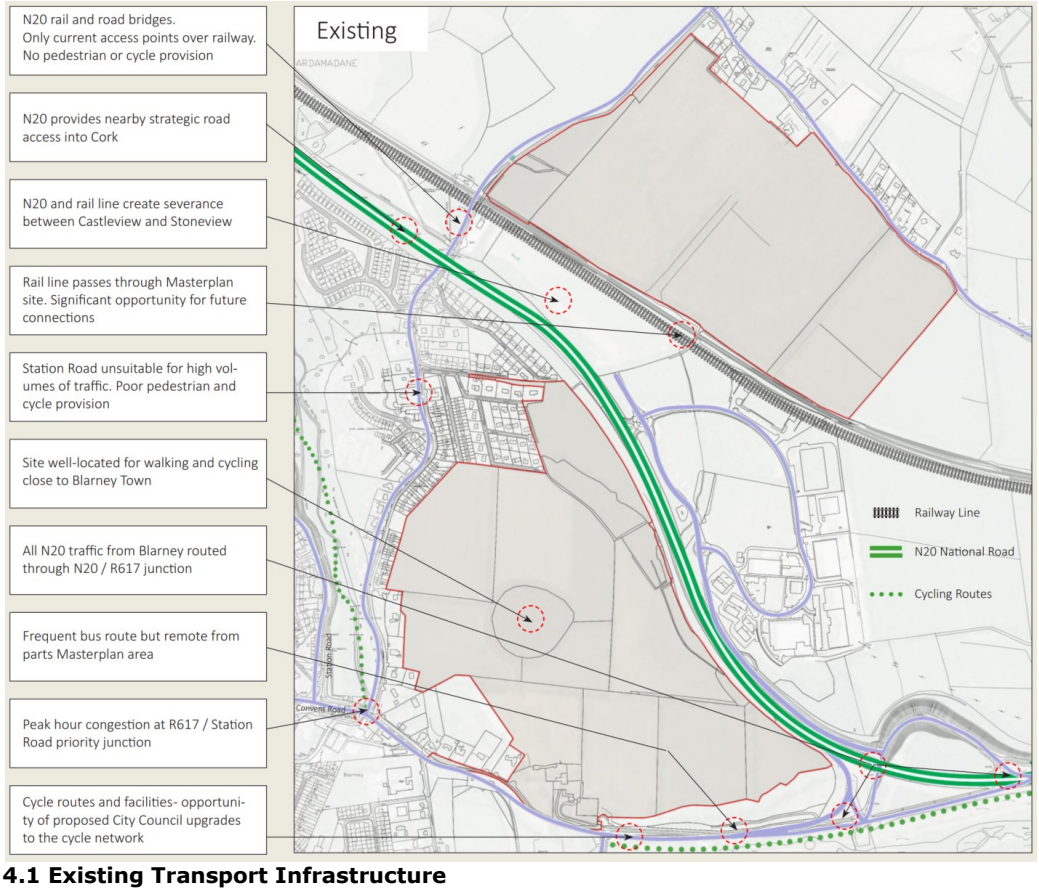


Figure 4.1 Existing Transport Infrastructure

4.2 Proposed Transport Connectivity

WALKING: The Masterplan will create a permeable network of high-quality walking links within the site, providing safe, pleasant, and convenient access between residential areas, the rail station, the Park and Ride facility and the proposed town park and the site access points

CYCLING: A network of high-quality walking and cycling links will be created within the site the Masterplan, providing safe and convenient access between residential areas, the rail station, the Park and Ride facility and the proposed town park and the site access points. The Masterplan site will also open new routes through Blarney for existing residents.

ROADS: A new spine road will connect R617 Convent Road with the rail station and Stoneview to the north. This will bridge both the N20 and rail line, and provide a cycling, bus, and road connection through the centre of the development. The redirection of traffic will allow Station Road to be re-purposed for local access, walking, and cycling trips.

PUBLIC TRANSPORT: The Park and Ride facility will serve Blarney residents, and draw in trips from the N20, reducing the number of car trips heading into Cork City Centre. Together, the rail station and P+R will deliver a step-change in public transport provision in Blarney, providing attractive alternatives to the N20, and reducing car use.

RAIL: Central to the Masterplan is the development of Blarney Rail Station. The Masterplan envisages a small station building serving eastbound and westbound platforms connected by a footbridge, and a four-track arrangement to allow through trains.



Figure 4.2 Proposed Transport Infrastructure

5 EXISTING SITE SERVICES AND PROPOSED CONNECTIONS

5.1 Existing Infrastructure

The desktop review of the existing service infrastructure has been compiled and is presented in the following sections of this report. Existing services, such as those illustrated in the figure below, are currently in place along the N20, Station Road, and R617.

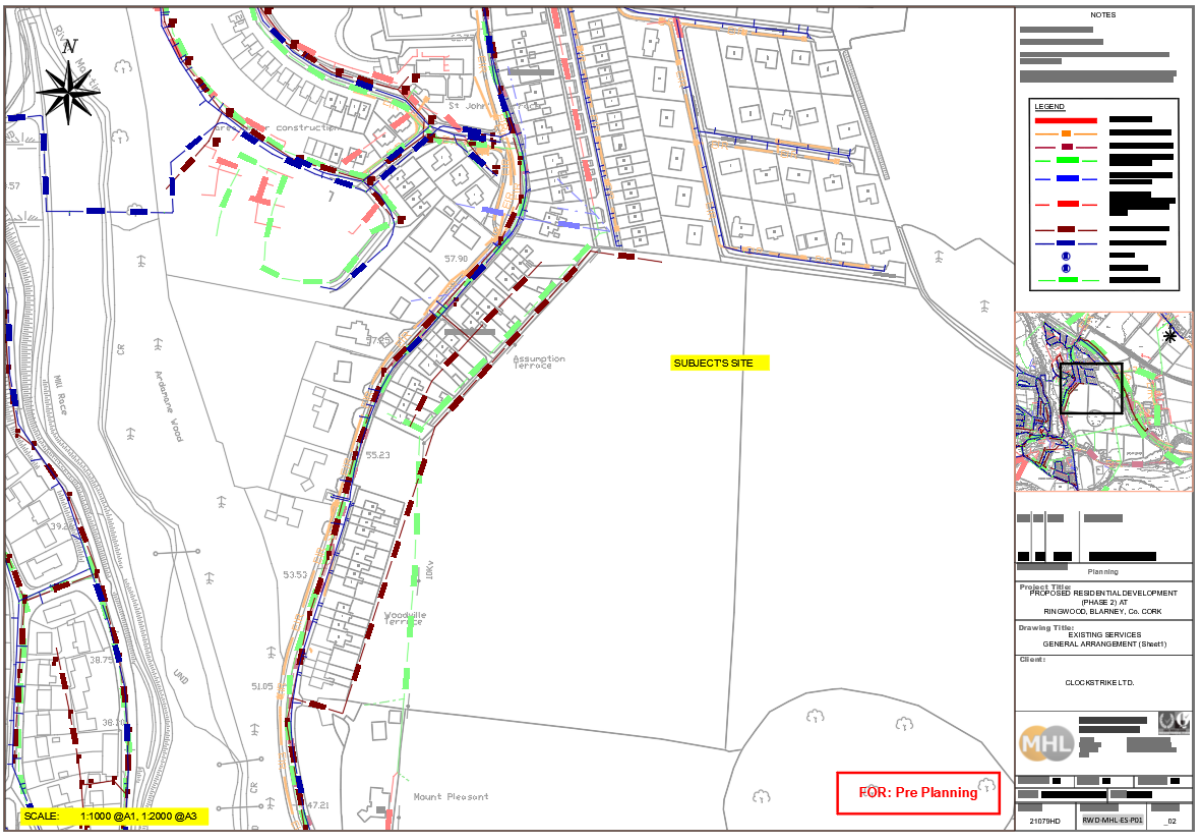


Figure 5.1 Overview of existing utility services in the vicinity of the site.

The desktop review has uncovered findings of the adjacent on-road services as well on-site services to give an indication of the site future feasibility. Further on-site testing will be required to ensure the full discovery of all on site services to better inform the design team. This discovery process would be in the form of site investigation/ infiltration testing and GPR (Ground Penetration Radar) surveys which will supplement the desktop reporting undertaken.

5.2 Wastewater Sewer Infrastructure

The site enjoys connectivity onto the existing wastewater network at several locations along the site's boundary. Uisce Éireann records indicate that wastewater sewers are located through the Blarney Business Park and along Station Road. See Existing Services drawing Included in the Appendix of this report.

The proposed development wastewater network has been outlined below to reference appropriate connection locations and infrastructure requirements. It is proposed that localised pumping will be required. The water network is to be designed in accordance with Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice.

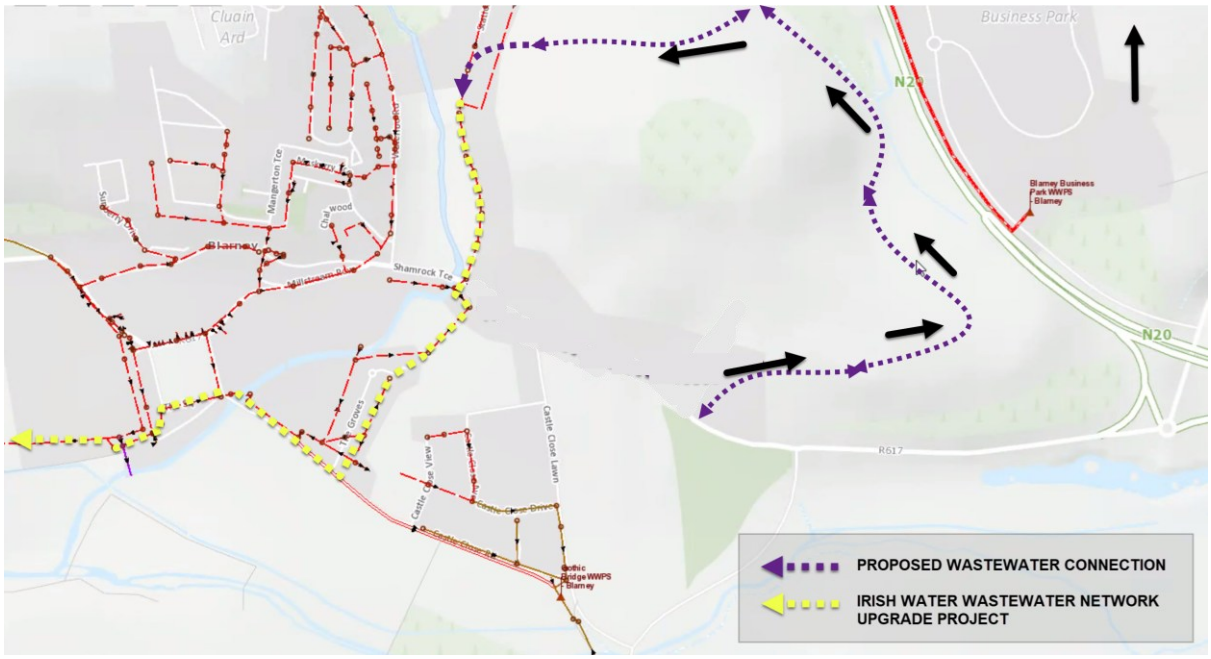


Figure 5.2 Proposed Tie into the existing Wastewater network.

Proposed Uisce Éireann planned Wastewater network improvement is highlighted in yellow.

Following a Pre-connection enquiry, Uisce Éireann has determined the existing Blarney Wastewater Treatment Plant has capacity to cater for the proposed phase development without an upgrade currently. A major upgrade would be required for the full multi-phase development. It should be noted that the Pre-connection Application sought a connection for 319 residential units on the site. The letter from Uisce Éireann confirms that adequate capacity is available for approximately 319 units for Phase 2. Uisce Éireann have highlighted that local network improvement works will be required to cater for the development. See the Uisce Éireann Letter to the Applicants agent, in Appendix B, confirming feasibility of connection.

A pre-planning meeting with Uisce Éireann's Regional Wastewater Networks Asset Planning was subsequently attended by the MHL on behalf of the applicant. At the meeting Uisce Éireann confirmed:

- Uisce Éireann are progressing a project in Blarney aimed at upgrading the wastewater network serving various development sites, including the Ringwood/Stoneview site. These works are part of a schedule of upgrade works. Uisce Éireann will work with the applicant to ensure that necessary connections and capacity upgrades are delivered in parallel with the applicant's Masterplan ambitions.
- Gravity Sewers are to be employed as far as possible with the number of pumping of wastewater to be limited.
- UE draft network strategy for the area was provided as a design reference.
- MHL, acting on behalf of the applicant, are to develop an overall Phased Wastewater Masterplan for the site (and adjoining Stoneview lands) outlining a realistic development schedule, suggested trunk sewer network (sizing and gradient), pumping requirements, loadings, and connection locations.
- A similar plan to be developed by MHL for water.

5.3 Existing storm and wastewater serving neighbouring sites

Two existing sewer connections were noted to run through the applicant's site. These services follow an existing wayleave located the site's boundary with the back of

Assumption Terrace. These sewers connect Ard na Greine and Aisling Gael estates to the existing storm and wastewater network located on Station Road.

A CCTV survey undertaken by Dyno Rod determined that:

- An existing 225mm OD wastewater sewer runs north to south along the western boundary of the site, to the east of Assumption Terrace. This connects onto the Station Road directly opposite the existing field site access.

- An existing 300mm to 500mm OD storm sewer runs though the applicant site, following the route of the existing 225mm OD wastewater sewer. This storm sewer runs further south, past the existing field access and outfalls to the River Martin, as noted in Figure 5.3.



Figure 5.3 Surveyed sewers

Review of the CCTV survey footage of these two sewers provide data on their condition. A defect grade rating (provided by Dyno Rod), per individual sewer run was determined, as per table requirements in Figure 5.4.

Rating	Description	Examples	Recommended Action
1	Occurrences without damage	Laterals, joints, minor features with no impact	**No defects detected. No action required.**
2	Constructional deficiencies with insignificant influence on tightness, hydraulic performance, or structural safety	Wide joints, poorly torched intakes, minor pipe deformation, small erosions	**Rehabilitation can be scheduled long-term.**
3	Deficiencies reducing static, hydraulic, or sealing performance	Untorched intakes, cracks, minor drainage obstructions (calcite build-ups), protruding laterals, minor pipe wall damage, minor root intrusions, localized corrosion	**Rehabilitation necessary within 3–5 years (medium-term).**
4	Damages affecting structural safety, hydraulic capacity, or tightness	Axial/radial pipe bursts, significant deformation, visible infiltration/exfiltration, cavities, severe protruding laterals, significant root penetration, severe corrosion	**Urgent rehabilitation required within 1–2 years. Emergency operations may need consideration.**
5	Pipe already or soon to be unusable/impenetrable	Collapsed pipe, heavy root intrusion, major drainage blockage, risk of backwater into buildings	**Immediate, short-term rehabilitation required. Temporary emergency spot repairs must be carried out to prevent further damage.**

Figure 5.4 Defects rating score (CCTV)

A portion of the surveyed storm sewer was rated grade 4, noting urgent rehabilitation required within 1-2 years.

The existing wastewater sewer was graded 4, (Best practice suggests consideration to be given to extensive maintenance due to deposits).

As part of the development works, the existing wayleave will be extinguished and reinstated along the new storm and wastewater sewer route, which will be aligned with the applicant's proposed development layout and carriageways.

5.4 Water Supply Infrastructure

The site enjoys connectivity onto existing watermains at several locations along its periphery. Uisce Éireann records indicate that watermains are located along the R617 Regional Road to the south of the site, along Station Road and on the local road to the north of the northern-most, Stoneview site. See Existing Services drawing included in the Appendix of this report.

The scheme watermain network has been outlined below to reference appropriate connection locations and infrastructure requirements. The water network is to be designed in accordance with Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice.

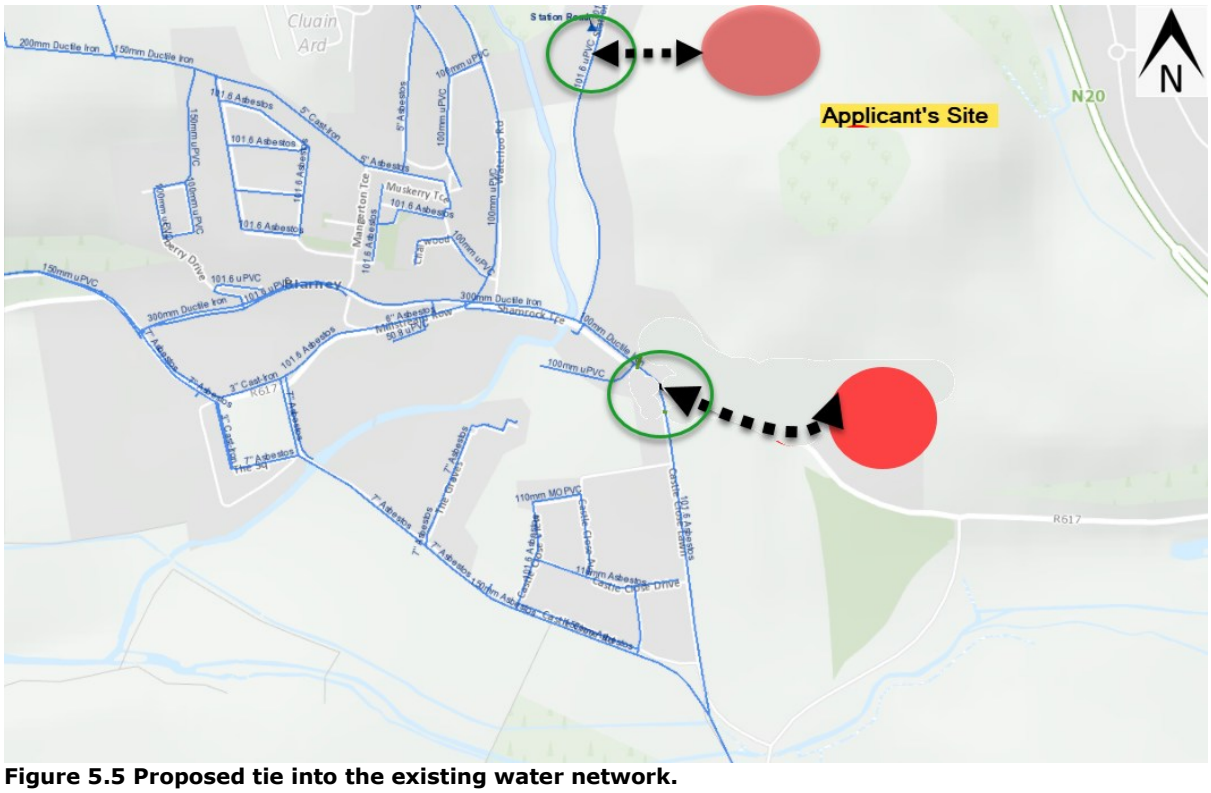


Figure 5.5 Proposed tie into the existing water network.

Pre-connection consultation with Uisce Éireann has determined the existing Water Treatment Plant has capacity to cater for the development. Uisce Éireann have highlighted that local network improvement works will be required to cater for the development, including a potential crossing if the N20 and railway line. The applicant proposes to include a new N20 and railway bridge in the planning application, ensuring that these service connections can be delivered. See the Uisce Éireann Letter to the Applicants agent, in the Appendix, confirming feasibility of connection for water for the masterplan proposal.

5.5 Gas, Electricity and Telecommunications Infrastructure

The N20 Limerick Road has existing service infrastructure in the form of electric power supply, telecommunications via Eircom and gas supply from Gas Network Ireland. These services are detailed in the service layouts supplied in the Appendices.

An extensive gas network is in the immediate vicinity of the site.
An existing gas line runs past the east of the site. This line a 180PE-X 4bar line. To the eastern side of the N20 a GNI transmission line 150mm ST 70bar is noted.

An extensive telecommunication/broadband network is in the immediate vicinity.
of the site:



Figure 5.6 ESBN Infrastructure

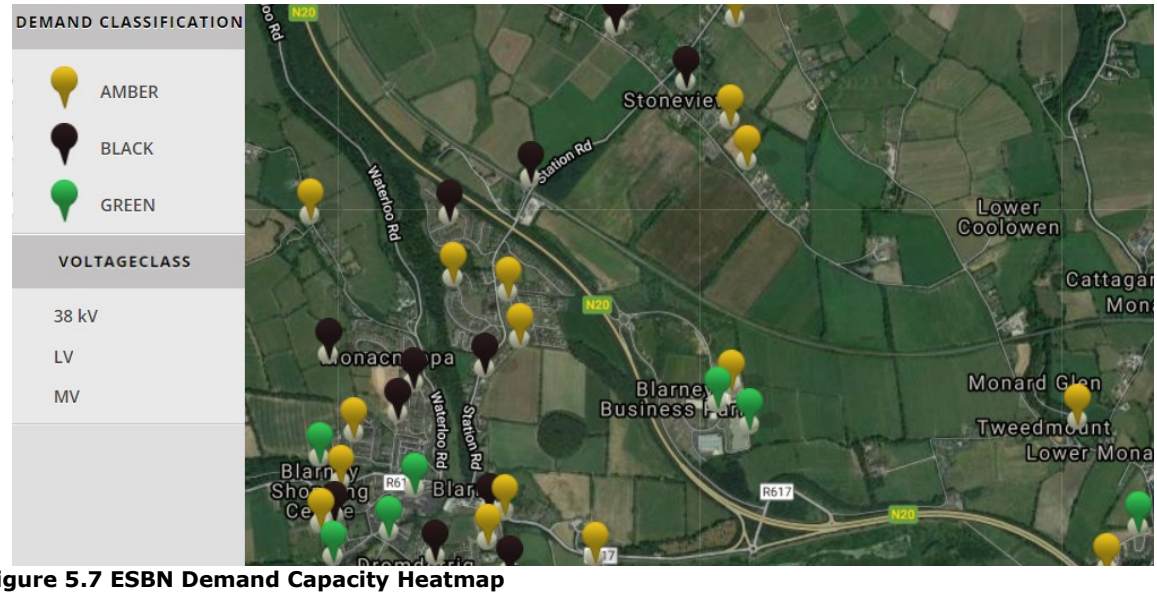


Figure 5.7 ESBN Demand Capacity Heatmap

The ESB Network Demand Capacity Heatmap indicates transformer capacity available at each distribution substation. The data is intended to guide industrial/large commercial

scale users to substations where a connection is more likely to be achieved without significant reinforcement. This is relevant as substation and transformer installations are the longest lead time component of connections if they must be built or reinforced.

As can be seen from the above map, capacity is currently available in the ESBN network in the vicinity of the site.



Figure 5.8 Existing Service- Telecom

- An existing EIR telecom line runs directly past the eastern boundary of the site as shown.
- An Aurora Telecom duct also runs in line with the EIR duct.

- The National Broadband Plan Map identifies locations and premises as being AMBER or BLUE.
- AMBER areas - the target areas for the State intervention under the National Broadband Plan
- BLUE areas - where commercial operators are delivering or have indicated plans to deliver high speed broadband services. Operators are continuing to enhance their services in these areas to improve access to high-speed broadband.

It can see that high-speed broadband is either available currently or plans are in place to deliver a high-speed service in the vicinity of the subject site.

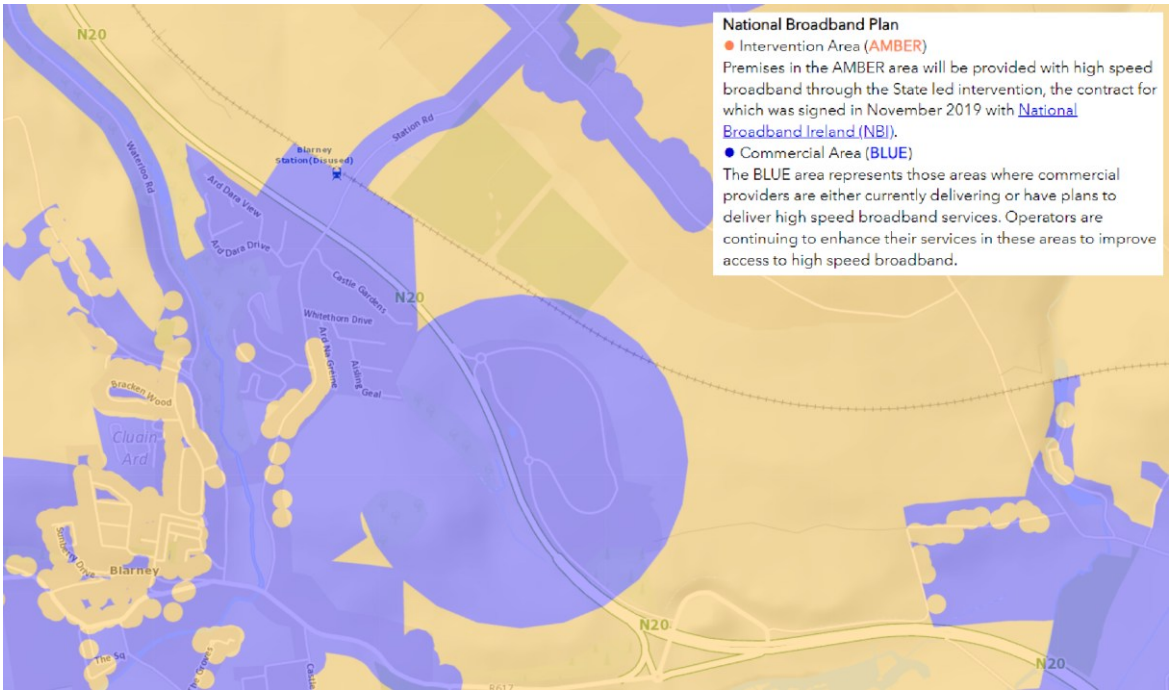


Figure 5.9 National Broadband Plan Map
(Department of the Environment, Climate and Communications)

5.6 Public Lighting and Pedestrian Connectivity

Existing public lighting and pedestrian connectivity is available at the proposed junction with the Station Road and the R617. The site is serviced by public footpaths along the nearside of the property boundary with the local road, which provides pedestrian connectivity to the surrounding area and access to the service station convenience store.

5.7 ESB

From utility maps received from ESB Networks, the existing dwellings on the Station Road are served by an overhead MV network. There is an overhead MV network traversing the Phase 2 site on a north-south axis. The overhead network continues and run in a west-east axis along the southern section of the applicant's site, primarily mid way along the new spine road corridor.

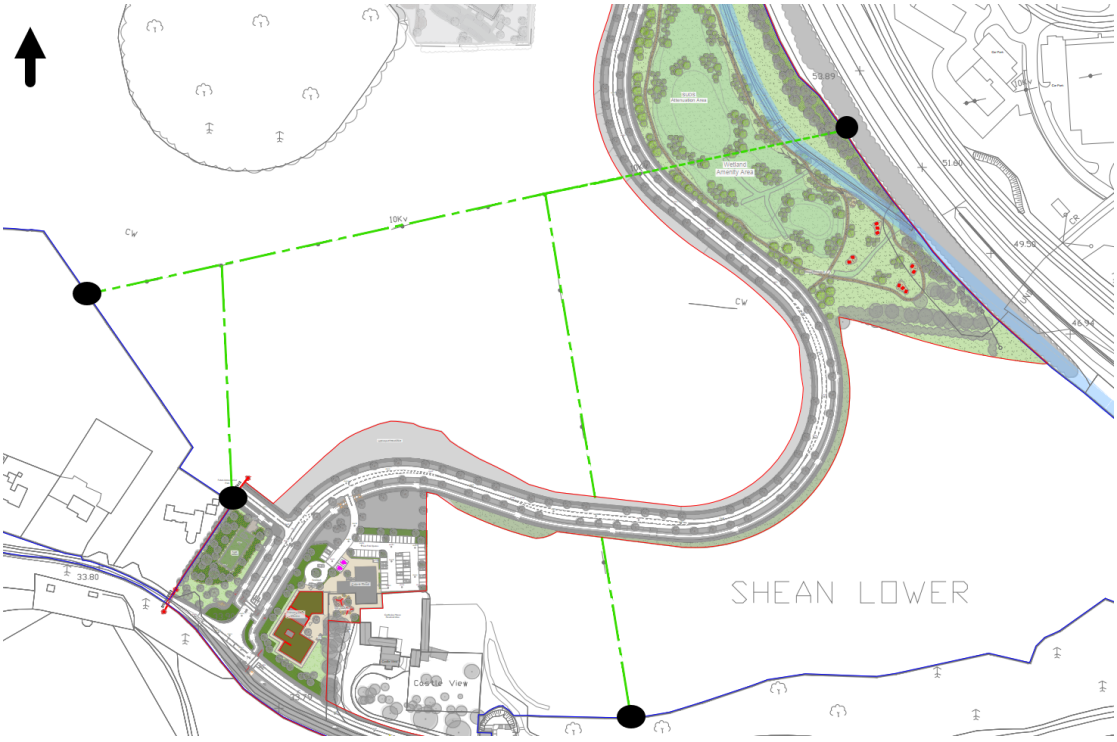


Figure 5.10 Existing ESB service located within Phase 2.

This line runs in a NEE to SWW direction for circa 600m, with two additional overhead running in a north south direction towards the R617 as shown.

6 SITE INVESTIGATION

In September 2023, Priority Geotechnical Ltd. (PGL) undertook a preliminary site investigation on site. The aim of the proposed investigation is to evaluate the ground and groundwater conditions within the site to allow the construction of mixed use phased residential/ commercial development; to include the development of all internal roads, services and include new access junctions onto the roads that abound the boundaries of the site, large surface water attenuation tanks, new water and wastewater services, new road construction, boundary treatments and accommodation works.



Figure 6.1 Preliminary Site Investigation – locations (pre planning layout)

The scope of the preliminary site investigation determined by M.H.L. comprised of:

- 7Nr. Trial pit excavations TP01 – TP07.
- In situ testing: 4Nr. BRE365 soakaway; tests: TP01, TP02, TP05 and TP07.
- All associated sampling; Laboratory testing with Environmental testing, Suite E: TP02, TP03, TP04 and TP06
-

6.1 Findings

Location	Final depth, m bgl	Remarks	
		Stability	Groundwater
TP01	3.70	Good	None encountered.
TP02	4.20	Good	None encountered.
TP03	3.60	Moderate	None encountered.
TP04	3.25	Good	None encountered.
TP05	4.20	Good	None encountered.
TP06	2.65	Good.	None encountered.
TP07	4.60	Good	Steady rate of flow 3.25m.

Figure 6.2 Preliminary Site Investigation Trial Pit results (c: Priority Ltd.)

Location	Depth, m bgl	Infiltration coefficient, ms ^{1}
SA TP01	2.0	*2.95 E-06*
SA TP02	2.1	*2.11 E-06*
SA TP05	2.3	*3.17 E-06*
SA TP07	2.0	*5.35 E-06*

Figure 6.3 Preliminary Site Investigation Soakaway results (c: Priority Ltd.)

The topsoil ranged from 300mm to 400mm in thickness, covering a mix of glacial deposits including very clayey and very sandy gravel, as well as slightly sandy gravelly clay. This layer extended from 2.3m below the existing ground level (bgl) to 4.6m bgl (TP07). Beneath the glacial deposits, weathered siltstone was found at depths ranging from 2.0m bgl to 2.5m bgl at TP01, TP04, and TP046, reaching depths of 2.65m below the existing ground level (bgl) to 3.7m bgl.

Groundwater levels can experience diurnal, seasonal, and climatic fluctuations, influenced by factors such as drainage conditions with the limited duration of trial excavations not sufficient for cohesive deposits to reach an equilibrium groundwater level. Please refer to the Preliminary factual / interpretative reports carried out by Priority Geotechnical Ltd.

7 PROPOSED STORM NETWORK

7.1 Proposed Design

To mitigate surface runoff impacts a Plan and Design Led Multi-Disciplinary Approach to Surface Water design was adopted, involving the wider design team, including Architects, Engineers, Landscape Architects, Ecologists and Planners. The natural slowing and filtration of storm water runoff from our roofs, streets and public realm, assisted by the creation of a variety of initiatives. These details have been complemented in the broader scheme design through the creation of green spaces and the planting of trees within the public and private realms.

Pre planning discussions with CCC Drainage Department focused on objectives of the Cork City Development Plan in relation to nature based solutions,. The proposed development has been design to replicate, insofar as possible, the natural drainage as closely as possible, maximising benefits for water quality, biodiversity and amenity. The designers have explored key issues such as above ground storage of surface water, on site infiltration, as well infrastructure maintenance, outfall locations, network connections, and potential improvements to address emerging challenges. The department emphasised the importance of SUDS measures coupled with a requirement to follow standard best practice drainage design from engineering and future maintenance perspective, ensuring redundancy in the system. Overall, the scoping meetings provided valuable insights into ensuring compliant design and mitigating potential risks.

To manage runoff effectively through attenuation methods, a hydraulic control is necessary to limit downstream flow magnitude. This is complemented by upstream infiltration and storage capacity to retain the volume of runoff regulated by the hydraulic control. The proposed approach involves the use of nature based surface water measures with supplemental storage detention devices, equipped with a restricted outlet as the control devices. The design of the required storage volume has been meticulously calculated using UKSUDS and Flow software.

7.2 Outline

Please refer to Proposed Surface Water Drainage layouts for the site in Planning Drawing Pack accompanying this planning application. As part of the design process the Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas - Water Sensitive Urban Design Best Practice Interim Guidance Document prepared by the Department of Housing and the "Interim Code of Practice for Sustainable Drainage System" published in July 2004 by the National SUDS Working Group was consulted.

7.3 Surface Water Drainage Network

The surface water drainage network for the proposed development underwent modelling, incorporating details such as above ground flows, green basins, swales and supporting surface water engineered solutions. These engineered solutions include pipe lengths, slopes, contributing impermeable areas, upstream invert levels, upstream cover levels, and pipe diameters. Please refer to the submitted layouts for specifics on proposed pipe slopes, sizes, and routing.

To facilitate the model, global variables M5-60 and Rainfall Ratio are essential. These factors, obtainable from the UKSUD website, enable the program to calculate storm characteristics, including intensity, duration, and frequency.

M5-60 is the rainfall depth based on a 60-minute storm of 5 years return period. Ratio R is the ratio of the 60-minute storm to the 2-day storm for the 5-year return period events.

The design of the pipework and stormwater attenuation tank for the proposed development considered both summer and winter rainfall profiles to determine the critical design parameters. Summer profiles, characterized by higher rainfall intensities, lead to elevated runoff rates. Conversely, winter profiles exhibit flatter, more sustained rainfall patterns, resulting in increased runoff volumes.

To ensure compliance, the surface water drainage network underwent assessment for maximum and minimum velocities, pipe length, and other relevant factors. The network was designed to uphold velocities within the prescribed limits, with the maximum set at 3.0m/s and the minimum allowed at 0.75m/s.

The design of the drainage network was assessed using events with a range of different durations to determine the critical event for each period analysed as follows:

- 1 in 2-year return period events were used to ensure that the system did not surcharge.
- 1 in 100-year return period was used to ensure that flooding did not occur.

The new drainage system provided for the proposed development will be entirely separated from the wastewater sewer network.

Each sub-catchment shown in Figure 7.1 is to drain directionally matching the existing topographical gradients and proposed site levels, so that stormwater is routed consistently toward the allocated attenuation basins and discharge points identified in for granted Phase 1 drainage strategy and proposed phase 2 strategy. Please refer to the DIA for additional details regarding storm drainage routing.

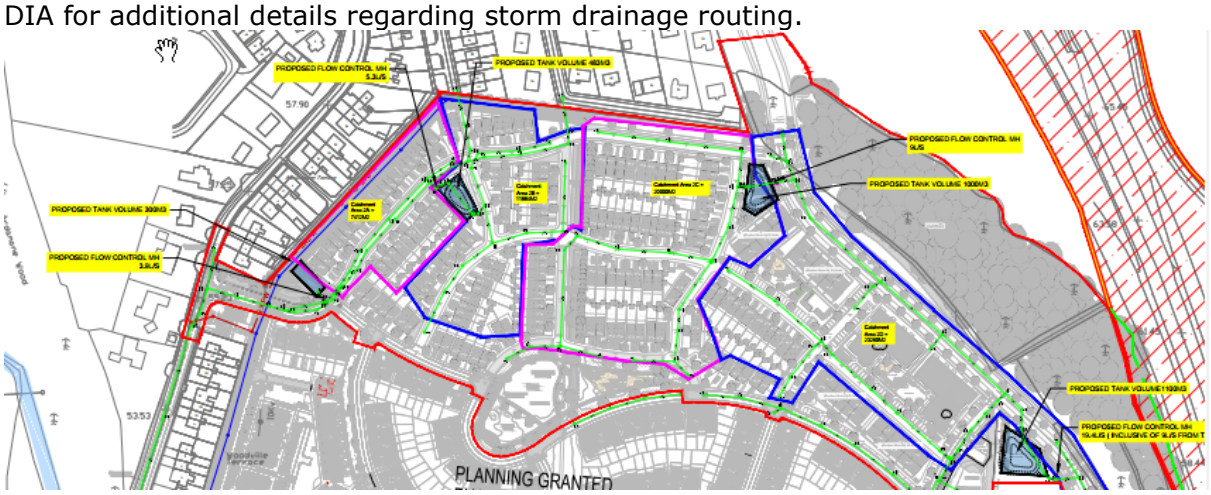


Figure 7.1 SUDS Strategy to incorporate a range of nature-based infrastructure.

The following storm routing for the development Phase 2 area are as shown and is aligned with the Phase 1 granted network.

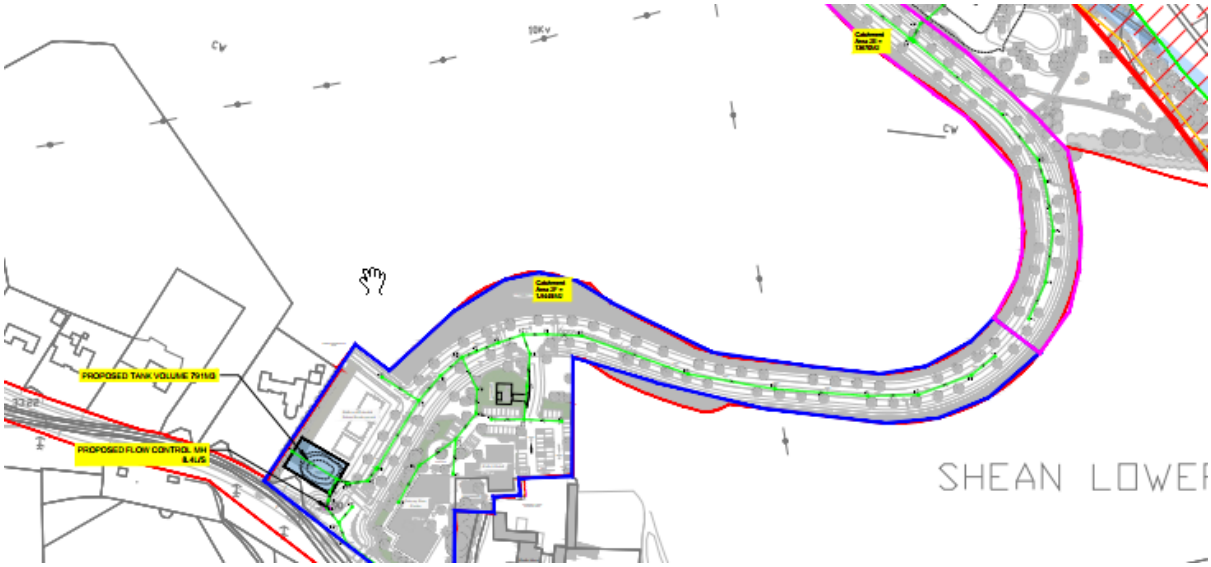


Figure 7.2 Proposed Stormwater Network Phase 2 (Connection to existing storm sewer R617).

7.4 Existing Storm rerouted

The existing 300mm to 500mm OD storm sewer, noted Figure 5.3, is to be rerouted within the development road carriageways, as per Figure 7.3. This new storm is to reconnect with the existing wayleave sewer (500mm OD) to the south of the development access (within the site).



Figure 7.3 Proposed Stormwater Network Phase 2 (Wayleave reroute).

The layout of the proposed storm water network is shown in the Proposed Stormwater Sewer layout plans. For further details on these surface water and SUDS proposals, please refer to the supporting Drainage Impact Assessment report, as submitted.

7.5 Proposed Water Services

The proposed foul water and potable water networks have been developed in accordance with Uisce Eireann's Wastewater and Water respective Code of Practice and Standard Construction Details. A number of Confirmations of Feasibility from Uisce Eireann have been obtained in relation to the site. See Appendix B.

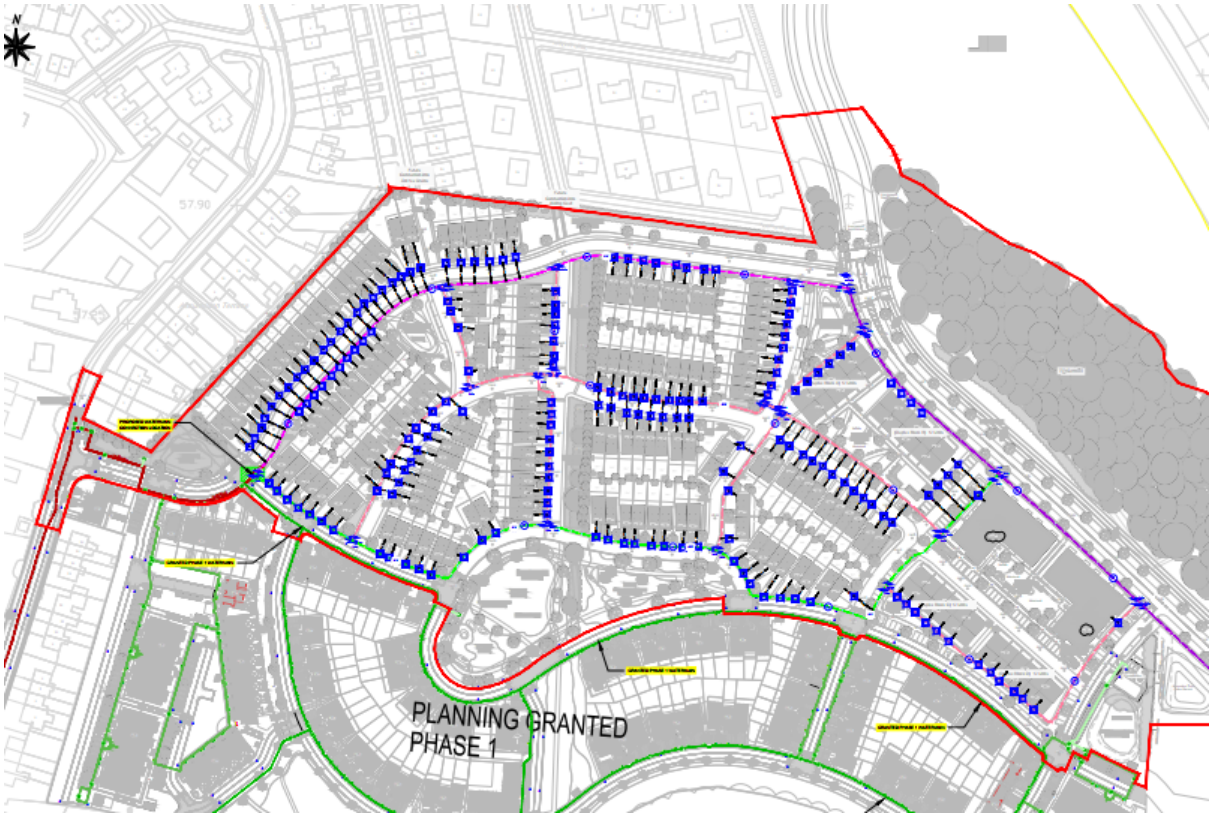


Figure 7.4 Proposed Water Network

The proposed water supply system has been designed and will be constructed in accordance with the requirements of Irish Water and will comply with the following:

- 'Code of Practice for Water Infrastructure' (Irish Water).
- 'Water Infrastructure Standard Details' (Irish Water); and
- Building Regulations, Technical Guidance Document Part B 'Fire Safety'.

The demand assessment is conservative as the above parameters are applied to all residential units i.e., 1, 2, 3 and 4 bedrooms. The new site watermain network has been designed to adequately serve the firefighting requirements of the development.

- Fire hydrants will be provided such that each building will be within 45m of a hydrant and these hydrants will be provided so as to be fully accessible to the fire service.

- Sluice valves will be installed on all principal watermain connections to ensure that sections of the development can be isolated for maintenance and repair as required.

- A water-meter will be installed on the main connections, subject to detailed agreement with Irish Water/Cork City Council.

The layout of the proposed watermain network is shown and, in the layouts, submitted for this application.

All works will be in accordance with Irish Water Code of Practice for Water Supply and the Water Infrastructure Standard Details Document: IW-CDS-5020-01.

See drawings pack as submitted for details.

The demand assessment is based on Irish Water's design parameters as follows:

RINGWOOD PHASE 2 - WATER DEMAND			
RESIDENTIAL	DESCRIPTION	DEMAND	UNITS
	No. Residential Units	[illegible]	dwellings
	Average Occupancy	2.7	persons/Dwelling
	Per Capita Consumption	150	litres/person/day
	Total Damand (Occupancy)	872	persons
	Total Daily Water Demand	130,815	l/day
	Average Demand in Peak Factor	1.250	
	Peak Demand	1.89	l/sec
COMMERCIAL	DESCRIPTION	DEMAND	UNITS
	Retail/ Pharmacy	80	sqm
	Staff No.	4	Staff
	Per Capita Consumption	45	litres/person/day
	Total Daily Water Demand	180	l/day
	Average Demand in Peak Factor	1.25	
	Peak Demand	0.003	l/sec
COMMERCIAL	DESCRIPTION	DEMAND	UNITS
	Café / Restaurant	380	sqm
	Staff No.	21	Staff
	Per Capita Consumption	45	litres/person/day
	Total Daily Water Demand	945	l/day
	Average Demand in Peak Factor	1.3	
	Peak Demand	0.014	l/sec
COMMERCIAL	DESCRIPTION	DEMAND	UNITS
	PCC	1,724	sqm
	Staff No.	82	Staff
	Per Capita Consumption	45	litres/person/day
	Total Daily Water Demand	3,690	l/day
	Average Demand in Peak Factor	1.3	
	Peak Demand	0.053	l/sec
Total Daily Demand		135.63	m^3/sec
Total Peak Demand		1.96	l/sec
Based on loadings from EPA Wastewater Treatment Manual - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels.			
Staff numbers have been determined from floor areas using standard employment density guidelines applicable to Ireland (aligned with UK			

Figure 7.5 Calculated Loadings UE (Water)

8 PROPOSED WASTEWATER SERVICES

8.1 Wastewater Sewer Design

A Pre-Connection Enquiry was submitted to Irish Water, the response to which confirmed that the proposed development can be serviced by the existing wastewater infrastructure network in the area. A copy of the confirmation is included in Appendix.

The Confirmation of Feasibility (COF) states that sufficient capacity is available in the UE network to facilitate a wastewater connection of 319 units. UE have advised that in order to facilitate the wastewater connection, it will be required to upgrade approximately 450m of foul sewer on the Station Road from 225mm to 300mm /450mm. Irish Water have advised that they are commencing network upgrade works in Blarney in the short term.

The network has been designed to achieve self cleansing velocities at 1/3 flow whilst maintaining minimum gradients. The proposed system consists of gravity sewers and a pumped rising main on the site which convey all the effluent from the proposed development to connect to the existing foul main on Station Road.

An application to Uisce Éireann for a Statement of Design Acceptance (SODA) for the Phase 2 LRD Ringwood development has been submitted. The SODA is currently awaiting approval/issuance.

8.2 Development breakdown

There is no existing foul water network within the wider extents of proposed development site, with the exception of an existing service wayleave running along the western boundary of the applicant's site with the neighbouring Assumption Terrace. There is an existing 225mm diameter public foul sewer in the Station Road to the west of the site. This existing sewer runs in a north- south direction eventually discharging to the Wastewater Pumping Station in Blarney. Wastewater collection within the proposed development will be primarily via a network of 150mm, 225mm 300mm and 375mm diameter gravity sewers, which will direct the flows in two directions, to the western boundary of the site and will connect directly to the foul sewer in Station Road and to the southern boundary at the new development entrance with the R617.

Wastewater collection within the proposed development will be via a network of 225mm and 375mm diameter gravity sewers, which will direct the flows to the western boundary of the site and will connect directly to the foul sewer in the Station Road. See drawings as submitted for details.

Foul Water from the proposed development will discharge to the Blarney WWTP for treatment and disposal. This discharge will incrementally increase over a four to five-year period as the development is completed and occupied with a final estimated daily discharge for Phase 2 is 148.61m3/day.

RINGWOOD PHASE 2 - WASTEWATER DEMAND			
RESIDENTIAL	DESCRIPTION	DEMAND	UNITS
	No. Residential Units	---	dwellings
	Average Occupancy	2.7	persons/Dwelling
	Per Capita Consumption (DWF + 10%)	165	litres/person/day
	Total Damand (Occupancy)	872	persons
	Total Daily Foul Water Discharge	143,897	l/day
	Peak Flow Factor	6	
	Average Discharge	1.665	l/sec
	Peak Discharge	9.99	l/sec
COMMERCIAL	DESCRIPTION	DEMAND	UNITS
	Retail/ Pharmacy	80	sqm
	Staff No.	4	
	Per Capita Consumption (DWF)	75	litres/person/day
	Total Daily Foul Water Discharge	300	l/day
	Peak Flow Factor	6.0	
	Average Discharge	0.003	l/sec
	Peak Discharge	0.021	l/sec
COMMERCIAL	DESCRIPTION	DEMAND	UNITS
	Café / Restaurant	380	sqm
	Staff No.	21	
	Per Capita Consumption (DWF)	15	litres/person/day
	Total Daily Foul Water Discharge	315	l/day
	Peak Flow Factor	6.0	
	Average Discharge	0.004	l/sec
	Peak Discharge	0.022	l/sec
COMMERCIAL	DESCRIPTION	DEMAND	UNITS
	PCC	1,724	sqm
	Staff No.	82	
	Per Capita Consumption (DWF)	50	litres/person/day
	Total Daily Foul Water Discharge	4,100	l/day
	Peak Flow Factor	6.0	
	Average Discharge	0.047	l/sec
	Peak Discharge	0.285	l/sec
Total Daily Discharge		148.61	m^3/sec
Total Average Discharge		1.72	l/sec
Total Peak Discharge		10.32	l/sec
Based on loadings from EPA Wastewater Treatment Manual - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels.			
Staff numbers have been determined from floor areas using standard employment density guidelines applicable to Ireland (aligned with UK Employment Densities Guide 2010 for			

Figure 8.1 Calculated Loadings UE (wastewater)

The layout of the proposed watermain network is shown and, in the layouts, submitted for this application. All works will be in accordance with Irish Water Code of Practice for Wastewater Supply and the Wastewater Infrastructure Standard Details Document: IW-CDS-5030-01.

8.3 Overall wastewater strategy (Phase 1 and Phase 2)

The wastewater strategy for both the granted phase 1 and proposed phase 2 application is as shown in Figure 8.2 below. Due to existing and proposed topographical constraints across the site, two wastewater pump stations are proposed at strategic locations within the development lands. These stations will ensure effective collection and conveyance of flows, enabling appropriate connection to the main sewer network located along Station Road.



Figure 8.2 Wastewater flow paths/ strategy.

8.4 Proposed Gravity System for Phase 2

The private foul sewers conveying the effluent from dwellings to the foul drainage system will consist of 100mm pipes at min falls of 1:60. The proposed main system has been designed to take account of all foul drainage requirements within the site for this application. The pipes for the proposed system consist of uPVC pipes at gradients within best practice.

The proposed wastewater network for phase 2 has been designed to be coordinated with the granted phase 1 system, ensuring alignment of the wastewater network across both phases (1 and 2).

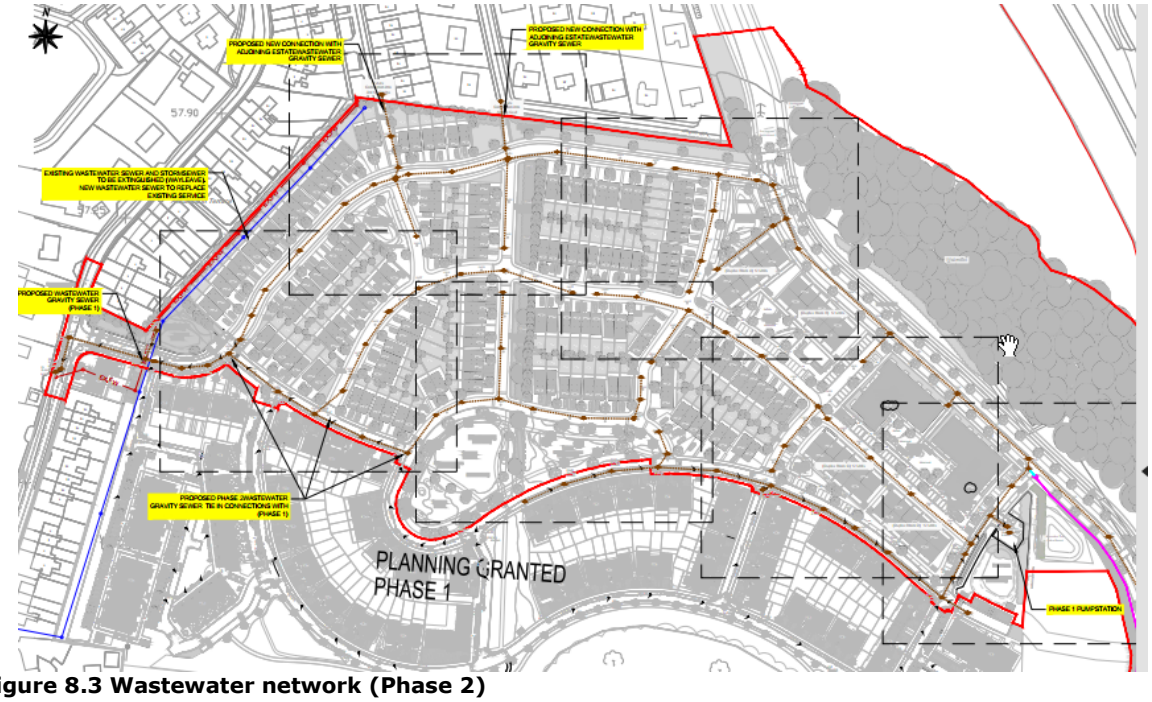


Figure 8.3 Wastewater network (Phase 2)

8.5 Proposed Pumpstation Station Phase 2

A new pumped rising main is proposed to serve the housing development, designed to accommodate phase 1 and phase 2 development phases. The pump station is located on the eastern boundary of the upper phase 1 and 2site and is sized to ensure adequate capacity for both phases of development. Additionally, a second wastewater pump station is to serve the lower section of the phase 2 development, catering for the Primary Care Centre and adjoining proposed properties. The rising main will convey flows from this pump station to the larger Phase 1 and Phase 2 wastewater pumpstation and controlled discharge into the existing Station Road network situated to the west of the site, ensuring efficient and reliable wastewater disposal. The design considers projected flows, system hydraulics, and future expansion, providing a robust solution that integrates seamlessly with the existing network.

Sub phase area 1a and 2a are to be gravity directed to the existing Station Road. The PCC centre area, Phase 1b and 2b are to be pumped from the new type 3 pumpstation.
In its place, a combined Phase 1 and Phase 2 pump station has been developed through close coordination between MHL, Uisce Éireann (for Phase 2 requirements), UE, DBFL, and Cairn. The specific parameters of the pump station — including tank volumes, pump sizing, and discharge rates — have been agreed with UE and will be incorporated into the final pump station footprint by Cairn's specialist consultant, Campion.

Confirmation of feasibility has been granted by Uisce Eireann for the Phase 2 RFI application.

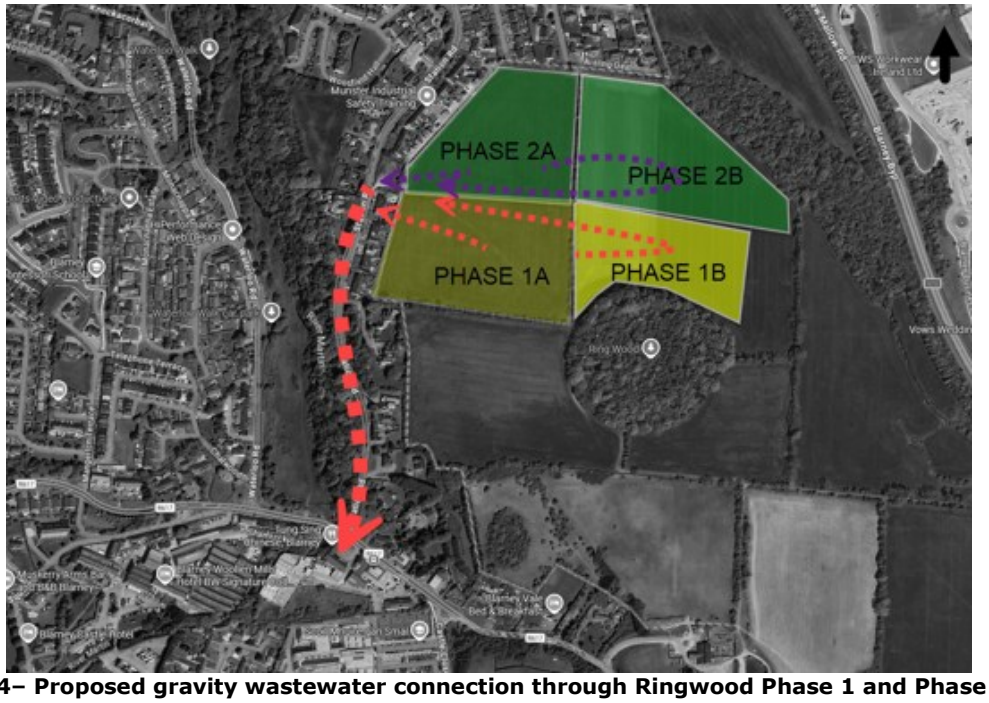


Figure 8-4– Proposed gravity wastewater connection through Ringwood Phase 1 and Phase 2

Following engagement with Uisce Éireann, the following key design requirements have been established for the proposed wastewater pumping solution serving the combined Phase 1 and Phase 2 development:

The proposed combined Phase 1/Phase 2 wastewater pumping station shall be designed and constructed in accordance with the current Uisce Éireann Codes of Practice and Standard Details.

The pumping station shall incorporate an Emergency Storage Tank providing a minimum of 24 hours of clear storage capacity. Under emergency operating conditions, no surcharge of the upstream wastewater network will be permitted.

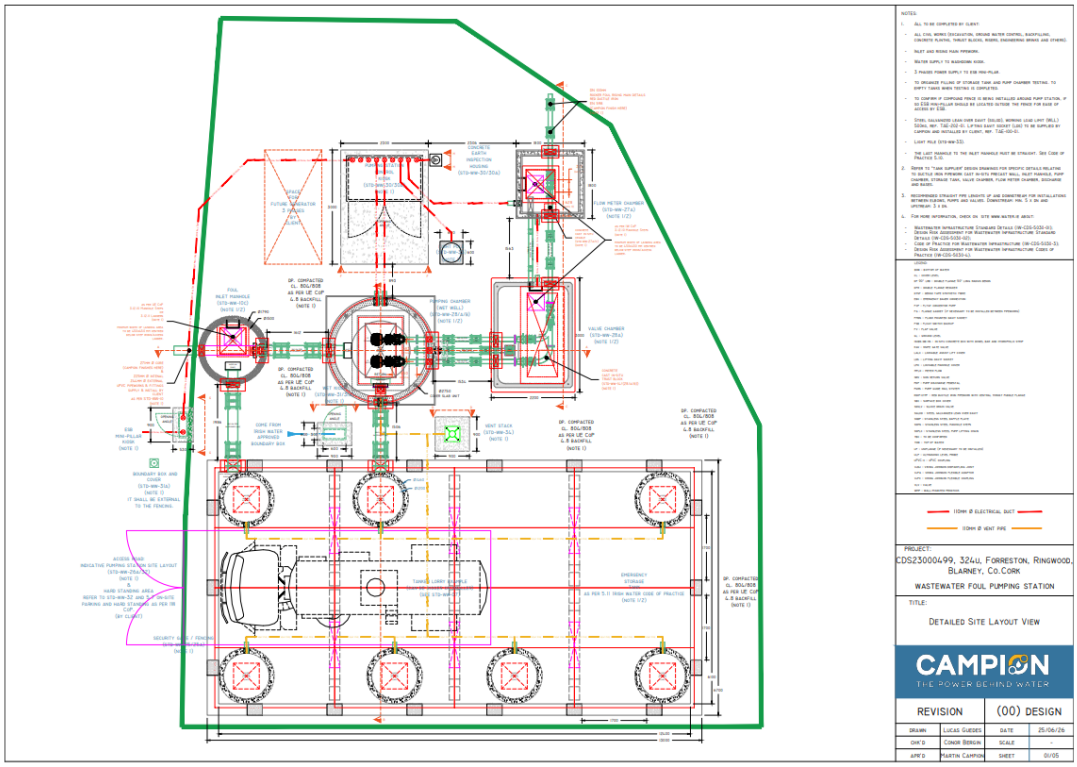
The foul drainage network shall, where practicable, be designed to maximise gravity conveyance from all development phases to the pumping station, thereby minimising the extent of pumped flows within the site.

Based on the hydraulic calculations submitted, Uisce Éireann has indicated a preference for a pumping regime based on an approximate discharge rate of 6 L/s, with pumping occurring over a period of approximately seven hours to moderate the impact on the downstream public sewer network.

The proposed discharge to the existing wastewater network on Station Road shall incorporate permanent flow monitoring equipment together with real-time telemetry and control systems in accordance with Uisce Éireann operational

As per details provided by Campion, the proposed pump station is a compact, packaged foul sewage pumping station with a wet-well storage for ~22 hours emergency capacity, Duty/standby pumping arrangement capable of handling peak flows up to ~10 l/s, A 395 m long 80 mm ductile iron rising main and designed in accordance with relevant standards for reliability, odour control, and maintainability.

It is intended as a permanent installation to serve the residential development until such time as gravity connection to the public sewer becomes available or as a long-term solution.



Domestic Sewer Sizing - Peaking Factor Ref. Amended Code of Practice						
Population		Peaking Factor	Houses		Storage Hours	Max Storage Volume [m3]
0	750	6	0	250	24	112
751	1000	4.5	250	333	18	139
1001	5000	3	334	1667	12	437
5001	10000	2.5	1667	3333	10	746

Flow per House	0.446	[m3/day]
No. of Houses	324	[units]
Peak Factor	6.0	[PF]
Storage Volume Req.	136.253	[m3]
Hours Storage Provided	23	[hours]
Dry Weater Flow [DWF]	1.67	[l/s]
Peak Design Flow [DWF x PF]	10.02	[l/s]

Figure 8-5– Proposed gravity wastewater connection through Ringwood site

A secondary pumpstation is proposed to connect the proposed Phase 2 PCC and developable area to the combined PS. This PCC pumpstation loading and specifics have been accounted for the in combined Phase 1 and Phase

We acknowledge Uisce Éireann's requirements for the proposed wastewater pumping solution. The pump station serving Phases 1 and 2 will be designed and constructed in accordance with Uisce Éireann's Codes of Practice and Standard Details. The design will provide a minimum of 24 hours of clear emergency storage with no surcharge of the network permitted. Where feasible, flows from all phases will be directed to the proposed pump station prior to discharge towards Station Road. The pumping system will be designed to achieve a flow rate of approximately 6 L/s over a pumping duration of approximately 7 hours, in line with Uisce Éireann's preference. Flow monitoring and real-time control monitoring will be provided at Station Road. No upgrades to the existing wastewater network on Station Road are anticipated, subject to demonstrating that the proposed pumping solution satisfies the above requirements. In addition, a connectivity survey of the existing storm gullies and discharge points along Station Road (from the

R617 to the N20 bridge crossing) will be undertaken to identify any stormwater currently entering the foul network. The findings will be documented and shared with Uisce Éireann, and any identified stormwater connections will be removed and incorporated into the proposed stormwater works along Station Road to support the discharge from Phases 1 and 2 to the existing 225 mm sewer.

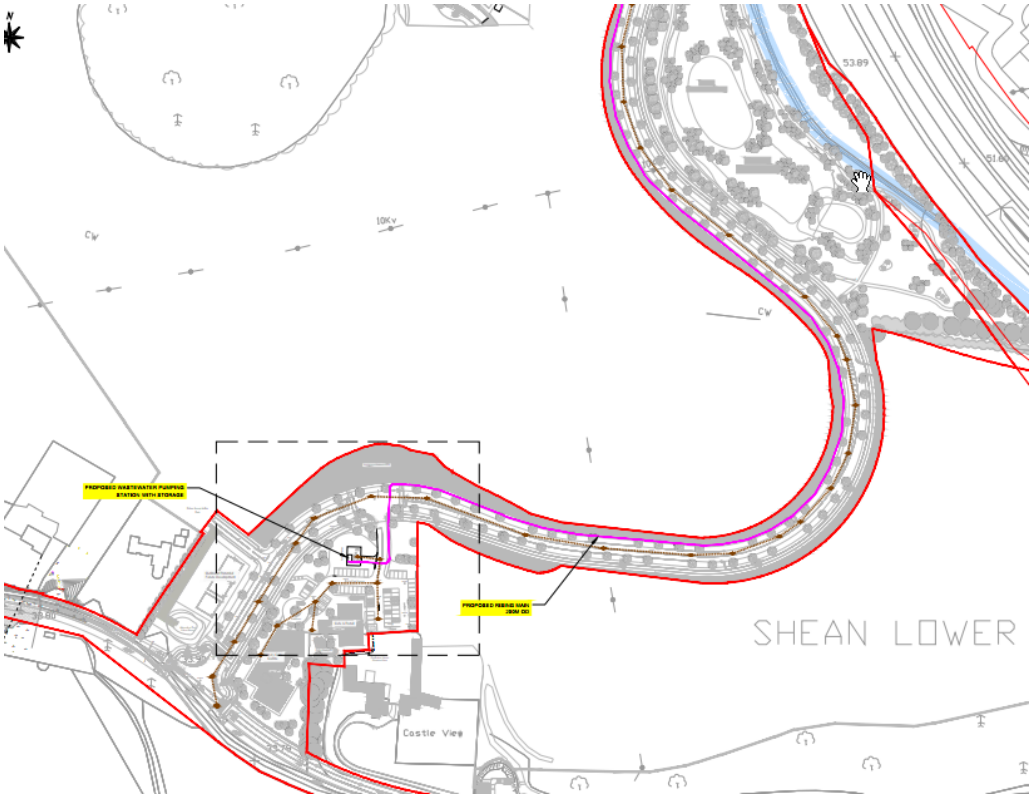


Figure 8.6 Proposed pumped rising main to header manhole on Station Road.

8.6 Wastewater sewer reroute

An existing 225mm OD wastewater sewer as previously highlighted in Figure 7.3 is to be rerouted within the proposed run development road network, as shown in Figure 8.3. This rerouted service is to maintain UE service for the nearby Ard na Greine and Aisling Gael residential estates.

9 ROADS

9.1 Proposed Junction Accesses

It is proposed to access the Phase 2 lands from the Station Road and also from a new R617 signalised junction and associated Spine Road, as noted in Figure 9.1 below.

For planning purposes, the capacity of Station Road (R617) will need to accommodate substantial traffic flows as the development progresses through the initial housing phases and beyond. This includes existing traffic demand and future demand associated with the spine road becoming a primary access route, along with any potential additional service flows generated by the Stoneview lands north of the N20. Capacity assessments for the existing and proposed junction arrangements are provided in Systra's Traffic Report.

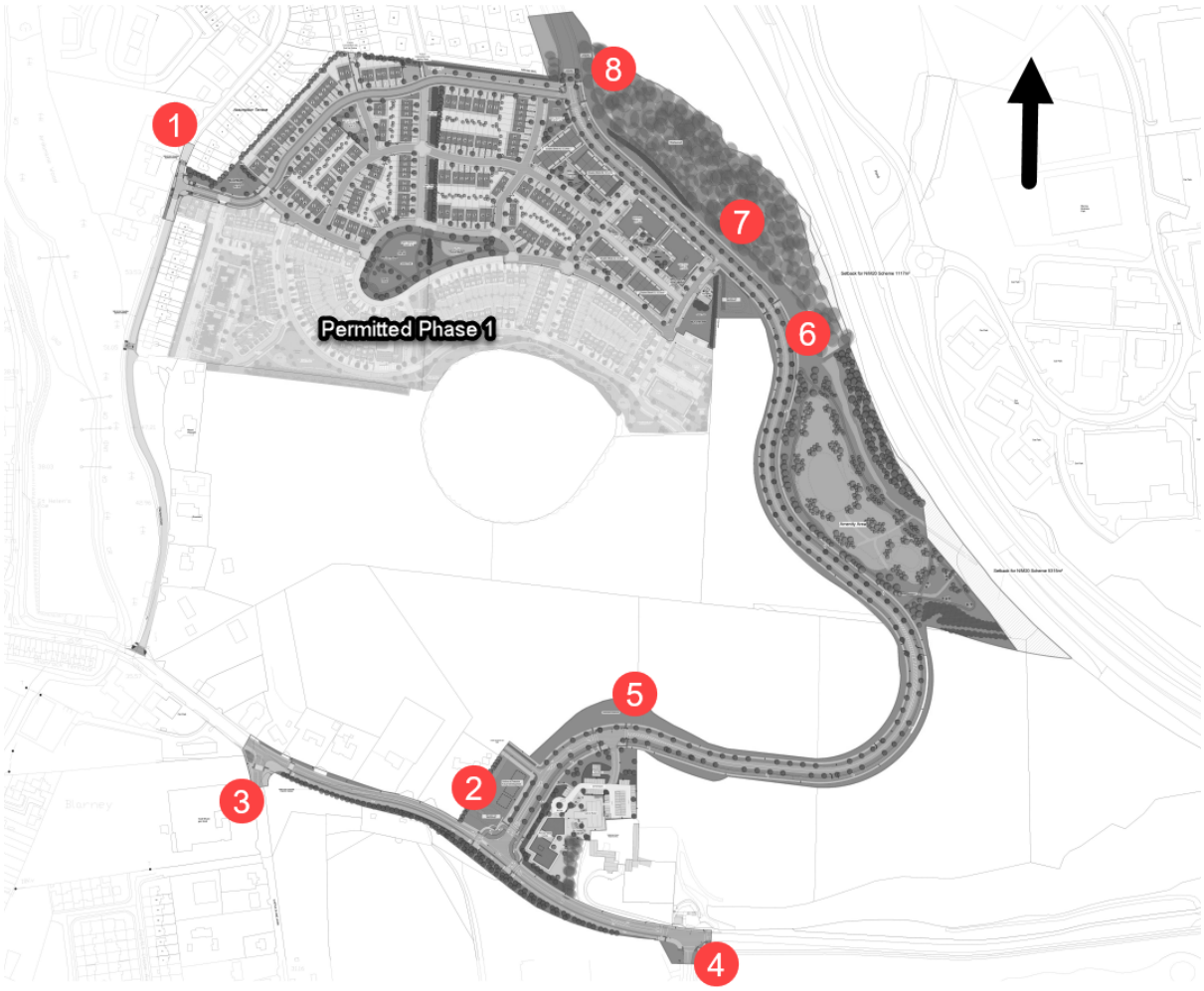


Figure 9.1 Proposed Access Junctions

1. Proposed Development Access with Station Road (To be Signalised)
2. Proposed Development Access with the R617 Road (To be Signalised)
3. Proposed upgrade of the existing Castleclose Lawn/R617 priority T junction the R617 Road
4. Proposed upgrade of the existing Killard/R617 priority T junction the R617 Road (To be Signalised)
5. Proposed new development site junction on the proposed Spine Road (To be Signalised)
6. Proposed toucan crossing.
7. Proposed Priority Junction.
8. Proposed Signalised Junction.

9.2 Proposed Development Junction with Station Road

The existing field access onto Station Road is to be upgraded to a signalised junction, consistent with the approved Phase 1 application. A fully signalised junction with pedestrian crossings on all arms of the junction is proposed, providing safe pedestrian and cyclist movement. Cycle connectivity will be delivered via the Station Road link and through two dedicated cycle lanes internally within the site. These proposed cycle facilities are to be provide on both sides of the internal link road, as shown Figure 9.2.

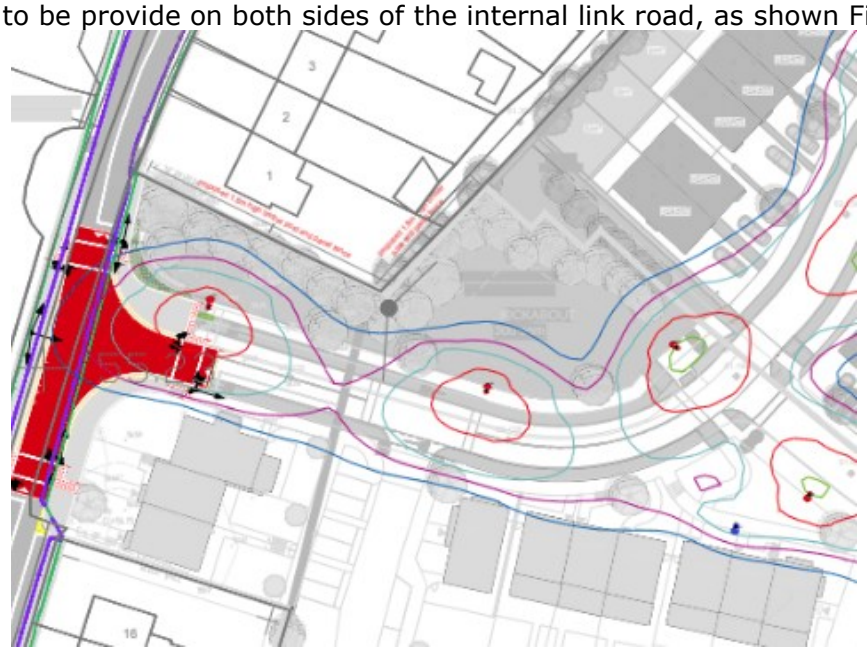


Figure 9.2 Phase two development site connection with Station Road

9.3 Proposed Development Junction with R617 Road

The existing site access with R617 Road is to be replaced with a signalised junction. Proposed are two toucan crossings providing east/west and north/south linkages for both cyclist and pedestrians. Cycle connectivity within the site is provided by cycle lanes facilities on both sides of the proposed Spine Road, as noted in Figure 9.2. An improved linkage along the south of the R617 between this development site junction and Killard junction to the east will provide appropriate connectivity to the nearby Clogheenmilcon Fen sanctuary walk.

The residential development will benefit from its proximity to Clogheenmilcon Fen, a high-value natural and recreational asset that has recently undergone significant amenity and ecological enhancements. Cork City Council, has upgraded seating, signage, and access features, and progressed key elements of the Ecological and Tourism Plan, including a looped boardwalk, amphitheatre, and dipping pond. In addition, a new wildlife-viewing platform is being constructed through funding from the Town and Village Renewal Scheme. These ongoing improvements strengthen the fen's role as an accessible and high-quality amenity for future residents, providing opportunities for recreation, wellbeing, nature appreciation, and integration with the wider green infrastructure network.

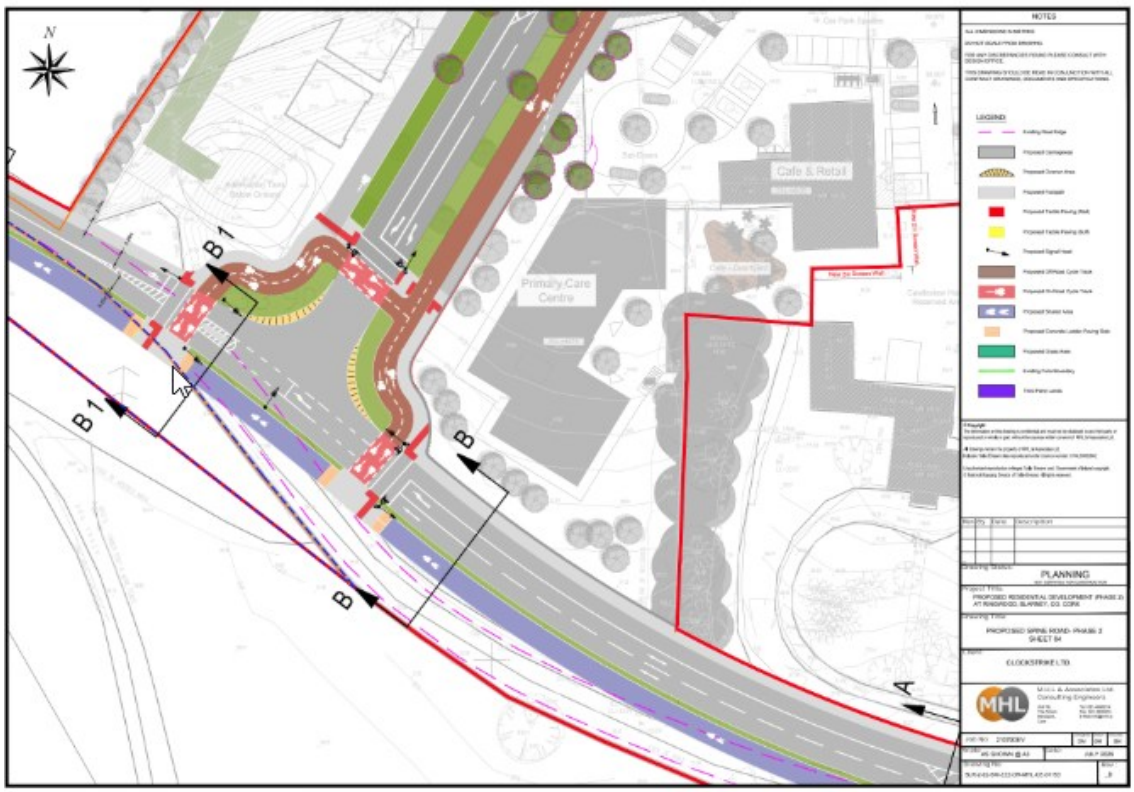


Figure 9.3 Phase two development site / R617 connection

9.4 Proposed Junction upgrade (Killard /R617)

The Phase 2 works will include upgrading the Killard Road/R617 priority junction to a signalised junction, as outlined below. This improvement will enhance safety and provide improved connectivity between the Clogheenmilcon Sanctuary Walk, the Ringwood development, and the wider community.

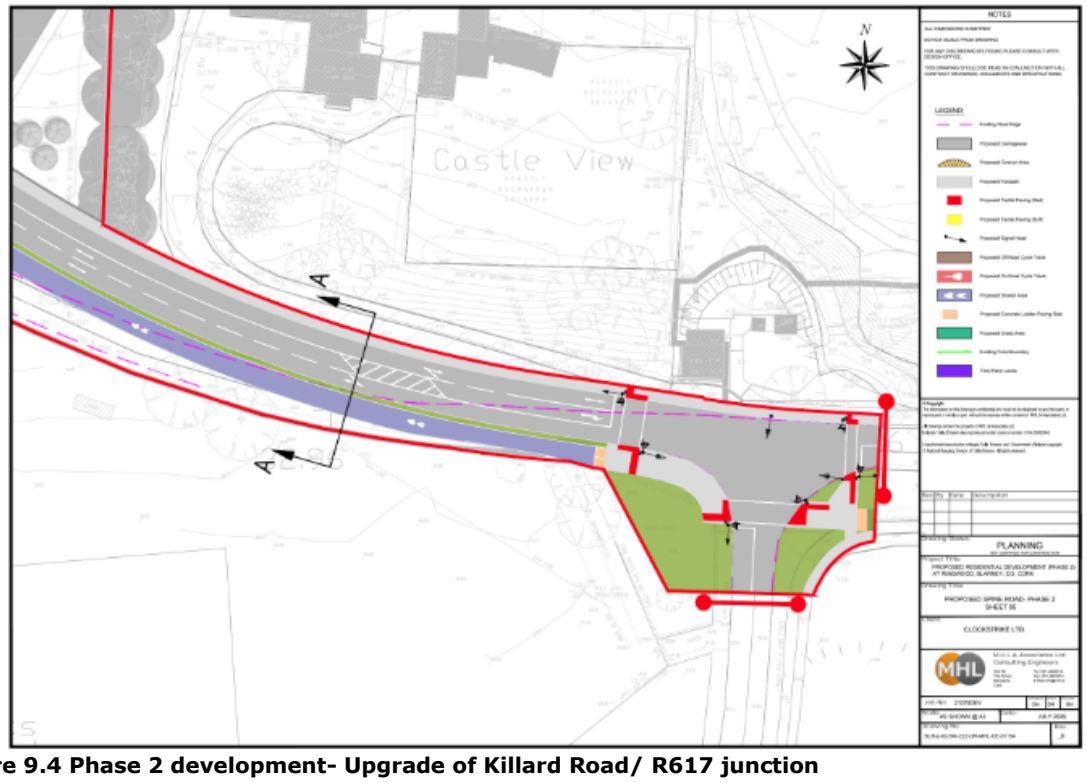


Figure 9.4 Phase 2 development- Upgrade of Killard Road/ R617 junction

9.5 Proposed Junction upgrade (Castleclose /R617)

The Phase 2 works will include upgrading the Castleclose /R617 priority junction as outlined below. This improvement will enhance safety and provide improved connectivity between the Clogheenmilcon Sanctuary Walk, the Ringwood development, and the wider community.



Figure 9.5 Phase 2 development- Upgrade of Castleclose junction

9.6 Proposed Spine Road

A route appraisal of this spine road and its junction onto the R617 was undertaken as part of the design process. Details of this appraisal are included in Systra's supporting transportation report. The route appraisal options considered in this assessment are presented below in Figure 9.6.

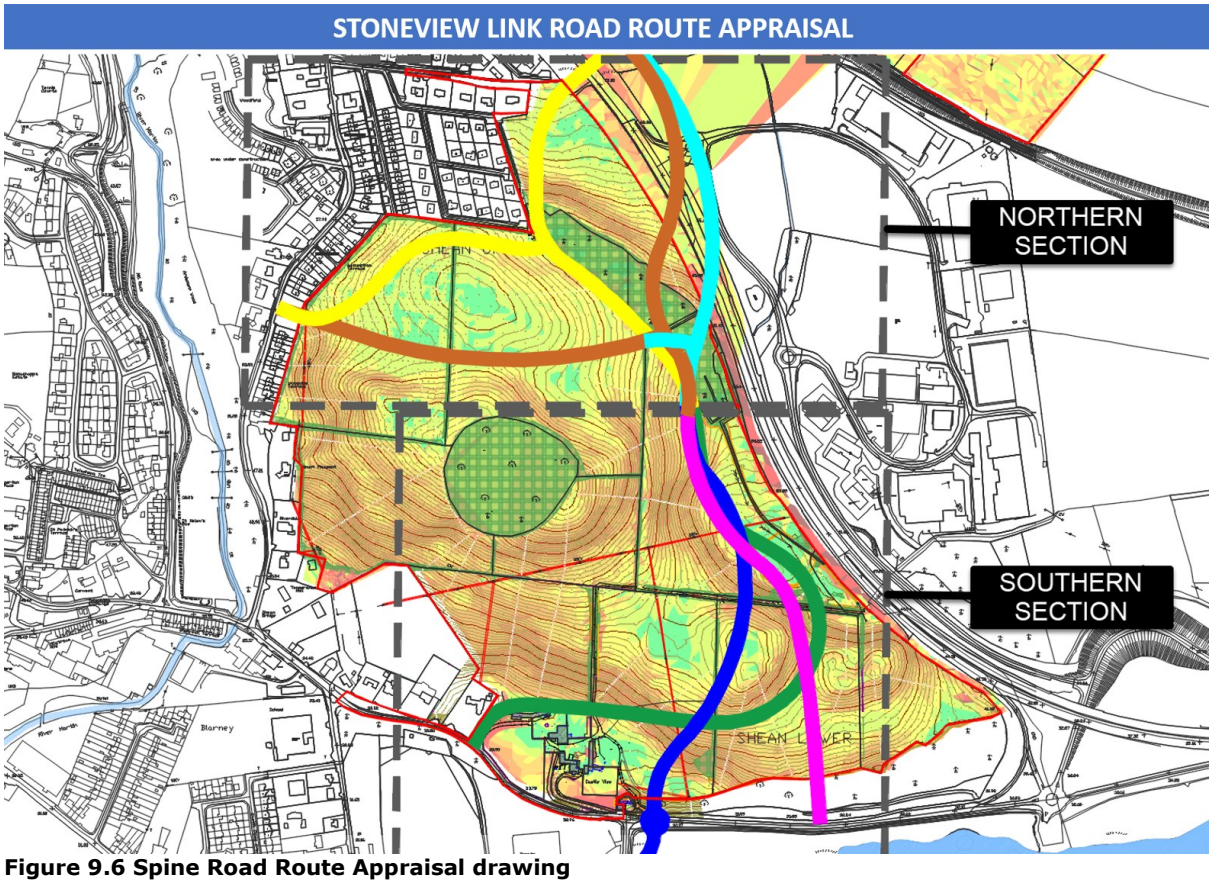


Figure 9.6 Spine Road Route Appraisal drawing

The vertical long section of the proposed Spine Road access is as shown in the planning layout pack. Due to the site topography noted previously in the heatmap shown in Figure 3.3, careful design of the vertical geometry was employed to achieve required road gradients, housing levels, car parking gradients, etc. The development layout may require retention structures along portions of the site to facilitate the delivery of the project.

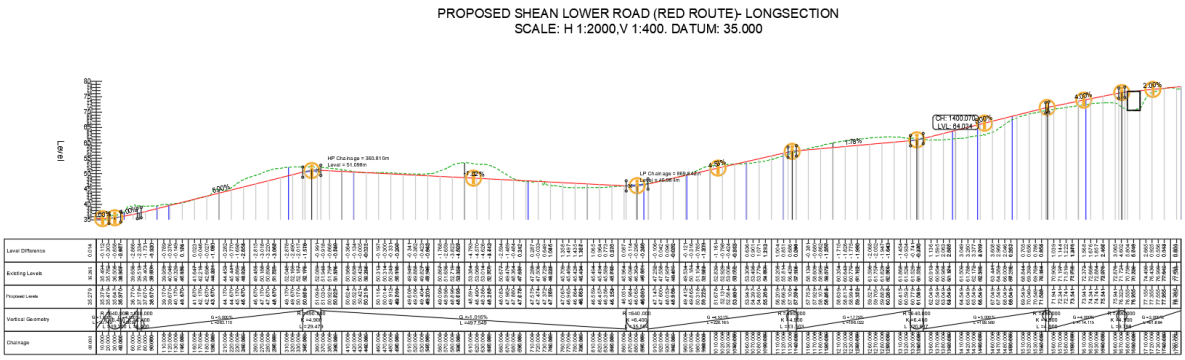


Figure 9.7 Proposed Spine Road long section

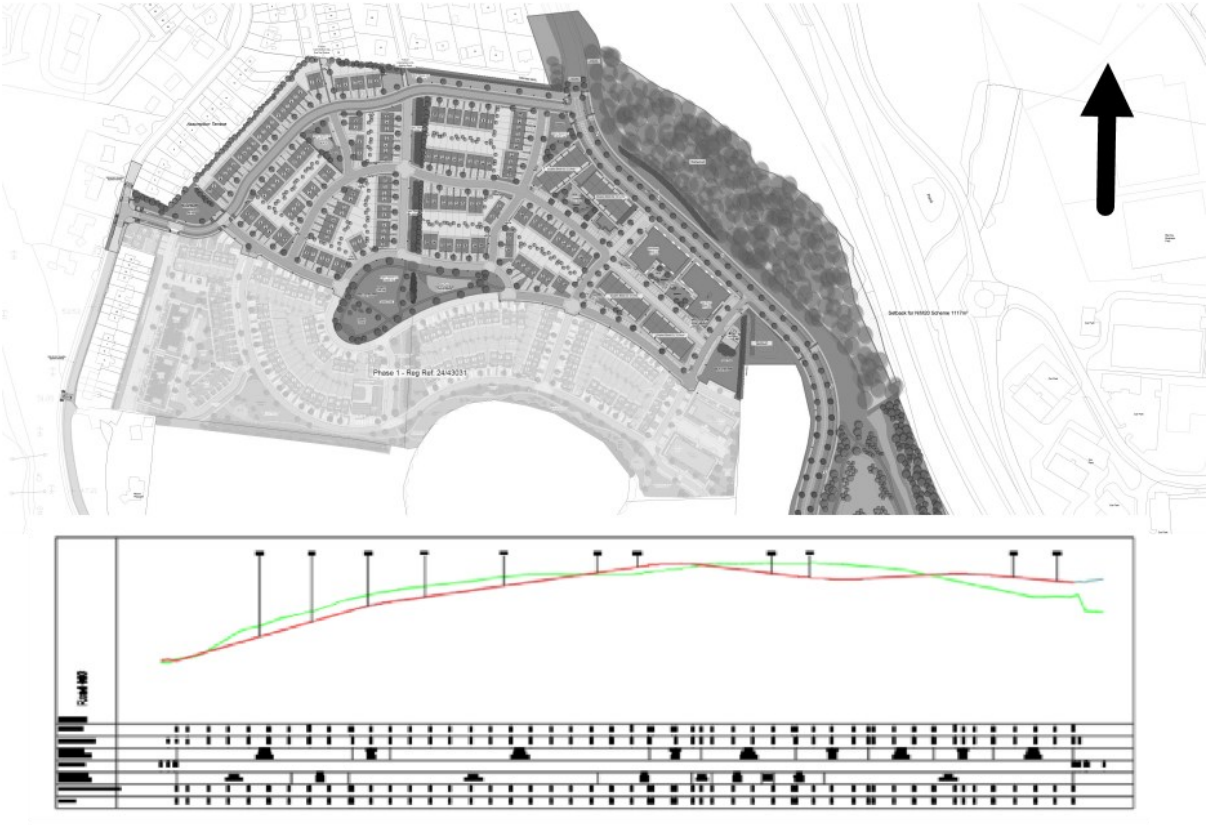


Figure 9.8 Proposed Access Road long section connecting Phase 2 to Junction Access J1 on Station Road

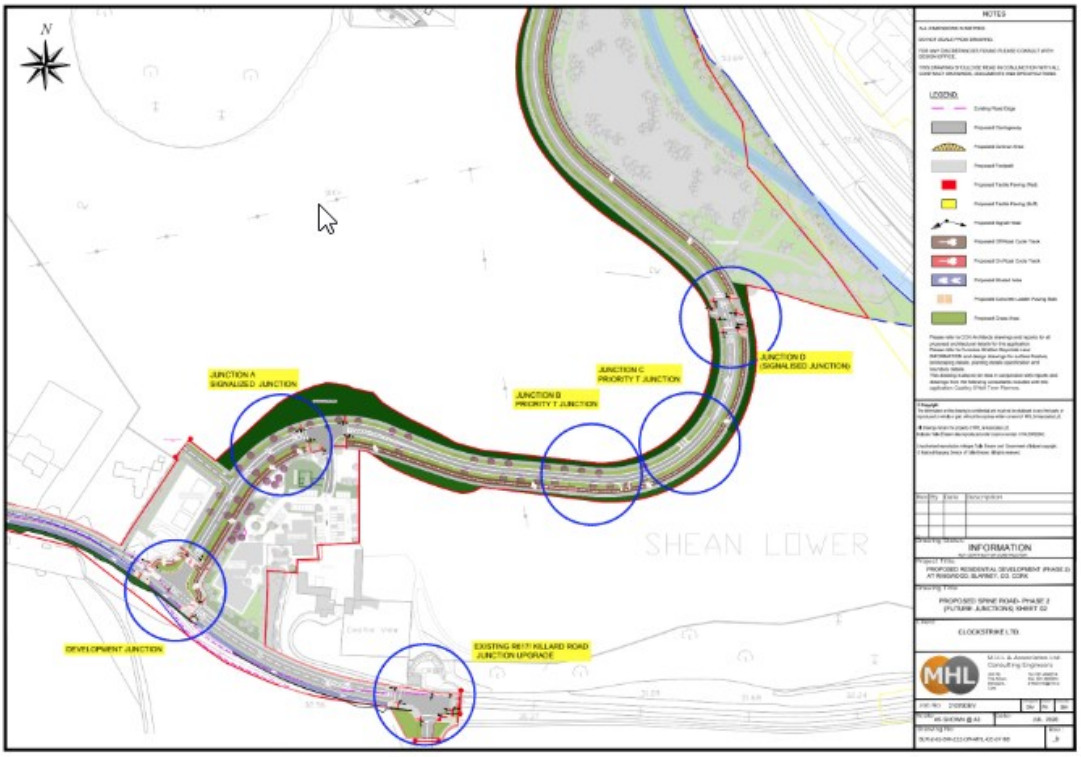


Figure 9.9 Proposed spine road junction strategy 1

Please refer to the Appendix and supporting planning layouts for details on the proposed junction upgrades to facilitate the site.

9.7 Junction sightlines /Vehicle Tracking

The junctions within the site's extents area were assessed for appropriate sightlines and vehicle swept paths to ensure compliance with design standards. A design speed of 30 km/h was applied. Swept-path analysis was carried out for fire tenders, refuse collection vehicles for all proposed junctions listed in Figure 9.10Proposed Junctions (Phase 2).. In addition, articulated truck movements were additional assessed at junctions J1, J6, and J22.

Junction	No.	Type / Description	Location
J1	1	Signalised access junction to the development	Station Road
J22	1	Signalised access junction to the development	R617
J6	1	Existing signalised junction	Spine Road
J2–J21	19	Priority-controlled T-junctions or crossroads	Within Phase 2

Figure 9.10 Proposed Junctions (Phase 2).

10 INFRASTRUCTURE FOR FUTURE PHASES

10.1 Access Arrangement / Junction Strategy For Lands Running Along The Spine Road.

The junction strategy along the proposed spine road incorporates a comprehensive set of controlled and priority infrastructure points designed to safely manage traffic flows for the granted Phase 1 and Phase 2 development while providing capacity for future masterplan build-out across the wider area.

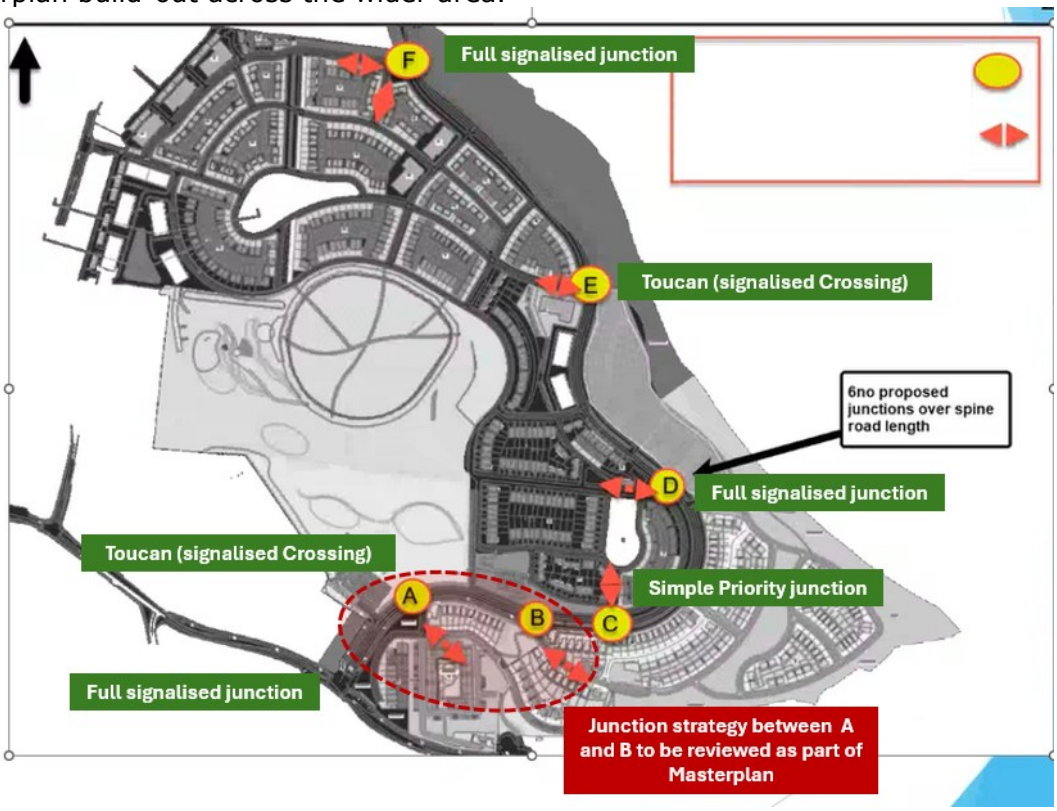


Figure 10-1– Proposed Junction Strategy for the development's spine road

Junction A serves as a key full signalised junction providing controlled access and integration with the existing and proposed road network. Junction C functions as a simple priority junction, offering a lower-intensity access point suited to local movements. Further along the spine, Junction D is implemented as a full signalised junction for efficient through-traffic management. Pedestrian and cycle connectivity is supported by Toucan signalised crossings at points E (and the additional crossing near A), while Junction F, another full signalised junction, anchors the northern extent of the strategy. Collectively, these junctions, alongside the proposed Priority Controlled Crossing (PCC) and associated public realm improvements, ensure safe vehicular, pedestrian, and cyclist movement, with the overall layout future-proofed to accommodate the full masterplan development without requiring significant reconfiguration.

10.2 R617 Active Travel Scheme/ Development Junction

The proposed development access and associated works along the R617 have been comprehensively reviewed and updated in response to the Roads, Active Travel and Safety comments received as part of the Request for Further Information (RFI) process. The revisions have been developed in close coordination with Cork City Council's emerging R617 Active Travel Scheme to ensure the proposed infrastructure is fully

integrated with the wider transport network and consistent with current design standards.

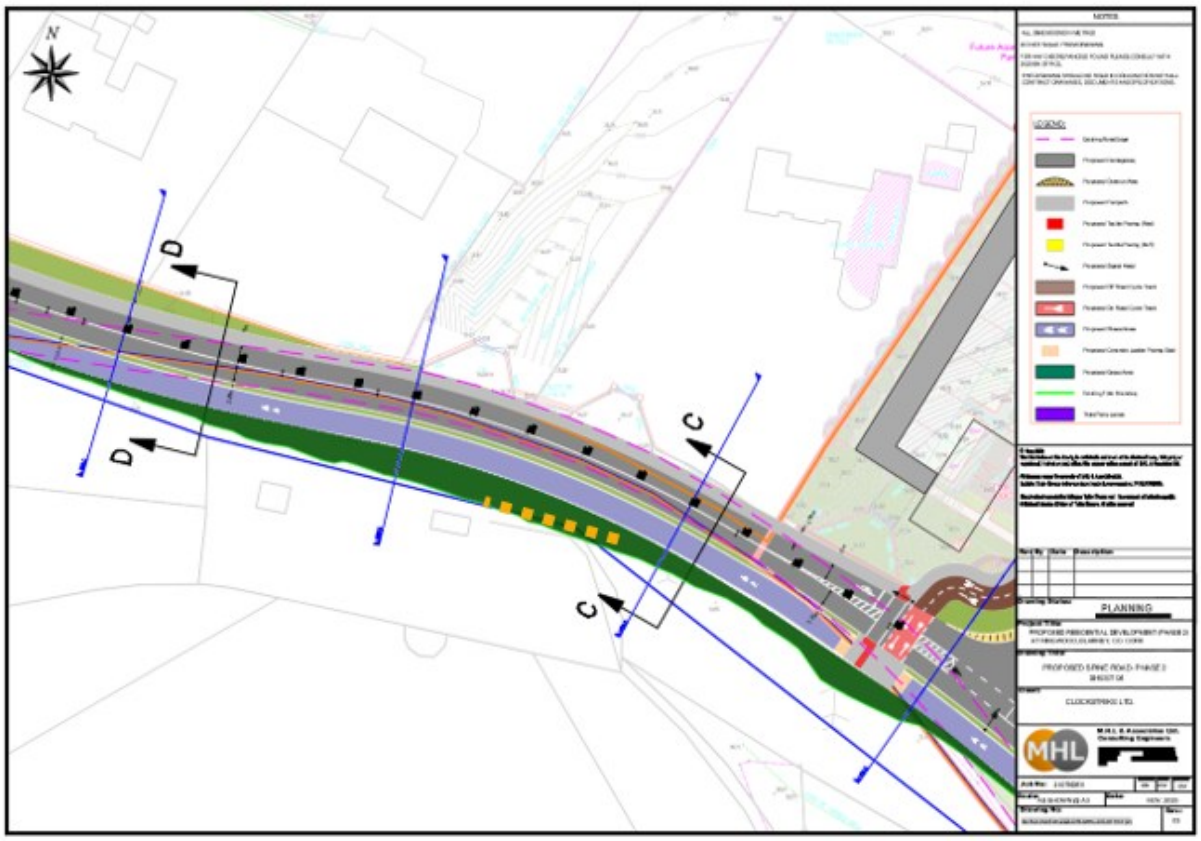


Figure 10-2– Proposed realignment of R617/ Interface with third party landowner.

The RFI identified a range of detailed matters relating to pedestrian and cyclist facilities, bus priority, carriageway pinch points, visibility, crossing arrangements, drainage, and compliance with the Design Manual for Urban Roads and Streets (DMURS) and the National Cycle Manual. In response, a comprehensive R617 Corridor Assessment Report has been prepared addressing each of the matters raised. The report is supported by revised engineering drawings, swept path analysis, and an updated public lighting design demonstrating the suitability of the revised corridor proposals.

10.3 NM20

The proposed development interfaces with the indicative corridor of the N/M20 Cork to Limerick Project between approximate chainages 6,400 and 6,900. This overlap raised potential concerns in relation to the interaction between the proposed development works and the future national road scheme, particularly in respect of earthworks, drainage infrastructure, and construction sequencing.

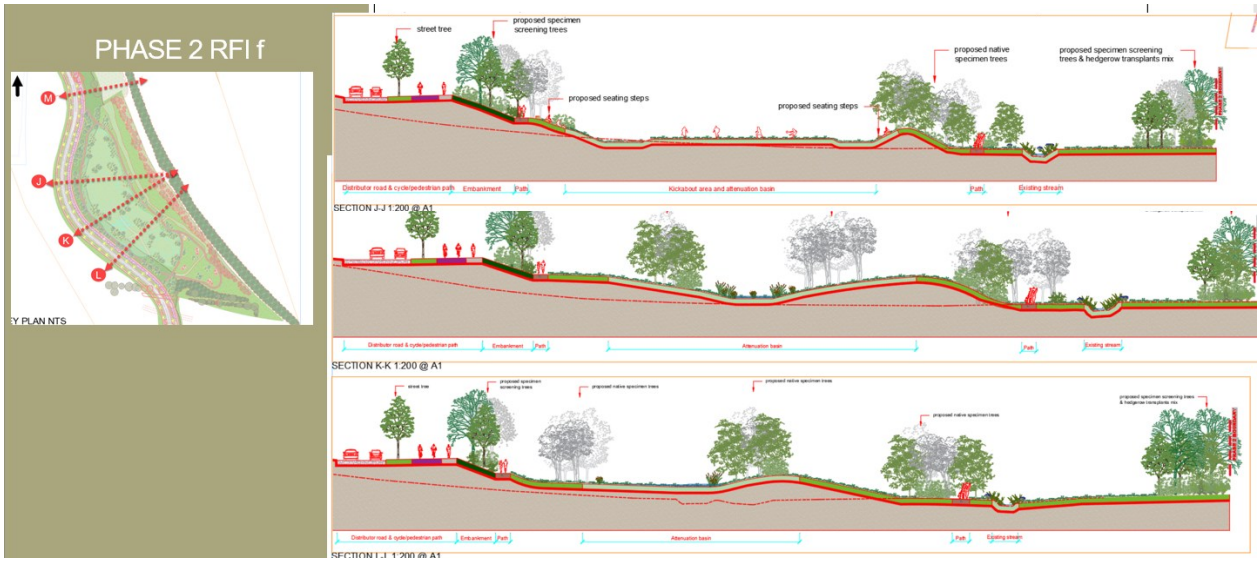


Figure 10-3– Open space / offset from NM20

In response, consultation has been undertaken with the N/M20 project team to agree an appropriate interface strategy. Following this engagement, written confirmation has been received, and the design has been revised accordingly. The updated proposals demonstrate that the development layout has been adjusted to avoid adverse impacts on the safeguarded N/M20 corridor.

It has been agreed that where conflicts arise within the overlap area, the development red line boundary and associated infrastructure will be set back to ensure no encroachment into the proposed N/M20 scheme extents. This interface arrangement between chainages 6,400 and 6,900 has been incorporated into the revised drawings, ensuring compatibility between both projects and safeguarding the delivery of the national road corridor.

10.4 Flood Risk

The Flood Risk Assessment note that the main risk to the site is pluvial (rainfall) flooding, while fluvial risk is low and groundwater and tidal flooding are not considered significant.

Modelling and CFRAM mapping show the site is generally in Flood Zone C, with residential areas and access routes above predicted flood levels. Any fluvial flooding from the Shean Upper Stream is largely confined to a proposed wetland area designed to provide flood storage.

The development will use SuDS-based drainage measures to manage runoff to greenfield rates and safely handle extreme events, with no adverse impact on nearby infrastructure such as the N20. Emergency access is expected to remain safe, and floor levels will be raised to reduce surface water risk.

Residual risks relate mainly to extreme rainfall events and future changes to local watercourses. Overall, the development is considered acceptable in terms of flood risk, subject to implementation of drainage measures and coordination with relevant authorities.

The site is characterised by undulating topography, which represents a key design constraint in the development of the proposed residential scheme. The overall site is

elevated, with ground levels generally a minimum of approximately 10 metres above the adjacent Blarney River and the Clogheenmilcon wetland area.

A revised Surface Water Audit and Flood Risk Assessment is currently being prepared by JBA. The updated assessments will build upon the previous Phase 1 analysis and will reflect the revised development layout and drainage strategy proposed for Phase 2. The outputs will further inform the detailed design of the surface water management system and confirm that the proposed development continues to comply with relevant flood risk and drainage planning requirements.

11 PUBLIC LIGHTING DESIGN

11.1 Development Site Lighting

The proposed public lighting for the new development has been designed using Lighting Reality Public Lighting Reality. This lighting design software provides lighting compliant designs to EN13201:2015. The design is a residential estate comprising of housing units and apartments.

All internal estate roads have been designed to lighting Class P3.
Isolated footpaths and Plaza Areas have been designed to lighting Class P4.
All internal lighting is to Philips luminaires on 6.0m, 8.0m and 10.0m columns. Isolated footpath columns are to be hinged type.

Please refer to Public Lighting layouts for the site in Planning Drawing Pack accompanying this report.

Lighting Specification:

- Lanterns should comply with IS EN 60598-2-3
- Columns are to have a double locked framed door and should be multisided galvanised to Cork City Council specification.
- Columns shall be manufactured to BS 5649.
- Public lighting to be fed from new power supply connections.
- Minimum lux level on public roads, paths, and playgrounds within the housing estate to be 1.5 lux.
- The S/P ratio can be applied to the internal estate lux levels depending on lantern type.
- The proposed internal estate public lights are to be dimmable from 12.00 midnight to 06.00 as per dimming class 2A in housing estates.

11.2 Notes on Landscaping:

No trees to be located within 1.5 times the height of the lighting columns.
i.e. Not within 10m of all estate lighting including pathways and playground areas.

11.3 Notes on Ecology:

All ecological constraints as raised in the Ecology Report as produced by Atkins have been accounted for by optimising the revised design to cater for the protection of wildlife (EC Habitats Directive and the Wildlife Act), ensuring the impact of artificial light is mitigated against and controlled. The approach to lighting has been directly informed by the recommendations of the project ecologists, including bat specialist.

Light spillage is to be kept to a minimum by:

- Lighting with suitably chosen lantern heads where optics selected stop indirect lighting.
- Inclusion of lighting hoods/shields to direct light only where it is needed.
- Luminaires design to be mounted on the horizontal with zero degrees vertical tilt, reducing spill light and preventing backlighting.
- All luminaires to lack UV elements.
- The proposed lighting design has been designed using warm white spectrum (2700k) lanterns to reduce the blue light component.
- Lanterns to be flat glass type to limit the amount of upward light and spill light onto the surrounding area.

- The LEDs proposed have sharp cut offs, lower intensity, good colour rendition and dimming capability.
- An option for dimming and part-night lighting, controlled diurnally, seasonally, and according to human activity can be employed

Design Drawings:

Drawings have been compiled showing the lantern types, column locations and lux contours for 1.5, 3.0, 5.0, 10, 15 and 20, as appropriate.

Please refer to the submitted lighting design report and supporting layouts for this Phase 2 application.

The development junction lighting plans are as submitted.

- Proposed lighting at the Station Road / Development Access junction will be installed in accordance with the Phase 1 approved details.

- Proposed lighting at the Development Junction with the R617 Access junction will follow the submitted lighting design report. Existing lighting between the R617 Development Access and the Killard / R617 Junction upgrade will be assessed and upgraded as required and agreed with the local authority prior to construction.

11.4 Proposed ESB

11.4.1 Phase 1 ESB Diversion (Granted)

An existing overhead ESB power line crosses the proposed development as shown below, running between Phase 1 and Phase 2 along the western boundary of the development site.

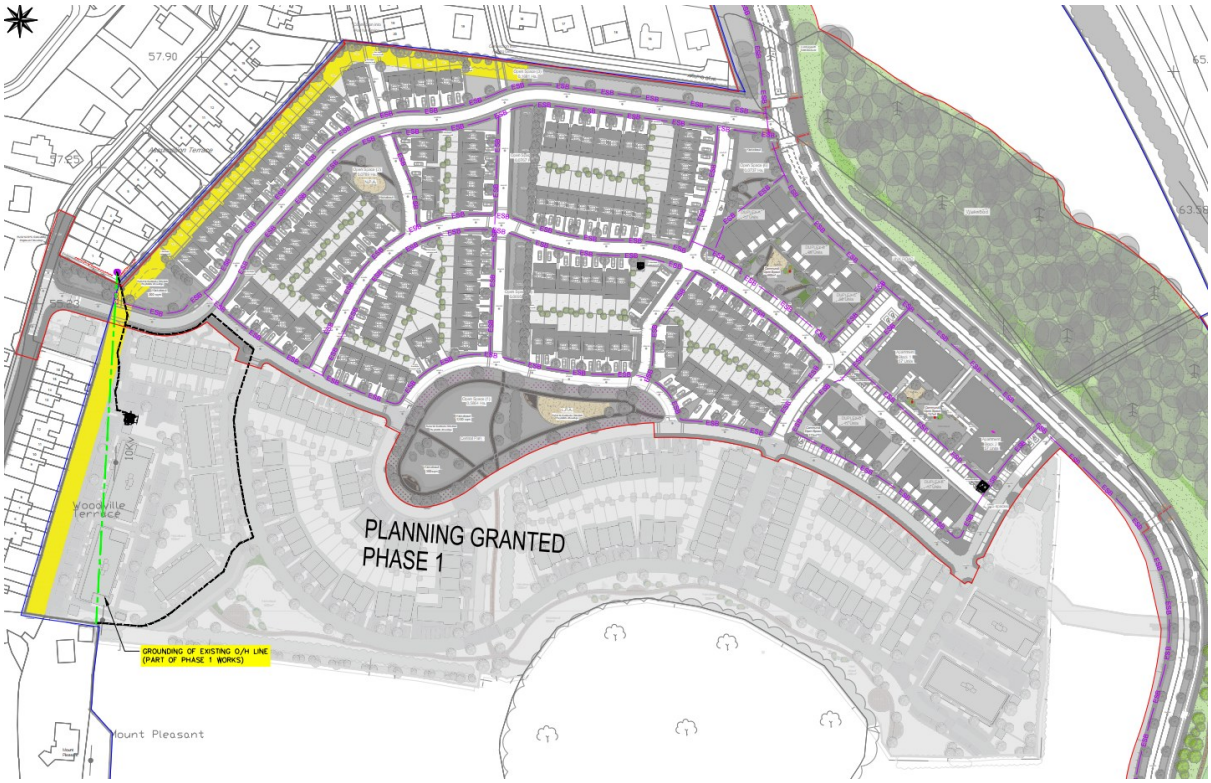


Figure 11.1 ESB service diversion proposal.

To facilitate the development, this existing O/H ESB service running above the site will be rerouted by grounding this service. A new proposed substation is to be located near the first hammerhead near the proposed apartment complexes. Please refer to the

preliminary service diversion layout submitted with this application. Proposed service diversions to be agreed with service provider.

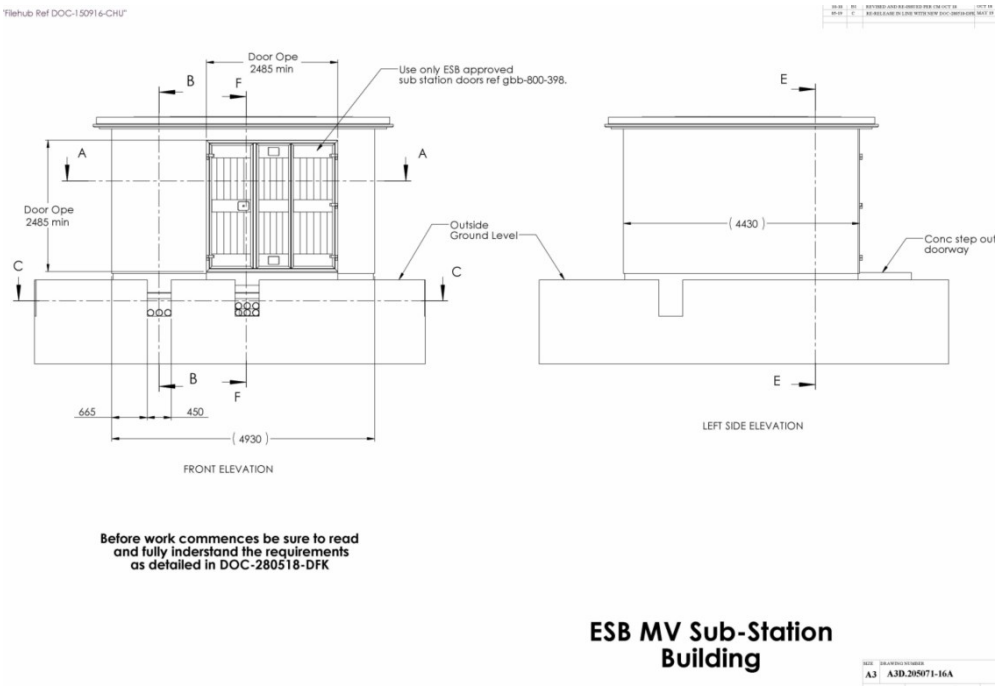


Figure 11.2 Substation detail (c: ESB)

As part of the overall development of the Ringwood lands, an existing overhead powerline is to be grounded to by way underground ducting. New underground ducting will be installed to connect with the existing ESB service. All works proposed on site are subject to ESB agreement, and any on-site activities must be confirmed in writing with the utility provider prior to construction.

12 CONSTRUCTION ACCESS/ PHASING

Construction traffic access and potential phasing are as outlined in the following figure.

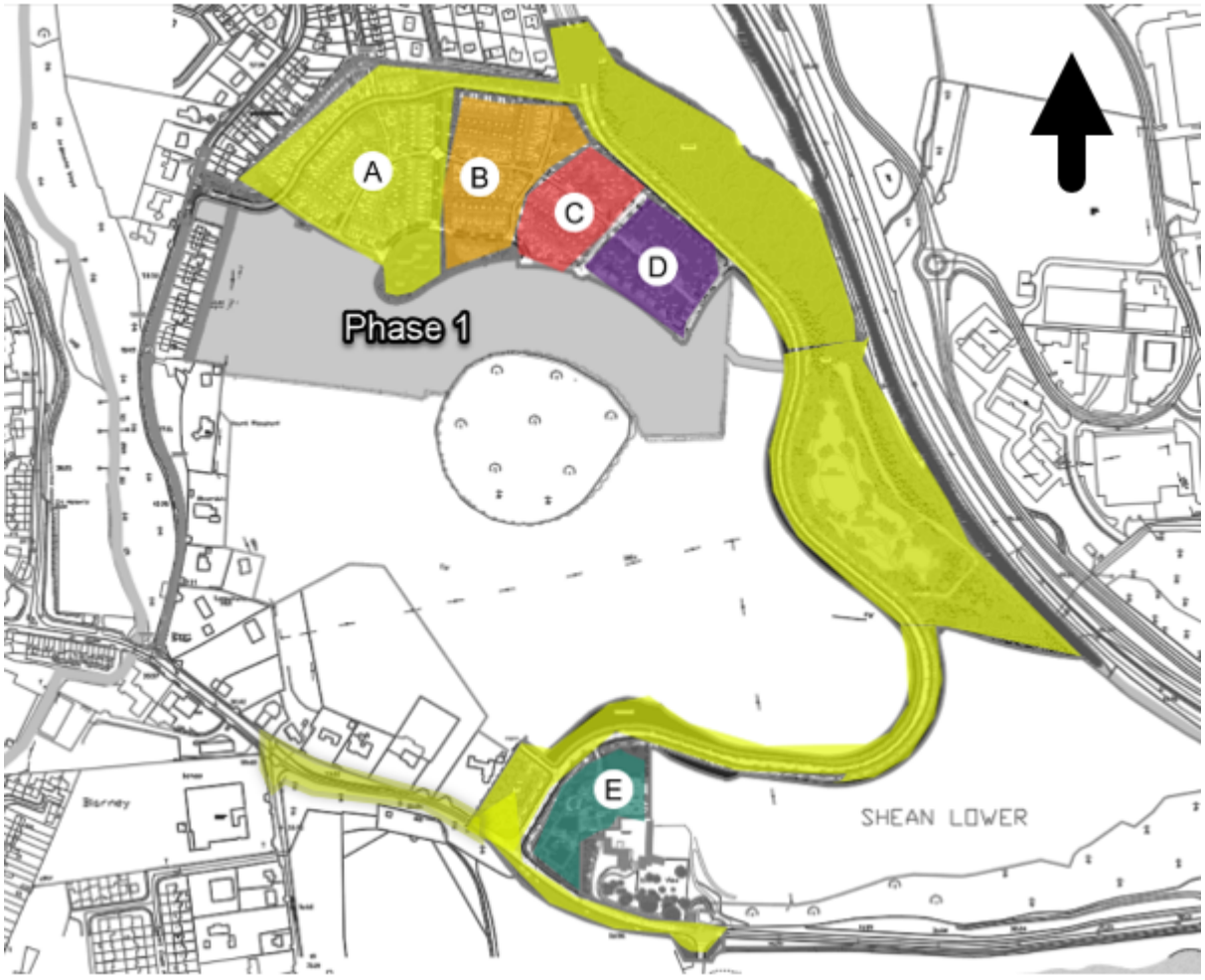


Figure 12.1 Phase 2 Feasible construction phasing.

For the residential housing development(Phase 2), specific strategies for construction traffic management on Station Road, the R617 and adjoining road network are paramount. Given the residential nature of the area, it's crucial to prioritise safety and minimise disruption to local residents. Firstly, conducting a detailed traffic assessment specific to Station Road, considering factors such as existing traffic patterns, pedestrian routes, and nearby amenities, will inform tailored management plans.

Implementing temporary traffic controls, including signage and speed restrictions, will help maintain safe conditions for both construction vehicles and regular road users. Furthermore, designating specific access points and routes for construction traffic, preferably away from residential areas where possible, can mitigate disturbances to local residents.

Additionally, clear communication with residents, through newsletters, signage, and community meetings, regarding construction schedules, potential traffic impacts, and alternate routes is essential for fostering understanding and cooperation.

Throughout Phase 2 of the development, regular monitoring of traffic flow and adjustment of management strategies based on feedback and changing conditions will ensure efficient construction traffic management while minimising inconvenience to the community.

Specific traffic management details will be outlined in works proposals developed by appointed contractors. These proposals will address measures such as traffic routing, signage, speed restrictions, and coordination with local authorities. Effective communication with residents and stakeholders will be crucial throughout the project.

Earthworks	Cut	Fill	Dlff
	(m3)	(m3)	(m3)
Phase 1	45000	11000	34000
Phase 2	72000	18000	54000
Phase: Spine Road	28000	52000	-24000
	145000	81000	64000

Figure 12.2 Preliminary Planning Cut & Fill Calculation (Phase 1, Phase 2 and Spine Road)

Earthwork cut and fill calculations have been prepared for the cumulative development, taking into account all planning phases as noted in this report. These calculations are to be coordinated with the construction traffic management plan and the staged build-out of the approved Phase 1 works, as well as the proposed development under this application.

The R617/spine road junction has been designated as a dual-purpose route to support both the construction phase and long-term access for a multi-phase development, including the Primary Care Centre and adjacent housing development phases. During construction stage, this new R617 junction and construction carriageway will serve as a primary haulage route, directing construction traffic efficiently to and from the site, thereby reducing the impact on surrounding roads (Station Road) and local traffic in Blarney Village.

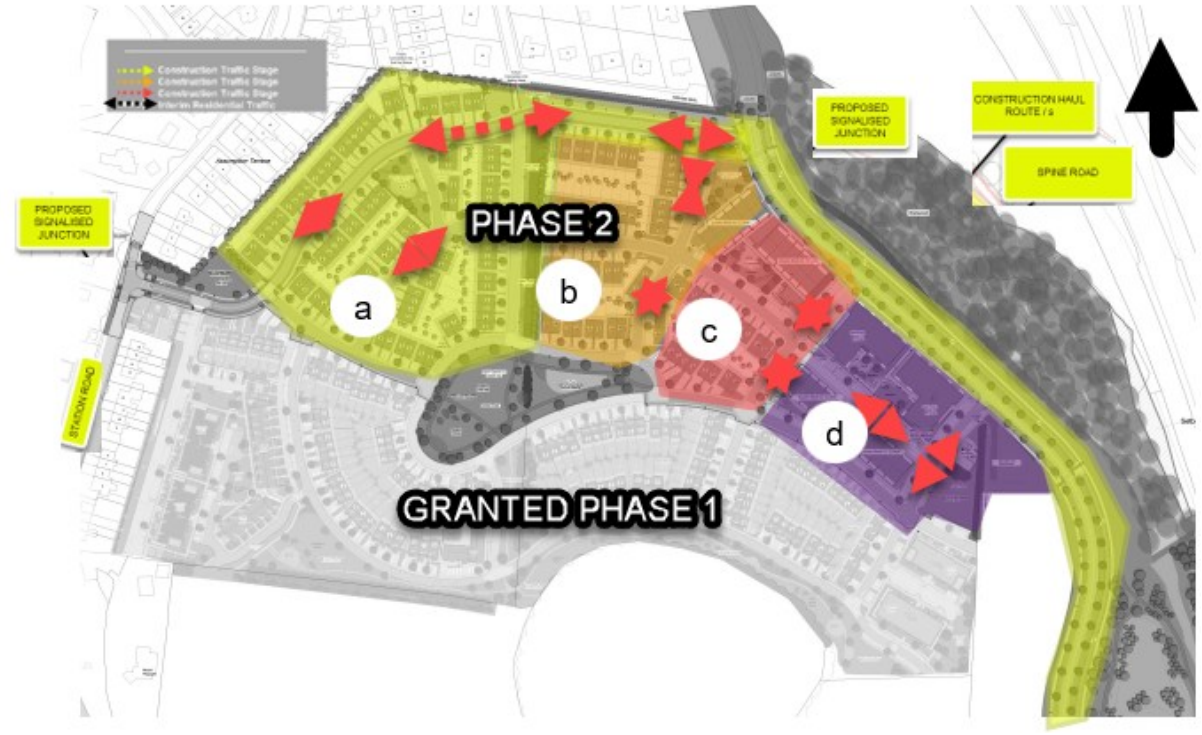


Figure 12.3 Outline Construction traffic routing - Phasing 2

The R617 junction has been designed with a long-term perspective, ensuring it can handle increased traffic volumes, including heavy construction vehicles initially, and subsequently regular vehicular traffic as the development becomes operational. The junction with the R617 has been designed to account for future traffic demand as the development grows. (Please refer to Systra's TTA for further details.)

The proposals are for both short-term construction needs and long-term community access, with the R617/spine road junction supporting this smooth transition through each phase of the development project.

*** These values are provisional only and are subject to further determination during construction works.

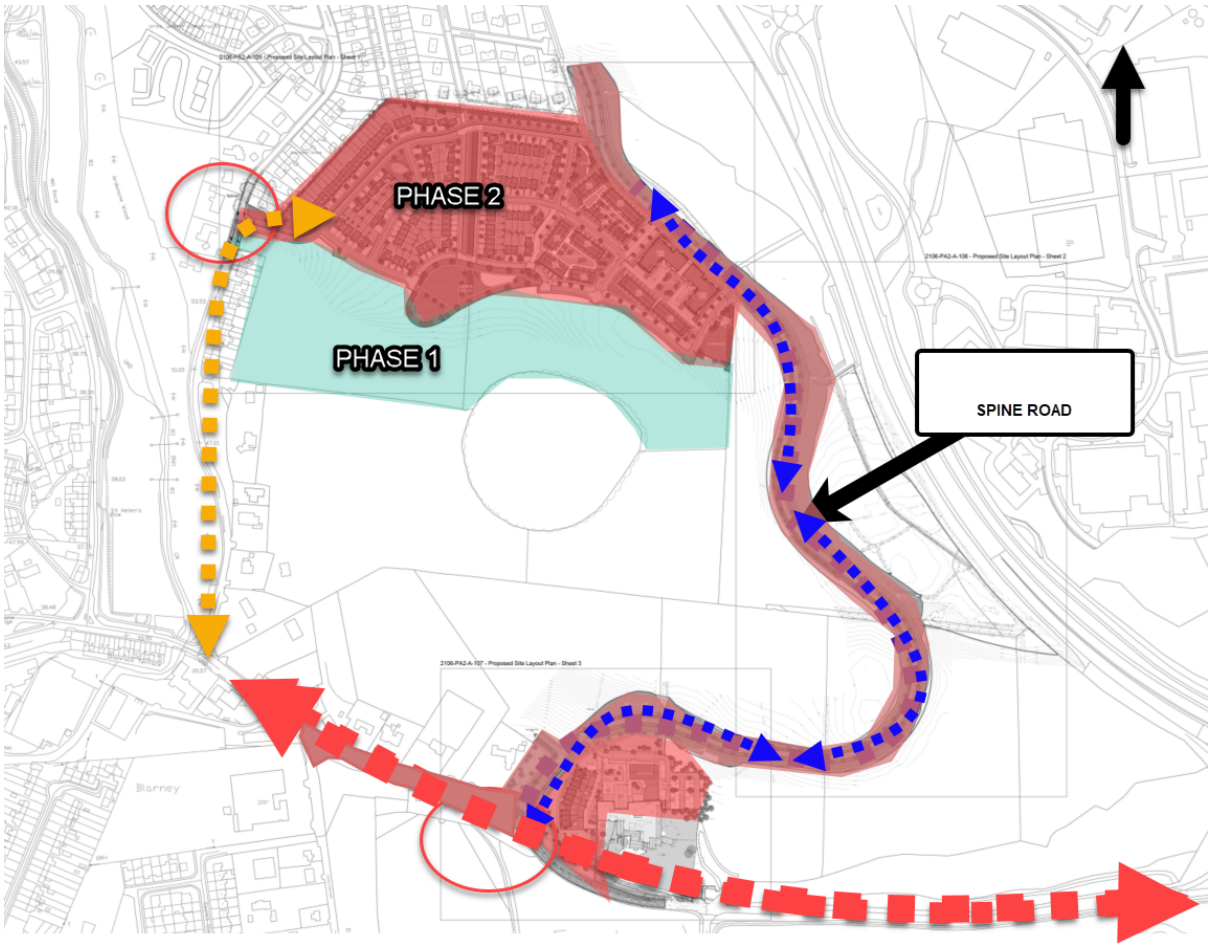


Figure 12.4 Outline Construction traffic routing - Phasing 2 (Spine Road)

12.1 Construction haulage route

The proposed haul road has been designed to connect to the existing laneway access from the R617, providing a suitable construction access route to the site while responding to the physical and environmental constraints of the surrounding area. At its junction with the R617, the alignment provides approximately 24 m of level standing area with a gradient of approximately 4.7% before transitioning to the main haul road. The route is formed predominantly in cutting.

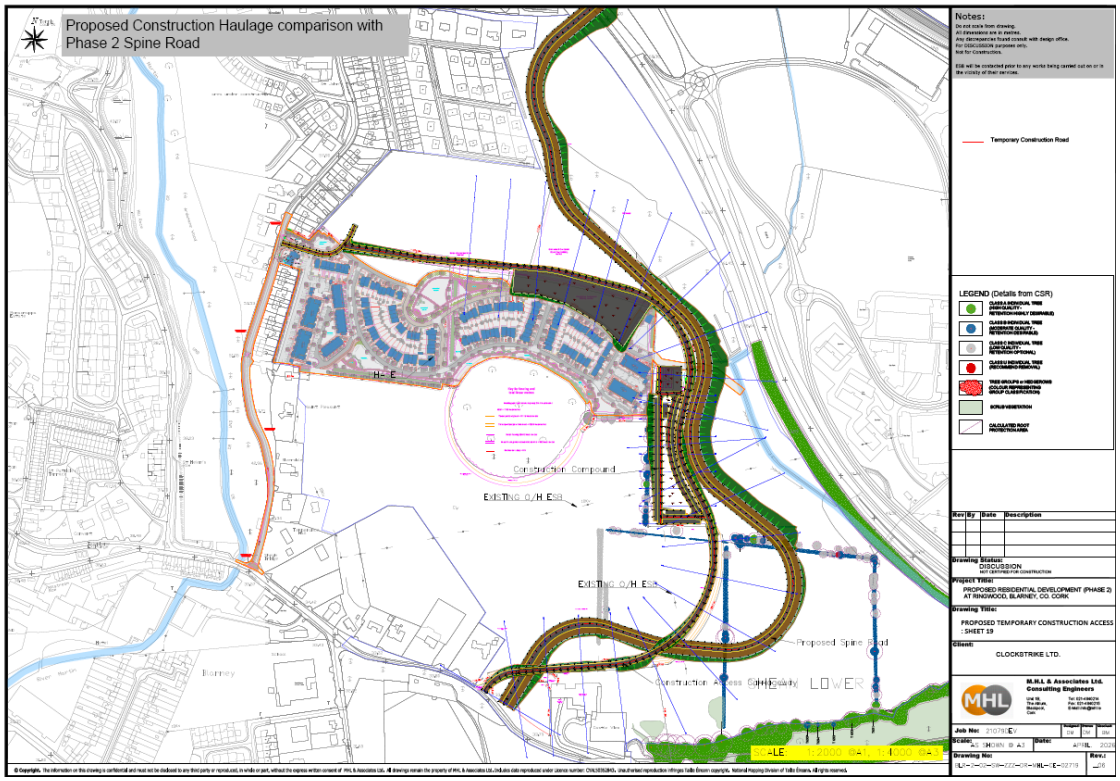


Figure 12-5– Proposed Construction Haul route / Spine Road for the development

The alignment has been developed following consideration of a number of significant constraints, including third-party land ownership immediately to the east of the route, existing trees and ecological features, the proximity of the existing priority T-junction on the R617 and the associated road safety requirements identified by the Local Authority, the presence of the existing lodge house and associated infrastructure, heavy goods vehicle tracking requirements, and the stability and constructability of the proposed cut embankments.

The drawings demonstrate that the proposed alignment remains within the appropriate land ownership boundaries while maintaining the required geometric and operational standards for the proposed haul road and requirements of the Cairn construction team.

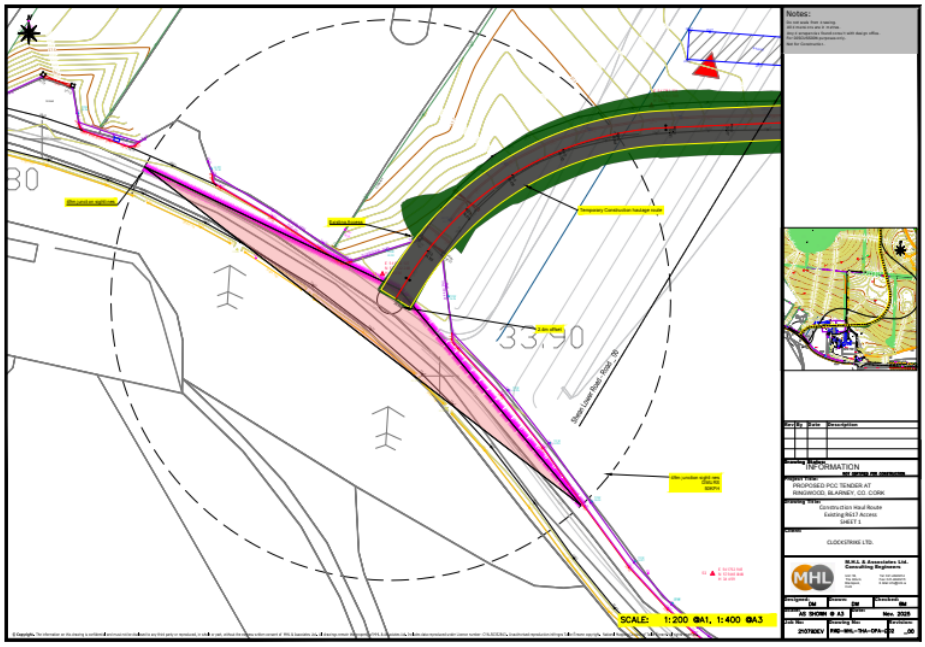


Figure 12-6– Proposed Construction Haul route access with the R617 to the development

The proposed construction access onto the R617 has been designed to provide the appropriate junction visibility splays in accordance with the applicable design speed for the regional road. The access arrangement achieves the required sightlines in both directions, ensuring that safe ingress and egress can be accommodated for construction traffic throughout the duration of the works.

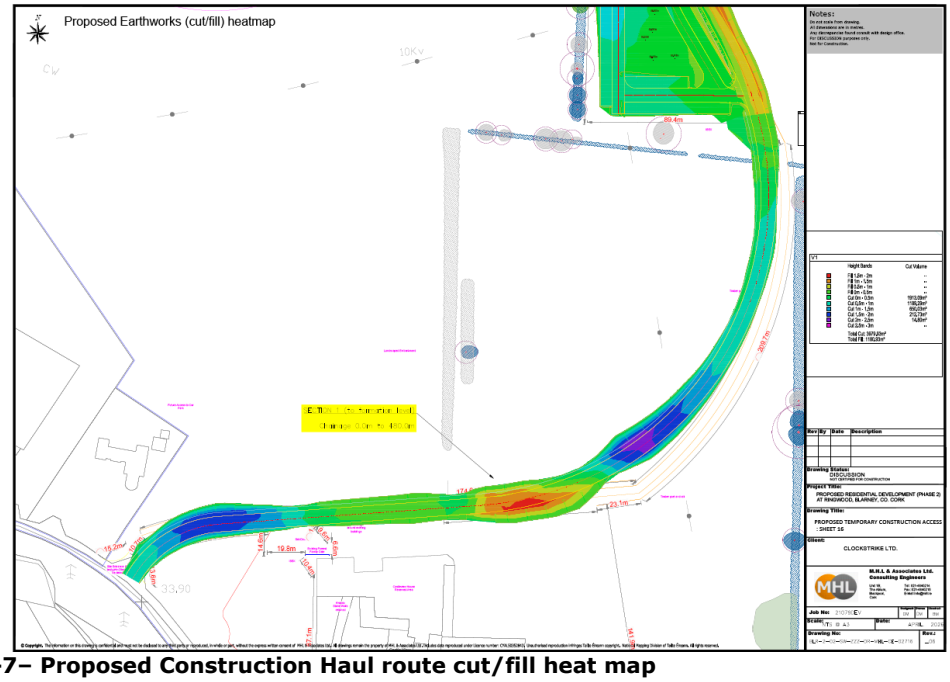


Figure 12-7– Proposed Construction Haul route cut/fill heat map

The earthworks design for the proposed construction haulage road, covering its full length together with the associated site compound, has been completed and issued to the Cairn construction team for review and implementation as part of the construction planning process.

12.2 Excavation, Erosion and Sediment Control

An assessment of the site's existing topography, survey information, and proposed finished levels has been undertaken to estimate the volume of material requiring excavation across and the proposed Phase 2 LRD site.

In line with the findings outlined the earthworks have been designed primarily for planning purposes. The strategy maintains the existing plane of the ground where possible and limits any raising of ground levels to no more than 1.0m above existing ground level in deposition areas.
Excavated material will, where practicable, be reused within the development at designated deposition areas during the construction phase to minimise the import and export of material. Any surplus material that cannot be reused on-site will either be deposited on adjoining lands within the applicant's ownership, subject to all relevant statutory approvals, or removed off-site to an appropriately authorised facility.

Site investigation works carried out pre planning by Priority Geotechnical and subsequently by Ground Investigations Ireland Ltd. have produced The site investigation included a comprehensive programme of intrusive ground investigation, in-situ testing, groundwater monitoring, and laboratory testing to establish the site's geotechnical and environmental conditions. The works comprised trial pits, boreholes, dynamic probing, soakaway and plate bearing tests, foundation investigations, and groundwater monitoring, with the results informing the geotechnical assessment and design recommendations for the proposed development.

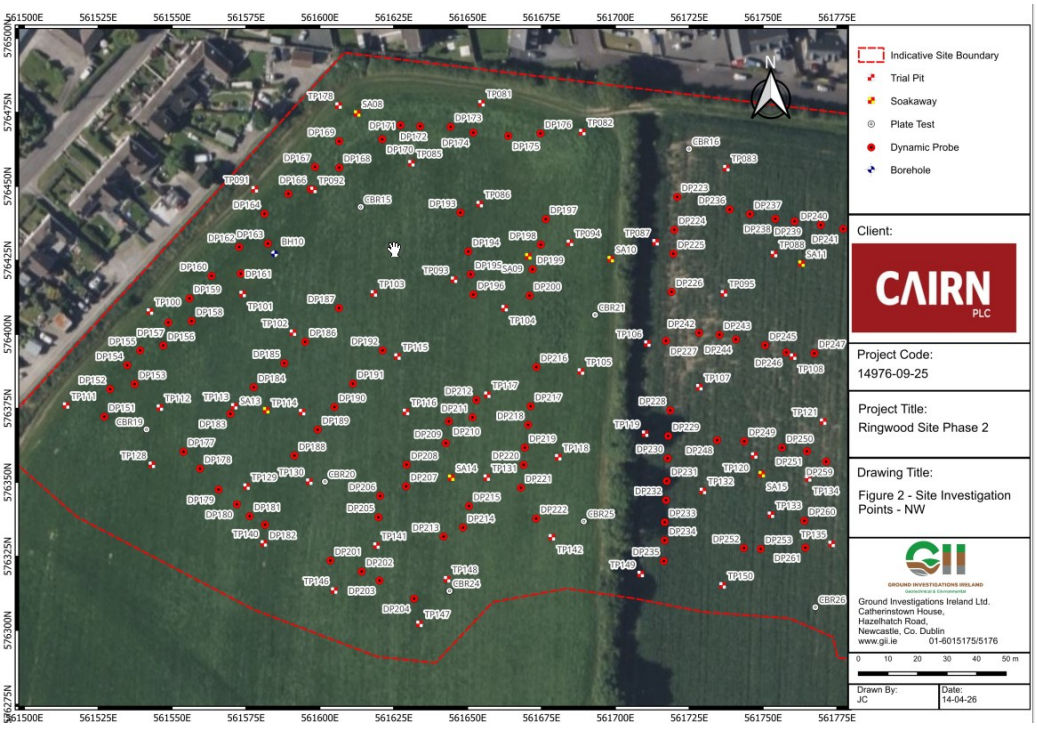


Figure 12-8– Site investigation carried out by GII

Ground Investigation Ireland Ltd. carried out a programme of boreholes as part of the site investigation for the Ringwood Phase 2 development. The exploratory holes encountered a relatively consistent stratigraphy comprising topsoil (typically dark brown, orangish-brown or reddish-brown, slightly sandy and slightly gravelly CLAY) overlying

stiff to very stiff, reddish-brown to light reddish-brown, slightly sandy and slightly gravelly CLAY with varying medium to high cobble content.

Deeper strata generally transition into very stiff, reddish-brown, slightly sandy and gravelly CLAY with medium cobble content. Borehole depths ranged from 0.70 m (BH29) to 3.30 m (BH11 and BH13), with most holes terminated between 1.40 m and 2.90 m below ground level. No groundwater was encountered in the majority of the boreholes; where noted (e.g. BH19 and BH23), it was recorded at approximately 1.30–2.90 m BGL, and the boreholes were subsequently backfilled upon completion.

The near-surface soils are characterised by cohesive materials with occasional gravel and cobble inclusions, indicating typical glacial till or similar deposits across the site. This information provides a preliminary assessment of the ground conditions for foundation and earthworks design.

The contractor's construction strategy adopts a phased approach to earthworks and material management. During Phase 1, all excavated material will be removed off-site to facilitate site clearance and construction while avoiding temporary stockpiling. For Phase 2 and subsequent phases, suitable excavated material will, where practicable, be reused within future development lands under the contractor's control through balanced cut-and-fill operations and appropriate testing and processing to meet engineering specifications. This approach will minimise the import of fill, reduce off-site disposal and haulage, lower the project's carbon footprint, and support sustainable construction and circular economy objectives. The strategy will be implemented through the Construction Management Plan and Earthworks Strategy, incorporating material classification, testing, traceability, and environmental protection measures, in accordance with relevant specifications, planning conditions, and the waste hierarchy.

Potential deposition zones and associated capacity estimates are preliminary only and are based on available third-party site investigation information. Their suitability, extent, and capacity shall be verified and refined during the planning compliance, detailed design, and construction stages through supplementary ground investigation, detailed earthworks planning, and assessment of flood risk, surface water drainage, overland flow paths, environmental constraints, and future earthworks requirements. The final deposition strategy shall be reviewed and refined to align with Cairn's construction methodologies, phasing strategy, and the overall cut-and-fill balance across subsequent development phases.

Earthworks are to follow a cut-and-fill approach, with material management focused on maximising reuse of site-won soils. Topsoil, subsoil, and rock layers will be separately stripped and stockpiled in designated temporary deposition areas for subsequent reuse across the site. Structural fill will be generated where required, with suitable Phase 2 cut material directed into treatment (lime/cement stabilisation) for use as engineered fill.

Temporary stockpiles will be managed in accordance with the Construction Environmental Management Plan (CEMP) and Cairn construction requirements. These stockpiles will be located in areas approved for temporary deposition to facilitate future reuse while minimising environmental impact and double handling.

In the context of the overall development, deposition zones were identified during Phase 1 and Phase 2 planning. Subsequently, together with the proposed Spine Road, have been further refined as potential areas suitable to receive some of the Phase 2 cut material. This will support an efficient cut-and-fill balance strategy across the site, utilising suitable excavated material from Phase 2 works.

Various measures will be enacted to manage sediment-laden water runoff, such as the implementation of silt fences and silt traps. The exposed ground area will be minimised, and efforts will be made to retain vegetation for as long as practical. Trench clearing and topsoil stripping will be deferred until work is set to proceed, and prompt backfilling of trenches will be undertaken. Temporary stockpile areas for earthworks will be equipped with upstream silt fencing to safeguard sensitive zones.

On-site settlement areas will feature geotextile liners and riprapped inlets and outlets to prevent scour and erosion. Surface water runoff from areas devoid of topsoil and water collected in excavations will be directed to on-site settlement areas before controlled discharge. Surface water discharge points will be finalised in consultation with Cork City Council's Environment Section before commencing on-site work.

The identified areas on site have the potential to accommodate excavated material generated during Phase 2, subject to material classification confirming its suitability for reuse, together with appropriate stockpiling, handling, compaction, and, where necessary, stabilisation to satisfy the project's engineering and environmental requirements. Topsoil stripping will be undertaken in a phased manner, corresponding with the construction programme, to minimise the extent of exposed ground at any one time. Suitable topsoil will be retained for reuse in the proposed landscaping works where practicable. Surplus topsoil will either be reused as a by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011, where applicable, or removed to a licensed waste recovery or disposal facility. Temporary stockpiles of topsoil will be protected from erosion, located away from surface water drainage features, and managed to minimise handling. Disturbed subsoil should be stabilised as soon as practicable through backfilling of trenches, placement of pavement capping layers, construction of foundations, concrete blinding where required, and completion of landscaping works, thereby limiting the duration of exposed soils.

Excavated subsoil will be stored separately from topsoil in protected stockpiles. Appropriate erosion and sediment control measures will be implemented throughout the construction phase, including the protection of existing surface water inlets, temporary earth bunds, silt control measures, and other best practice measures to prevent sediment-laden runoff from entering existing drainage networks or watercourses.

Temporary excavations within cohesive soils will require appropriate battering or support where they exceed 1.25 m depth or permit personnel entry, while excavations in made ground, soft cohesive soils, and granular deposits will require support and, where necessary, dewatering due to reduced stability. Excavations in upper cohesive soils and weathered rock are expected to be achievable using conventional plant, although more competent bedrock may require rock-breaking methods. Groundwater conditions should be considered when planning excavation works, and any surplus excavated material removed off-site must be disposed of at a suitably licensed facility in accordance with the project's Waste Classification Report.
Stockpiling Areas

An area’s location/ feasibility is based on primary deposition and stockpiling area, given its proximity to cut and fill locations, which would minimise dumper haul distances and travel times. Alternative temporary stockpile zones are also under consideration. Topsoil stripped from areas of proposed fill will be stored in a dedicated area for later reuse.

Bulk excavation in Phase 2 will generate material for reuse, with extracted suitable cut material targeted for soil improvement via lime stabilisation and grading. Suitable structural fill (including 6F1 or general fill) will be placed in controlled layers to raise levels by up to 1m where required, subject to achieving the specified CBR values and confirmation of final planning levels. Excavated materials, including clay, sandstone, and

mudstone, will be assessed by a geotechnical specialist to determine reusability and suitable quantities for processing. Improved material will be hauled for use on the haul road or deposited in approved zones.

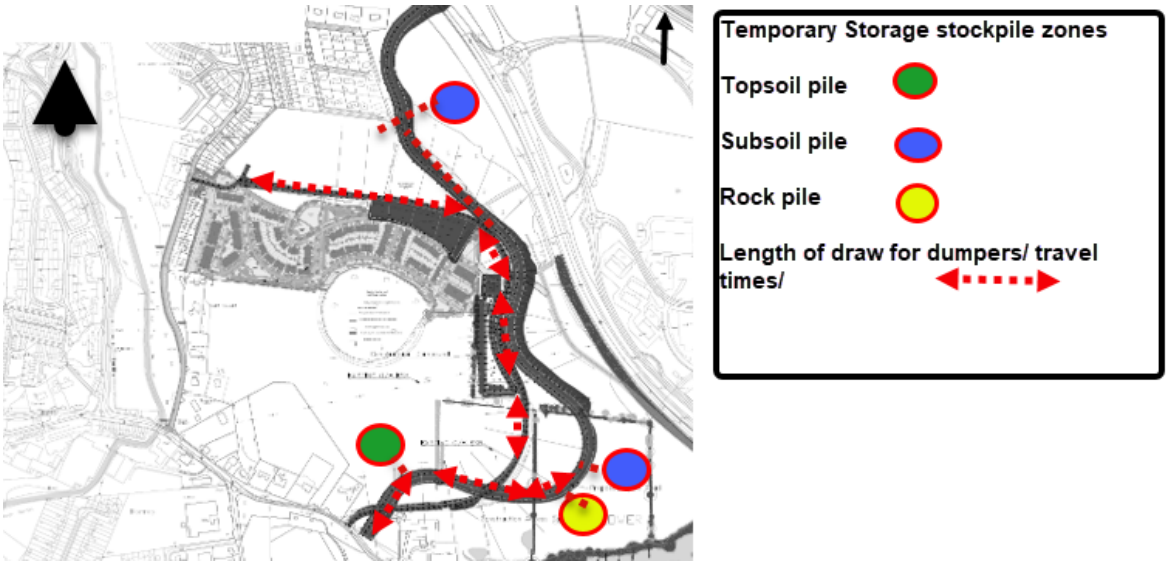


Figure 2 19– Temporary storage stockpile zones

Drainage cuts and interceptor ponds will be located away from the development area and designed to allow runoff over grassed surfaces. All material handling, stockpiling, and stabilisation works will be further developed in conjunction with the contractor to confirm preferred locations and operational feasibility.

Rock strata

The borehole records indicate predominantly moderately strong to strong bedrock, comprising interbedded siltstone, mudstone, and fine to medium sandstone, typically pale greenish-grey to olive/tan in colour. The rock mass is generally heavily fractured, with multiple joint sets at steep and moderate dips, and close to medium spacing, resulting in predominantly broken or partially intact core in places. Weathering is described as light to moderate, with clay smearing on fracture surfaces and widespread iron oxidation staining (orange/red/black). In places, more competent rock is encountered, but zones of weathered and fractured rock predominate, with occasional very fractured intervals and locally more intact siltstone/sandstone units. Overall, the strata represent variable but generally competent bedrock conditions at depth, with localised weathering and fracture zones influencing rock mass quality.

Material reuse

Laboratory testing completed for GII SI indicates that the cohesive soils are not suitable for immediate reuse at their existing moisture contents. Where cut-and-fill earthworks are proposed, reuse will require careful moisture conditioning, compaction, and verification through site control testing under the supervision of a suitably qualified geotechnical specialist. Material intended for structural fill should achieve the specified moisture content and compaction standards, with ongoing compliance testing during construction. Material that does not meet these criteria may still be suitable for use in landscaping or other non-structural areas where settlement can be accommodated.

Lime and cement stabilisation is identified as a viable option to improve excavated cohesive soils for reuse as engineered structural fill. This involves removing made ground and soft deposits down to firm material, processing the suitable excavated material with approximately 1% lime followed by 1–2% cement, and placing it as compacted structural fill with a 1V:1H load spread. This approach enables houses to be supported on raft or standard strip/pad foundations, reducing the need for imported material and deep trench excavations. The suitability, extent, and depth of any

stabilisation works will require detailed assessment, laboratory testing, and design by a specialist contractor based on the proposed loading and settlement criteria at designed formation and finish ground levels.

All proposed earthworks, including stockpiling, material treatment, and final deposition in the identified Zones and surrounding areas, remain subject to ongoing review by the design team and colleagues to confirm compliance with planning requirements and overall feasibility with target volumes. All quantities, extents, and volumes associated with ground improvement, cut-and-fill operations, and material reuse are indicative only and shall be subject to detailed verification at planning compliance stage and further refinement during the construction phase. Final quantities will depend on site-specific conditions, final design levels, and any additional testing or validation undertaken on site. All earthworks and ground improvement proposals, including lime and cement stabilisation, shall be subject to ongoing review, approval, and confirmation by Cairn Ltd and the appointed design team to ensure compliance with the approved design, relevant specifications, and regulatory requirements.

13 CONCLUSION

The site location has been assessed in terms of engineering input by this planning report. Third party services were collated and georeferenced with reference to the site. As has been detailed above, the site has a variety of existing services running by the site along the N20 and Station Road. These can be accessed to service the proposed site, making it a viable option for development.

Existing services which have historically serviced the neighbouring properties may need to be diverted as their locations may restrict/impede the development potential of the site.

The traffic element of the site when routed as discussed in the report should offer clarity with regards future traffic flows entering/ exiting the site and any safety concerns.

The servicing of the site with roads and car parking infrastructure may require earthworks and retention structures within sections of the site. These earthworks will be graded to ensure the local road bounding the perimeter of the site is not undermined and future maintenance of all sloped areas can be achieved.

Employing these measures will enable the site to be realised and will provide an excellent opportunity to develop these vacant lands and integrate them into the town's economic development.

A summary assessment of Service availability for the subject site for qualitative criteria is presented in the table below. These Criteria are:

Conveyance – Proximity of the utility service to the subject site/requirement to traverse third party lands (necessitating permissions or easements).
Capacity – Capacity of the utility to cater for all or a portion of the proposed development site.
Network Upgrades – Requirement to upgrade the service network, due to limited capacity in the existing infrastructure to accommodate the proposed development.

Utility Service	Conveyance	Capacity	Network Upgrades	Comments
Potable Water				Adequate capacity available for entire Masterplan. Local network upgrades required.
Wastewater				Adequate capacity available for 1750 Units. Local network upgrades required.
Surface Water				Adequate Surface Water outfall locations. Nature Based SUDS measures to be integrated in scheme design.
Broadband				Extensive Broadband infrastructure available from existing broadband suppliers in the vicinity of the site.
ESB				Significant ESBN network capacity available in the vicinity of the site. *
Gas				Significant Gas Network infrastructure available in the vicinity of the site. *

Criteria Scoring Legend	
	Major Positive – No Particular Constraints
	Minor Positive – Some Constraints
	Minor Negative – Significant Constraints
	Major Negative – Not Feasible

* Based on preliminary network information. Subject to follow up discussions with ESBN/GNI

14 REFERENCES

- *DMURS- Design Manual for Urban Roads and Street – 2019*
- *Irish Water: Wastewater Infrastructure Standard Details UE -CW-5030-01*
- *Irish Water: Code of Practice for Wastewater Infrastructure UE -CW-5030-03*
- *Irish Water: Water Infrastructure Standard Details UE -CW-5020-01*
- *Irish Water: Code of Practice for Water Infrastructure UE -CW-5020-03*
- *TII Publications DN-GEO-03060 "Geometric Design of Junctions (priority junctions, direct accesses roundabouts, grade separated, and compact grade separated junctions)"*
- *Recommendations for Site Development Works for Housing Estates published by the Department of the Environment.*
- *Cork City Council Planning viewer*
- *ESB service records*
- *GNI service records*
- *EIR service records*
- *SI records*
- *Google Maps*
- *Openstreet view*
- *Inland Fisheries Ireland: Planning for watercourses in the urban environment.*

15 APPENDIX

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16 APPENDIX A: EXISTING SERVICES RECORDS

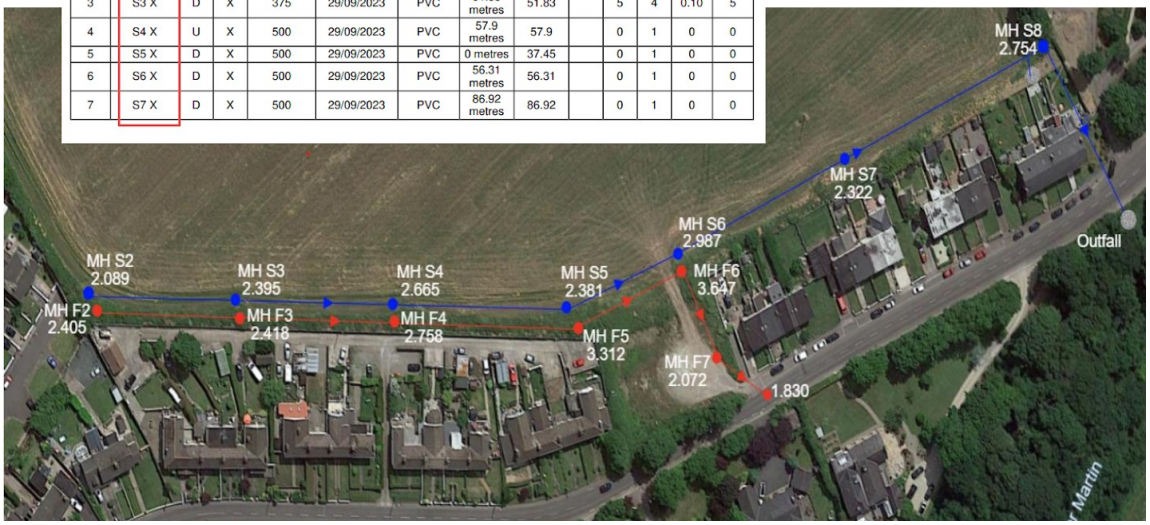
DYNO-ROD
Drain Cleaning, Inspection & Repair

Service Defects (SRM 4)

Dyno Rod Cork
Unit P1, Marina Commercial Park
Centre Park Road
Cork City
County Cork
EIRE
Ireland

Job Number	Surveyed by (Operator)	Base Unit	Date
Q324639	PAUL O DONOVAN	VTBGBQRXH6	29/09/2023

No.	PLR	Dir.	Use	Shape/Size	Date	Mat.	Total Length	Inspection Length	Cat.	Peak Score	Grade	Mean Score	Total Score
1	S1 X	D	X	225	29/09/2023	PVC	10.6 metres	15.07		0	1	0	0
2	S2 X	D	X	300	29/09/2023	PVC	49.55 metres	49.55		0	1	0	0
3	S3 X	D	X	375	29/09/2023	PVC	51.83 metres	51.83		5	4	0.10	5
4	S4 X	U	X	500	29/09/2023	PVC	57.9 metres	57.9		0	1	0	0
5	S5 X	D	X	500	29/09/2023	PVC	0 metres	37.45		0	1	0	0
6	S6 X	D	X	500	29/09/2023	PVC	56.31 metres	56.31		0	1	0	0
7	S7 X	D	X	500	29/09/2023	PVC	86.92 metres	86.92		0	1	0	0



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17 APPENDIX B: UISCE EIREANN – CONFIRMATION OF FEASIBILITY

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CONFIRMATION OF FEASIBILITY

David Murphy

10 High Street
Douglas Road
Cork
Co. Cork
T12 KC66

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

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

17 July 2026

Our Ref: CDS24003261 Pre-Connection Enquiry
Ringwood Phase 2, Blarney, Cork, Co. Cork

Dear Applicant/Agent,

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

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 319 unit(s) at Ringwood Phase 2, Blarney, Cork, Co. Cork **(the Development)**.

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

- **Water Connection** - Feasible Subject to Upgrades:

  In order to accommodate the proposed connection, approximately 450m of water network upgrades will be required to provide additional network capacity. Uisce Éireann does not currently have any plans to undertake these works, therefore the applicant will be required to fund these local network upgrades. The fee for these works will be calculated at a connection application stage.

  In addition to this, a supplementary booster pump arrangement will be required to service the extent of the Development and ensure a suitable level of service for the proposed network.

- **Wastewater Connection** - Feasible Subject to Upgrades:

  In order to service Phase 1 and 2 (only) of this Development it will be necessary to provide a wastewater pumping station (WWPS) to collect and discharge wastewater loading to the exiting Uisce Éireann network at Station Road. This WWPS should be located at a suitable location within the Development and sized to allow for 24 Hour Emergency Storage. The Developer should engage with

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

Uisce Éireann to review pumping station requirements and gravity drainage options through the site to ensure infrastructure provided will be able to maximise the scale of development that can be serviced. The WWPS is to conform to Uisce Éireann Code of Practice and Standard Details.

In order to facilitate the increase in loading from the proposed Development for Phase 1 and 2 (only) the existing storm drainage along Station Road must be disconnected from the existing sewer network along Station Road and discharged into an existing storm network that does not connect to a UÉ foul sewer. Full details of these proposals to be agreed with the LA Drainage Division and provided as part of any future connection application submissions.

Please also note that while there is currently capacity in the Blarney wastewater treatment plant to facilitate the proposed connection, this capacity is limited and there are a large number of developments in the Blarney area. Should enough of these developments progress before you make a connection application, this capacity may be utilised by others. In this case it will be necessary for you to enter into an agreement with Uisce Éireann, wherein you, the developer, will fund the necessary upgrades to the wastewater treatment plant and/or surrounding area to facilitate further growth in the area to be carried out by Uisce Éireann.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

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

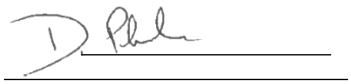
Where can you find more information?

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

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

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

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *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
Fire flow Requirements	• 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	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• 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/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

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

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

Existing Water Infrastructure:



Existing Wastewater Infrastructure:



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

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

18 APPENDIX C: PLANNING ENGINEERING LAYOUTS

Please refer the Phase 2 Engineering Design Pack submitted for this application.

Please refer to all supporting reporting as submitted.

MHL & ASSOCIATES LTD.

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