Natura Impact Statement

Residential Development

Monacnapa, Blarney, Cork

Doherty Environmental Consultants Ltd.

3rd February 2022

Residential Development

Monacnapa, Blarney, Co. Cork

Natura Impact Statement

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INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by Eoin Sheehan to undertake a Screening Report in support of an Appropriate Assessment (AA), under Article 6 of the EU Habitats Directive, for a proposed residential development (the project) at Monacnapa, Blarney, Cork (see Figure 1.1 for the location of the project site and Figure 1.2 for an aerial view of the project site).

In accordance with Article 6(3) of the Habitats Directive, as transposed into Irish law by Regulation 42(1) and Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 (i.e. the "Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) (i.e. the "Planning and Development Act"), a Screening Report for Appropriate Assessment (AA) was prepared to assess whether it could or could not be ruled out, on the basis of objective information, that the project, either individually or in combination with other plans or projects, was likely to have a significant effect on any European Sites. The Screening Report for Appropriate Assessment was prepared by DEC Ltd. on behalf of Mr Eoin Sheehan and is provide as Appendix 1 to this NIS. The Screening Report for Appropriate Assessment concluded, in view of best scientific knowledge and the conservation objectives of the European Sites occurring within the zone of influence of the project, that, in the absence of appropriate mitigation, it could not be ruled out at the screening stage that the project would not result in significant adverse effects to one European sites, namely the Cork Harbour SPA. The conclusion of the Screening Report was informed by a highly precautionary approach and adopted a worst-case scenario. Such an approach was adopted to ensure consistency with the extremely low threshold for triggering likely significant effects as determined in both European and Irish case law and Section 177U of the Planning and Development Act. On the basis of that conclusion, it has been determined that AA is required in order to assess the implications of the project for those two European Sites. In accordance with Section 177T of the Planning and Development Act an NIS of the project has been prepared in order to assist An Bord Pleanála in carrying out its Appropriate Assessment. This NIS provides an examination, analysis and evaluation of the likely impacts from the Project, both individually and in combination with other plans and projects, in view of best scientific knowledge and the conservation objectives of the European Sites concerned. It also prescribes appropriate mitigation to ensure that the Project will not adversely affect the integrity of those sites identified as being at risk of likely significant effects. Finally, it provides complete, precise

and definitive findings, which are capable of removing all reasonable scientific doubt as to the absence of adverse effects on the integrity of the European sites concerned.

1.1 SUMMARY OF SCREENING REPORT FOR APPROPRIATE ASSESSMENT

The Screening Report identified two European Sites, the Cork Harbour SPA and the Great Island Channel SAC, occurring within the wider area surrounding the project site. These sites are shown in Figure 1.2 below and their location with respect to the project site is also shown.

The likely significant effects to the Cork Harbour SPA and its special conservation interest bird species and wetland habitats, as identified during the Screening Report, relates to the presence of a hydrological pathway linking the project site to the River Lee, which in turn drains to the Lee Estuary, in which sections of the SPA are located. The section of the SPA comprises intertidal wetland habitats relied upon for foraging and roosting by special conservation interest bird species of the SPA.

During the Screening the project was identified as having the potential to contribute water quality pressures to the existing "at risk" status of the freshwater and transitional waterbodies occurring downstream of the project site. These waterbodies comprise the Shournagh River sub-catchment and the lower River Lee catchment that includes the River Lee Estuary section of the Cork Harbour SPA. The project was identified as having the potential to generate polluted surface water within project site and during works associated with the replacement of a stream culvert under the tower Road. This latter element of the project represents a worst-case scenario feature of the project (see Section 2.2.3 below for further details). The discharge of such contaminated surface water arising from these elements of the construction phase or the ongoing discharge of contaminated surface water from the project site during the operation phase (and in the absence of appropriate surface water safeguards) was identified as having the potential to contribute to water quality pressures. It was acknowledged during the Screening Report that any contaminated surface drainage waters being discharged into the Lower River Lee adjacent to the project site are likely to be well diluted and distributed within this water body, thereby limiting their potential to result in significant downstream effects. However the Screening Report and its conclusions have been underpinned by a precautionary approach and the very low threshold (i.e. the mere probability for a significant effect to occur) required to trigger a Stage 2 Appropriate Assessment and based on this approach it was found that the potential for such downstream effects to arise as a consequence of the project and to result in

significant negative impacts to the conservation objectives of the Cork Harbour SPA could not be ruled out at the screening stage.

In summary based on the information provided in the Screening Report, the precautionary approach adopted during the consideration of impacts for the Screening Report and the extremely low threshold required to trigger Stage 2 Appropriate Assessment, it was concluded that the potential for significant effects to the Cork Harbour SPA as a result of the discharge of contaminated surface drainage waters from the project site and during works associated with the replacement of a culvert crossing the Tower Road R617 could not be ruled out. As such the Screening Report concluded that an NIS was required to evaluate further the potential for these impacts to result in significant adverse effects to the Cork Harbour SPA and where necessary prescribe mitigation measures to avoid such adverse effects.

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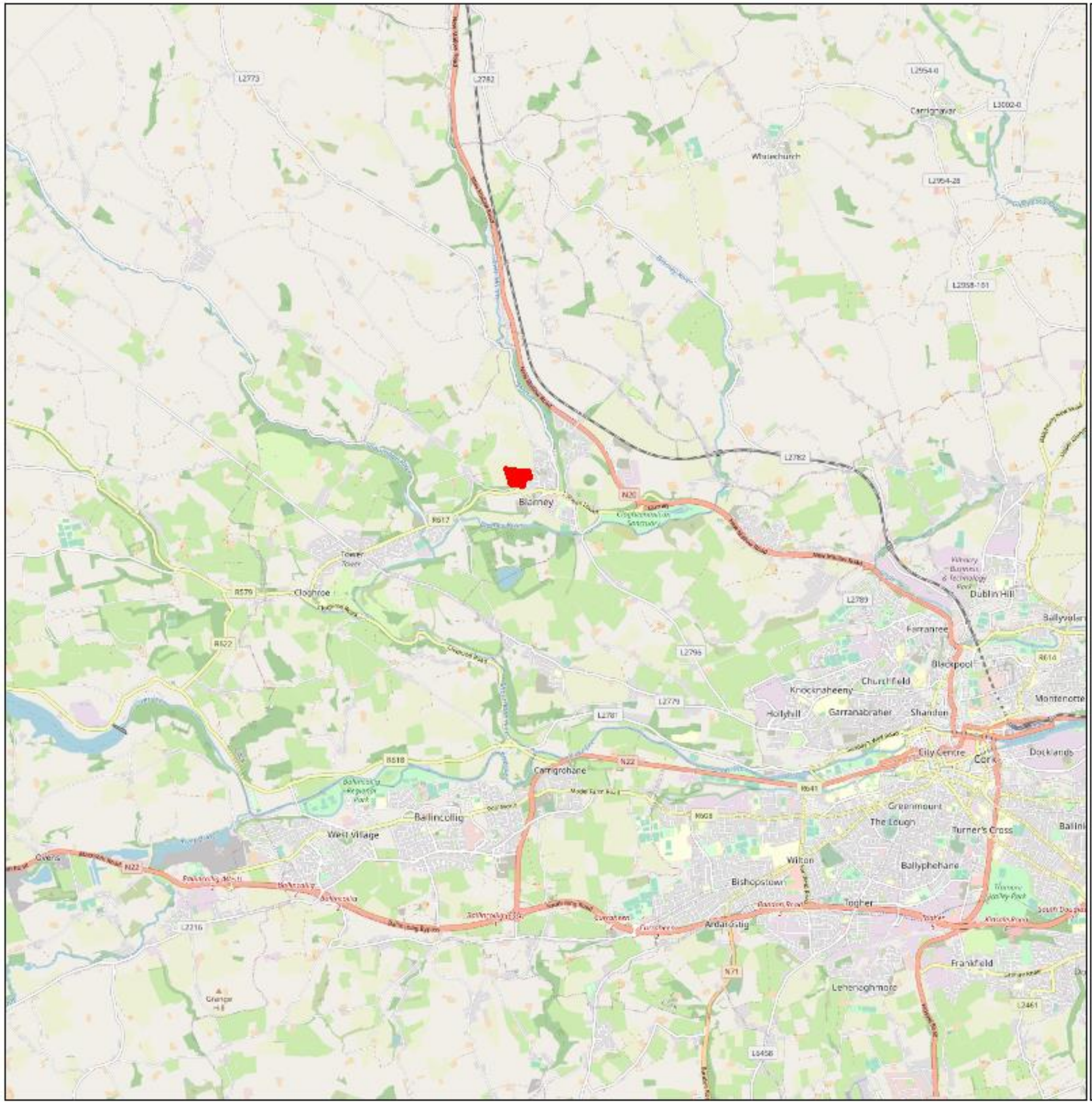


Residential Development Blarney

Figure 1.1

Site Location

Project Site

N W E S

0 0.5 1 2 Km

Drawn By	PD
Date	25/01/2022
Data Source	Bing


Residential Development
Blarney
Figure 1.2
Aerial View of the
Project Site
Project Site
N
W
E
S
0 0.03 0.06 0.12 Km
Drawn By PD
Date 25/01/2022
Data Source Bing

1.2 GUIDANCE

This NIS has been undertaken in accordance with National and European guidance documents: Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (DEHLG 2010) and *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats directive 92/43/EEC.* The following guidance documents were also of relevance during this the preparation of this NIS:

- A guide for competent authorities. Environment and Heritage Service, Sept 2002. Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (2010). DEHLG.

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/42/EEC. European Commission (2021).

- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats directive 92/43/EEC. European commission (2018).

The information provided in this NIS is also guided by European and Irish case law guiding the approach to Stage 2 Appropriate Assessment. In particular it is noted that the consideration of impacts provided in Section 4 this NIS has been undertaken in the absence of any regard to construction phase best practice measures and design measures that aim to safeguard the receiving environment and the Cork Harbour SPA from potential adverse impacts.

1.2.1 Background to Habitats Directive Article 6 Assessments

The EC (2001) guidelines outline the stages involved in undertaking an assessment of a project under Article 6(3) and 6(4) of the Habitats Directive. The assessment process comprises the four stages outlined below. Stage 1 to 3 form part of the Article 6(3) process, while Stage 4 forms part of the Article 6(4) process. This NIS presents the findings of an examination, analysis and evaluation of the project to inform a Stage 2 Appropriate Assessment of the project.

- Stage 1 – Screening: This stage defines the proposed plan, establishes whether the proposed plan is necessary for the conservation management of the European Site and assesses the likelihood of the plan to have a significant effect, alone or in combination with other plans or projects, upon a European Site.

- Stage 2 – Appropriate Assessment: If a plan or project is likely to have a significant affect an Appropriate Assessment must be undertaken. In this stage the impact of the plan or project to the Conservation Objectives of the European Site is assessed. The outcome of this assessment will establish whether the plan will have an adverse effect upon the integrity of the European Site.

- Stage 3 – Procedures under Article 6(4): Plans or projects for which the appropriate assessment could not conclude that they will not affect the integrity of the sites concerned may only be approved by the competent authorities if a derogation is sought in accordance with the provisions of Article 6(4). These provisions entail three key requirements that must be met and documented:

    - Alternative have been considered

    - There are imperative reasons of overriding public interest, including those of social or economic nature"; and

    - All compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected are taken

1.2.1.1 Stage 2: Appropriate Assessment

The EC Guidance Assessment Criteria for a Stage Two Appropriate Assessment seeks the following information:

1. the collection of information on the project and on the European Sites concerned;

2. An assessment of the implications of the project in view of the site's conservation objectives, individually or in combination with other plans or projects;

3. An evaluation as to whether the project can have adverse effects on the integrity of European Sites;

4. The consideration of mitigation measures (including their monitoring).

This NIS addresses each of these items, through the following sections provided below.

PROJECT DESCRIPTION

1.3 OVERVIEW

The project will consist of a strategic housing development of 143no. residential units, comprising 105no. houses and 38no. apartments at the project site at Monacnapa, Blarney, Cork. The project will also consist of the demolition of an existing garage and southern boundary wall, to be replaced with a new southern boundary wall, as well as the lowering of the existing eastern boundary wall and pier, at no. 1 Sunberry Drive; a crèche; all associated ancillary site development and landscaping works, to include bin stores, bicycle and car parking, ground works and retaining structures, foul drainage, stormwater drainage, water supply, service ducting and cabling, public lighting, relocation of existing ESB substation, and all boundary treatments. The proposed development is to be accessed via the existing Sunberry Heights/Sunberry Drive off the Blarney Relief Road (R617). An upgrade is proposed to the existing Sunberry Heights/Sunberry Drive and the existing access to the proposed strategic housing development, including the widening of the footpath at the junction with the Blarney Relief Road (R617), raised platforms, security barriers and fencing as necessary, road markings, and road resurfacing to facilitate improved pedestrian/cycle connectivity.

1.4 CONSTRUCTION PHASE

The estimated duration of work will be 24 months in total. The construction compound for the project will be located towards the southwestern boundary such that there is sufficient separation between the compound and the dwellings on Sunberry Heights. The compound area will consist of a crushed stone working platform, utilities, offices, welfare facilities and stores.

The site will require temporary connections for water and a connection to the Foul Sewer on the nearby Estate Road. It may be decided to install the permanent connections on the Estate Road to minimise disruption on the Public Road during the initial site setup and mobilisation

phase. It will also be necessary to provide temporary power to the Site which will include the installation of a temporary distribution board on site.

Following completion of the works; all construction materials will be removed from the compound, all temporary services decommissioned and disconnected and the area will be reinstated with finishes (e.g. topsoil) consistent with the landscaping features as identified in the project Landscape Masterplan.

Plant and machinery to be used during the construction phase will be typical construction machinery, including front-tip loaders, wheel loaders/load shovels, 360 degree excavators, off-road dump trucks, track machines, graders, telescopic handlers, compactors/rollers and backhoe loaders. Typical materials to be used during the construction phase will include concrete, concrete blocks, bricks, slate, plaster, sand, insulated cladding panels, steel members etc. Hydrocarbons, such as petrols, diesels, oils etc and other plant and machinery lubricants will be used onsite during the construction phase. Aside from these latter materials, no hazardous material will be used during the construction phase. All hydrocarbons and other aqueous construction material will be stored in bunded areas within the construction compound on site. All refuelling by plant and machinery will be undertaken in designated bunded areas within the construction compound during the construction phase.

Any excavations to be stored on site will be stored in a designated stockpile area located in the construction site compound or other suitable location on site for the storage of segregated wastes prior to their transport for recovery/disposal at suitably licensed/permitted facilities. . Topsoil will be stockpiled on site for reuse in soft landscaping and will be stored separately to subsoils. Stockpiles will be graded to a <1:4 profile The stockpile area will be located over 50m from any watercourse or drainage channels occurring within the site. Stockpiles will be covered with plastic sheeting during wet weather and a temporary berm will be constructed around the stockpile area to prevent runoff to watercourses or drainage channels. Excess inert spoil material, not to be reused on site, will be transported off site for deposition. All waste spoil material arising from the construction phase will be inert, non-hazardous spoil material and will be disposed at an approved facility.

Waste material arising on site during the construction phase will be managed in accordance with the waste management hierarchy detailed in the Construction Environmental Management Plan (CEMP) prepared for the project and provided under separate cover.

1.5 CONSTRUCTION PHASING

The proposed development will be constructed in four phases in accordance with the phasing strategy set out in the Architect's Design Statement that accompanies this planning application. Development will start from the south and east of the site and develop firstly towards the north and then anticlockwise to the northwest and southwest areas of the site.

1.5.1 Phase 1-Southeast Area of the Site

Phase 1 will comprise of the construction of 45no. dwelling houses varying from 2 storey height to 3 storey height. Phase 1 will also involve the construction of the childcare facility.

Site setup and site mobilisation will also be undertaken in Phase 1 which will involve the establishment of a contractor's compound, site offices, securing of the construction site, erection of signage for site security purposes, site clearance, and the putting in places of surface water management and waste management measures.

1.5.2 Phase 2 - Northeast Area of the Site

Phase 2 will comprise of the construction of 29No. dwelling houses, mainly 2 storey and split level houses as well as 4No. apartments split into two blocks (one up/one down typology).

1.5.3 Phase 3 - Northwest Area of the Site.

Phase 3 will comprise of the construction of 20No. dwelling houses, mainly 2 storey and split level houses as well as 4No. Apartments split into 2 blocks (one up/one down typology).

1.5.4 Phase 4 - Southwest Area of the Site

Phase 4 will comprise of the construction of 18No. dwelling houses varying from 2 storey height to 3 storey height. Phase 4 will also comprise of the construction of 2No. apartment blocks containing 15No. apartments in each block.

Within each phase of the development works, the provision of services and site infrastructure will be developed as required by each phase of development. This will involve the laying of new sewers and water mains within the site, the provision of footpaths, lighting and roadways.

As part of any works (i.e. provision of services) along the public areas/roads in the vicinity of the site, it will be ensured that the surface of the roads/areas will be re-instated to a high standard.

The construction of the residential units will, to a certain degree respond to the demand/sale of the units involved, however, it is anticipated that the units will be constructed/completed over a 2 year period and will involve up to 90 no. construction staff (depending on the number of units being constructed at any one time).

1.6 SURFACE WATER MANAGEMENT

The surface water drainage system at the project site has been designed to take account of the following requirements:

- Surface water shall be collected in a series of stormwater drains that will be laid on the estate roads. The drains will collect stormwater arising from roofs and hard-standing areas within the individual properties and stormwater collected on the estate roads via the road gullies.

- The Surface water system shall include Attenuation designed for the 1/100 Year event. The Attenuation shall be provided for in three zones, constructed of Wavin Aquacell Plus Cells installed as per manufacturers' instructions in each zone.

- The principal point of discharge for surface water shall be to an existing stream/watercourse located to the west of the site (see Figure 2.1 for discharge point location). The existing stream/watercourse currently provides drainage from the project site. Discharge to the existing stream/watercourse shall be at a rate equal to the greenfield run-off rate to ensure no significant changes in flow in the existing stream/watercourse.

- The second point of discharge for surface water shall be to the existing surface water sewer on Sunberry Drive (see Figure 2.1 for location). This discharge point shall only be used to serve the most south-easterly area of the site which cannot be facilitated by the principal discharge due to levels. This discharge will serve circa 3.5% of the site and the discharge will be limited to the greenfield runoff rate.

1.6.1 Details of Existing Principal Stormwater Outfall at Western Boundary

A minor un-named stream/watercourse occurs to the southwest of the project site and this will be the principal point of discharge for treated surface water from the project site to this stream.

Discharge to this existing stream/watercourse shall be at a rate equal to the Greenfield Runoff Rate to ensure no significant changes in flow in the existing stream/watercourse. This unnamed stream flows into the River Martin. The River Martin is a tributary of the River Shournagh, which finally drains into the River Lee to the east of Ballincollig.

The unnamed stream/watercourse begins as an open land drain running in a north to south direction within the western boundary of the development site. At the southwest point of the development site, this open land drain joins with a similar land drain from the adjacent property to discharge into an existing unnamed stream/watercourse which descends through the wooded area towards the Killowen Road and subsequently towards the R617 Regional Road. The watercourse crosses both roads via precast concrete culvert crossings.

A catchment runoff assessment of the potential impact of surface water discharge from the development site to the receiving un-named stream/watercourse was completed by Irish Hydrodata Ltd.[1] The modelling assessment demonstrates that the proposed development will give a 16% (19.2 litres/second) increase in the 1/100-year rainfall event. Irish Hydrodata Ltd. conclude that the post development flow of 142litres per second is well below the culvert capacities which are estimated to be circa 400litres/second. Therefore, there will be no negative impact on the existing watercourse and associated road crossings which are deemed to have sufficient capacity.

The project engineers (OLS Consulting Ltd.) undertook consultations with Cork Ciy Council with respect to the stormwater outfall pathway. Cork City Council advised that there was uncertainty surrounding the discharge point of the culverted road crossing on the R617 Tower

[1] The Irish Hydrodata Ltd. Catchment Runoff Assessment is provided under separate cover as Appendix 5 to the Engineering Services Report

Road which forms part of the existing watercourse to which the proposed surface water discharge is to be made. Cork City Council sought clarity in this matter to ensure the existing watercourse was connected to the watercourse south of the Tower Road which ultimately discharges to the River Martin. The following actions were taken to demonstrate connectivity:

The culverted road crossing on the R617Tower Road was visually inspected by OLS Consulting Engineers on Tuesday 23rd November 2021. The crossing comprised of a 600mm diameter concrete pipe which was clearly visible on the upstream side of the crossing.

The crossing was dye traced on the day of the inspection and the outlet was located south of the R617 Tower Road where it discharges to an open watercourse which runs in a southerly direction from the R617 Tower Road. The 600mm diameter pipe was found to be heavily silted on the day of inspection and in need of cleaning.

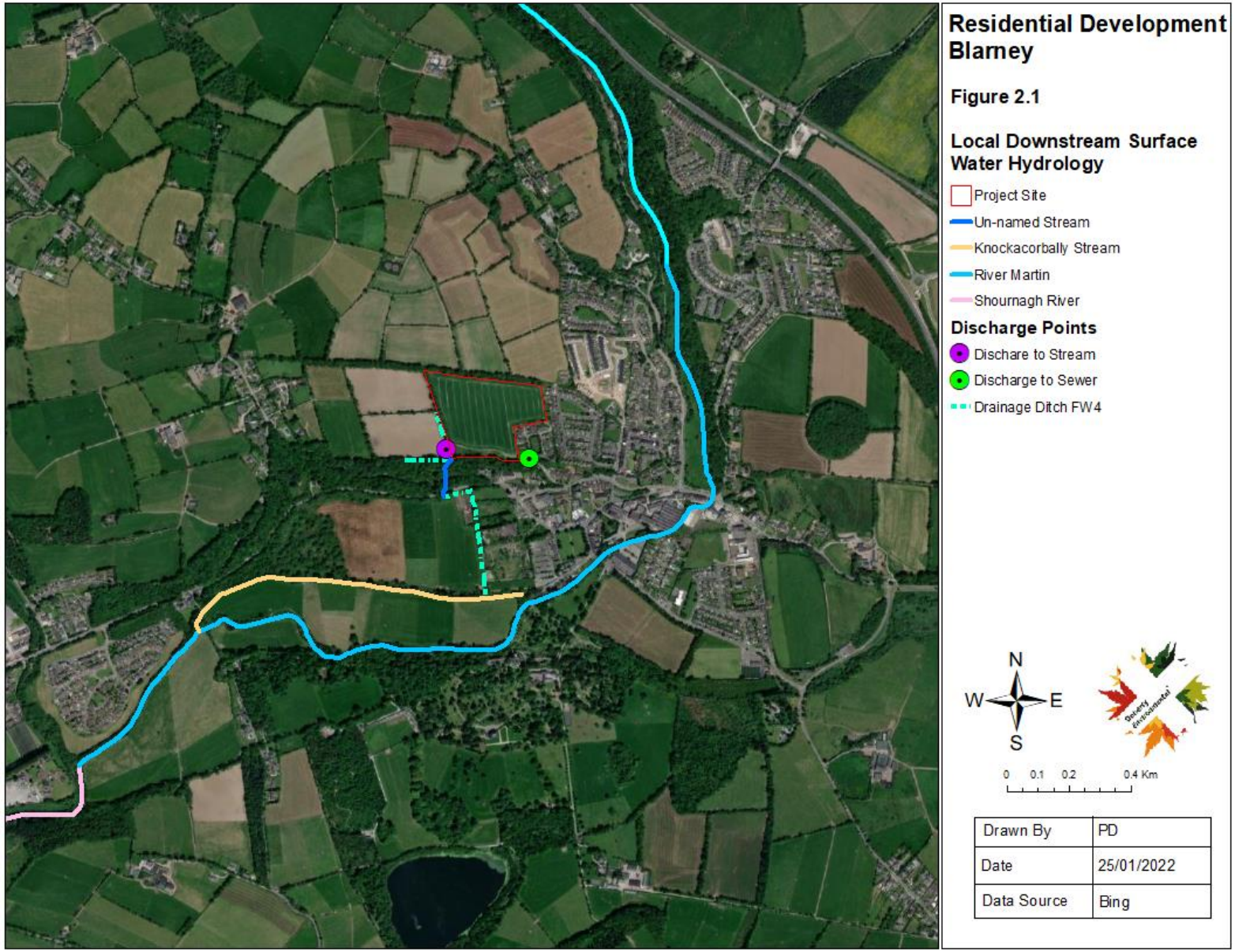
The dye tracing confirmed that the open land drain which descends through the woodland crossing the Killowen Road initially and subsequently the R617 Tower Road does connect to the open watercourse to the south of the R617 Tower Road which ultimately discharges to the River Martin.

The matter of the condition of the culverted road crossing on the R617 Tower Road was subsequently discussed with Mr. Simon Lyons of the Water and Drainage Services Department of Cork City Council. It was agreed that that piped crossing will need to be cleaned and CCTV surveyed to ascertain the condition of the pipe. Cork City Council intend to undertake the cleaning and CCTV works in due course, however, Mr. Simon Lyons has indicated that the Planning Application may be lodged on the basis that connectivity has been demonstrated.

Following the undertaking of the CCTV works on the piped crossing and at the point where the condition of the piped crossing has been established, it has been agreed that should remedial works be required to ensure the piped crossing is fit for purpose, the

applicant shall enter into an agreement with Cork City Council to pay a special contribution towards any remedial works to the crossing proportionate to the quantity of surface water discharging through the piped crossing from the proposed development.

For the purposes of this application and predominantly from an environmental perspective, a "worst case" approach has been considered in respect of the necessary remedial works. From an environmental perspective, it has been assumed that the road crossing may have to be replaced in its entirety and all environmental assessment and reporting is based on this "worst case" scenario although it is not envisaged that such extensive remedial works will be required.


Residential Development Blarney
Figure 2.1
Local Downstream Surface Water Hydrology
Project Site
Un-named Stream
Knockacorbally Stream
River Martin
Shournagh River
Discharge Points
Dischare to Stream
Discharge to Sewer
Drainage Ditch FW4
N
W
E
S
0 0.1 0.2 0.4 Km
Drawn By PD
Date 25/01/2022
Data Source Bing

1.6.2 Surface Water Management on Upper Site Area (North of Net Developable Area)

The area of the development site north of the Net Developable Area shall be retained as existing Meadow. The site is sloping in a north to south direction towards the developable area of the site.

To prevent excess surface water entering the developable area, an open swale shall be constructed north of the net developable area/on the southern extremity of the existing meadow. The open swale shall facilitate infiltration and shall also be connected to the existing open land drain located on the western boundary of the development site.

1.6.3 "Worst Case" Remedial Works to the R617 Tower Road Crossing

The culverted road crossing on the R617 Tower Road was inspected on the 23rd November 2021 where it was found to be heavily silted at the outfall of the culvert on the southern side of the R617 Tower Road.

The crossing will need to be fully cleaned and CCTV surveyed to ascertain the condition of the crossing which comprises of a 600mm diameter precast concrete pipe. There is an element of screening installed on the upstream side of the culvert to prevent large debris entering the pipe but this needs to be cleaned and maintained.

As outlined in the previous section a "worst case" approach has been considered in respect to the required remedial works for this crossing in the absence of information on the condition of the precast pipe. In this regard and for the purposes of comprehensive environmental assessment, it is assumed that the entire precast pipe crossing may need to be replaced.

1.6.4 Stormwater Attenuation Design

The management of surface water on the site has been considered in the context of the CIRIA SuDS Manual 2015. In this regard, it is proposed to attenuate surface water generated on the site in a series of 3 attenuation zones designed in accordance with the guidelines set out in Chapter 21 of the SuDS Manual 2015.

Attenuation of surface water on site is considered to be the most effective means of controlling and managing surface water discharge from this site to ensure that surface water arising within the site is discharged at a controlled rate equal to the Greenfield Runoff Rate for the Site.

1.6.4.1 Design Flood Event

The attenuation volume for all zones is calculated on the basis of a 1 in 100 year return period and the outflow from each zone shall be equal to the greenfield run-off rate calculated for each zone.

Detailed attenuations calculations for the 1 in 100 Year Event are contained in the Engineers Report provided for the project under separate cover. The greenfield runoff rates, required and proposed attenuation volumes are summarised in Table 2.1 below.

1.6.4.2 Siting of Attenuation Chambers

All attenuation chambers will be sited in green areas/soft landscaped areas within the site and at least 15m from any dwelling on the site.

Table 0.1: Attenuation Volume Summary

Zone	**Storage Volume Required (m^3)**	**Storage Volume Provided (m^3)***
Zone 1	738.43	760.00 20m x 20m x 2m Zone 4,000 Aquacell Plus Units laid in 5 Layers 800 Units/Layer
Zone 2	533.61	570.00

		30m x 10m x 12m Zone 3,000 Aquacell Plus Units laid in 5 Layers 600 Units/Layer
Zone 3	47.35	57.00 7.5m x 5m x 1.6m Zone 600 Aquacell Plus Units laid in Layers 150 Units/Layer
***Note Volume Provided is calculated on 95% Void Ratio for Aquacell Plus Units which have a volume of 0.19m^3/Unit**		

1.6.4.3 Attenuation Storage Proposal

It is proposed to install a Wavin Aquacell Underground Attenuation System on site. The system shall comprise of 3 no. Attenuation Zones distributed throughout the site.

The Aquacell Plus Cells are wrapped in a fully sealed & welded geomembrane and an outer protective layer to prevent damage to the geomembrane. This will give a fully sealed installation with no potential for groundwater infiltration.

The units shall be installed as per manufacturers' instructions. The outline method of construction as prescribed by the manufacturer is a s follows:-

a) Excavate the trench to the required depth ensuring that the plan area is slightly greater than that of the Aquacell units.

b) Lay 100mm bed of coarse sand, level and compact.

c) Lay the geotextile over the base and up the sides of the trench.

d) Lay the geomembrane on top of the geotextile over the base and up the sides of the trench.

e) Lay the Aquacell units parallel with each other. In multiple layer applications, wherever possible, continuous vertical joints should be avoided. AquaCell units can be laid in a 'brick bonded' formation (i.e. to overlap the joints).

f) Wrap the geomembrane around the Aquacell structure and seal to manufacturers recommendations.

g) If side connections into the Aquacell units is required, (other than the preformed socket), use the appropriate Flange Adaptor (6LB104 or 6LB106). Fix the flange adaptor to the unit using self-tapping screws. Drill a hole through the Flange Adaptor and connect the pipework. (6LB106 should not be used with Aquacell Eco).

h) In order to prevent silt from entering the tank, clogging inlet pipework and reducing storage capacity, it is recommended that the Domestic Silt Trap (6LB300) or the standard Silt Trap (6LB600) is installed prior to the inlet pipework.

i) Wrap and overlap the geotextile covering the entire AquaCell structure, to protect the geomembrane.

j) Lay 100mm of coarse sand between the trench walls and the AquaCell units and compact.

k) Lay 100mm bed of coarse sand over the geotextile and compact. Backfill with suitable material.

The outfall manhole from each attenuation zone shall be fitted with a Vortex Flow Control Valve to limit the flow to the outfall discharge points to the Greenfield Runoff Rate.

The outfall discharge works by gravity as follows:

- The Outfall Manhole which shall be constructed with a weir fills with water and continues to discharge normally for flows up the greenfield runoff rate.
- As flows increases, the outfall manhole fills with water up to the top of the weir wall.
- Water overflows the weir wall and enters the Aquacell Storage Chamber.
- The Aquacell Chamber fills with water for the duration of the rainfall event.
- After the rainfall event; water flows back out of the Aquacell storage chamber, finding its own level and through the non-return flap valve fitted at the bottom of the weir wall.
- The water discharges from the outfall manhole via the vortex flow control valve so that flow from the attenuation zones at all times is limited to the greenfield run-off rate.

1.6.5 Oil & Silt Interception

A Hydrocarbon Interceptor shall be installed prior to each attenuation zone. The units to be installed shall be Kingspan Environmental Class 1 Bypass Separator which shall suitably sized to treat surface waters generated in each attenuation zone.

All Attenuation Zones will be preceded by a Wavin Silt Trap (6LB600) to prevent excessive silt build up in the Aquacell Chambers.

1.7 WASTEWATER MANAGEMENT

It is proposed to discharge foul effluent arising within the development to the Public Foul Sewer located on Sunberry Drive, which is located to the southeast extremity of the site.

There has been consultation with Irish Water in this matter through the submission of a Pre-Connection Enquiry for the development which was submitted on the 25th January 2021. Irish Water subsequently issued Confirmation Feasibility on the 24th March 2021 confirming the proposed connection to the Irish Water Network could be facilitated.

Irish Water further advised in their confirmation of Feasibility Letter that it is likely that an upgrade of the foul sewer in Sunberry Drive will be necessary to facilitate the development and have advised that should the works proceed. Irish Water may seek a contribution towards the upgrade of the network. Irish Water advise the detail surrounding any such upgrades and possible contributions can be agreed as part of the putting in place of a valid connection agreement.

All houses on the site are served by 160/225mm diameter gravity foul sewers which collect foul effluent from each dwelling connection on the site. The new sewer shall be connected to the existing foul sewer network on Sunberry Drive.

The Foul Sewerage System shall be designed and installed in accordance with the guidance contained in the " Code of Practice for Wastewater Infrastructure" published by Irish Water in July, 2020 (Rev. 2).

The following key guidance criteria has been established from the above publication:

- The sewers have been designed on the basis of 6 times Dry Weather Flow (6DWF). Dry weather flow (DWF) is taken as 400 litres per dwelling (2.7 persons per house and a per capita wastewater flow of 150 litres per head per day with provision for a 10% consumption allowance).

- All sewers have been designed with gradients that ensure self-cleansing velocities are achieved. This is based on a minimum flow velocity of 0.75m/second at one third design flow or during average flow conditions (2 times DWF).

In addition to satisfying the criterion on self-cleansing velocity the following conditions shall also be satisfied:

- 150mm nominal internal diameter gravity sewer shall be laid at gradients not flatter than 1:150 where there is at least ten dwelling units connected;

- 225mm nominal internal diameter gravity sewer shall be laid at gradients not flatter than 1:225 where there is at least twenty dwelling units connected;

- A service connection with a nominal internal diameter of 100mm laid to a gradient not flatter than 1:80, where there is at least one WC connected and 1:40 if there is no WC connected.

On the basis of the guidance above, sewer connections from individual houses shall be 100mm diameter pipes laid at a minimum gradient of 1 in 60.

A Statement of Design Acceptance has also been issued by Irish Water on 16th September, 2021 in respect of the proposed wastewater services for the site.

All wastewater will be conveyed from the project site, via the Irish Water sewerage system to the Blarney/Tower wastewater treatment plant (WWTP). Following treatment effluent will be discharged from the WWTP to the River Shournagh, which is a tributary of the River Lee.

The latest available Annual Environmental Report (AER) for the Blarney Agglomeration published on the EPA website is for 2019 (published August, 2020). The 2019 AER reported an exceedance in the emissions limit values (ELVs) for orthophosphate and total phosphorous as a result of low influent flows and inadequately adjusted chemical dosing, however the discharges from the wastewater treatment plant were found not to have an observable impact on water quality of the River Shournagh, which is the receiving watercourse for effluent from the WWTP.

The results of the AER monitoring show that effluent from the WWTP does not negatively impact the River Shournagh and given this result and the adequate capacity available at the WWTP to treat additional loads generated by the project site, all wastewater generated by the project will be adequately treated prior to discharge to the River Shournagh and the Lee catchment such that it will not have the potential to perturb the water quality of the River Shournagh and Lee catchment.

1.8 WATER SUPPLY

There has been consultation with Irish Water in this matter through the submission of a Pre-Connection Enquiry for the development which was submitted on the 25th January 2021. Irish Water subsequently issued Confirmation of Feasibility on the 24th March 2021 confirming the proposed connection to the Irish Water Network could be facilitated.

Irish Water advised in their Confirmation of Feasibility that the preferred connection point for water is the 150mm water main running through the northeast of the site.

The proposed development will be served by a network of 150mm diameter watermain laid out as shown on the accompanying drawings to the Engineering Services Report (provided under separate cover).

Fire Hydrants will be provided such that each house will be within 46m 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 water main connections to ensure sections of the development or areas of the development can be isolated for maintenance and repair as required.

A Statement of Design Acceptance has also been issued by Irish Water on 16th September, 2021 in respect of the proposed wastewater services for the site.

1.9 LIGHTING

Outdoor public street lighting will be provided during the operation of the development along the estate public roads.

The entire proposed development will consist of low rise residential buildings, no more than 3-storeys in height and will not involve any tall or brightly illuminated structures. The principal source of night-time lighting associated with the project will be public lighting along the housing estate roads. The proposed development will aim to control the levels of light emitted by all public lighting associated with the development by implementing best practice approaches that aim to minimise light pollution. These measures are as follows:

- All external lighting will be designed to avoid night sky pollution/upward light spill;
- All lighting will be shielded and pointed so that is shines downward onto the ground, minimising the levels of sky glow and glare;
- The minimum amount of light will be used to allow adequate ground level illumination;
- No street lighting will be directed towards the existing hedgerow and treeline bounding the north of the project site and the woodland bounding the south of the project site. These habitat features will be located outside the 1 lux contour of the proposed lighting regime as detailing in the Outdoor Lighting Report prepared for the project.
- Street lighting has also been designed to ensure that new woodland landscape planting to be provided to the north of the developable area will also be located outside the lux contour associated with the outdoor lighting design. This will ensure that this area of proposed woodland habitat will no be subject to elevated lighting and will be optimised to function as habitat for wildlife.

1.10 LANDSCAPING

It is proposed to retain all vegetation associated with the existing woodland habitats bounding the project site to the north, south and west. The project includes a significant programme for tree planting (which is shown on the Landscape Masterplan drawings, presented under separate cover as part of the project planning application documentation). The landscaping design proposes to plant additional specimen and small/medium woodland trees along the northern boundary of the proposed project layout. The specimen woodland trees and small/medium woodland trees will include native species such as *Quercus petraea, Betula pendula, Corylus avellana, Alnus glutinosa, Sorbus acuparia* and *Pinus sylvestris*. The enhancement tree planting will augment the extent of woodland habitat occurring within the footprint of the project site.

The upper part of the site is excluded from development and the long-term planting strategy will provide green infrastructure in keeping with existing field boundary trees to provide a natural backdrop to the development and contribute towards integration of the new houses in the local landscape setting.

Landscape planting will also be provided along the southern boundary to the south of Apartment Block 1 and 2. This planting will consist of a line of tall growing Koster columnar oaks that will provide screening of the apartment blocks and also provide for a corridor between the oak treeline and the woodland to the south.

BASELINE DESCRIPTIOIN

The project site is comprised of one stubble field used for arable agriculture. Where vegetation occurs within the field, commonly occurring ruderal species dominant the assemblage. The field is bounded to the north by hedgerows associated with a dismantled railway line, to the west by a hedgerow field boundary, to the east by mature broadleaved woodland and to the east by existing residential housing.

The woodland to the south consists of a canopy dominated by mature *Quercus petraea, Fagus sylvatica, Pinus sylvestris* and *Fraxinus excelsior*. *Taxus baccata* occurs in the woodland to the east. *Ilex aquifolium* is the most prevalent tree in the shrub layer. The ground flora in the woodland to the south of the project site include *Ranunculus ficaria, Heracleum sphondylium, Hedera helix, Rubus fruticosus agg., Pteridium aquilinium, Blechnum spicants, Phyllitis scolopendrium, Hyacinthoides non-scripta, Brachythecium rutabulum* and *Isothecium myosuroides.*

A section of dismantled railway corridor forms the northern boundary of the project site. The species occurring along the hedgerow and treeline include *Quercus petraea, Fraxinus excelsior* and *Fagus sylvatica. Crataegus monogyna, Prunus spinosa, Salix cinerea, Salix aurita* and *Ulex europeaus* dominate the shrub layer. Much of the dismantled railway corridor is colonised by dense *Rubus fruticosus* agg. cover.

The eastern boundary is characterised by the rear boundaries of existing residential houses and consists of range of ornamental hedgerows and fencing. The western boundary supports a

hedgerow and treeline that is dominated by *Quercus petraea, Fraxinus excelsior, Crataegus monogyna* and *Prunus spinosa*.

A number of the mature *Quercus petraea, Fraxinus excelsior* and *Fagus sylvatica* trees occurring within the woodland to the south and along the northern and western boundaries support features, such as crevices and thick ivy cover that are known to be used by bat species as roost sites.

Within the woodland a number of dormant badger setts were recorded. There was no evidence indicating the use of these entrances and setts by mammals in recent times. The threatened slug species *Tandonia rustica* occurs in the woodland habitat to the south of the project site.

The project site is located within the River Lee catchment and the River Shournagh sub-catchment. There is an existing field drain located along the western boundary of the site. This merges within another field drain that drains along a field boundary from west east to the southwest corner of the project site. The two field drains form a minor first order stream that flows south through the woodland to the south of the project site. The minor stream crosses the Rower Road R617 to the south via an existing culvert and connects to a drain that flows south to the Knockacorbally Stream. The Knockacorbally Stream is a minor first order tributary of the River Martin, which in turn drains to the River Shournagh, a principal tributary of the River Lee. The local hydrology surrounding the project site is shown on Figure 2.1 above.

1.11 DESCRIPTION OF THE CORK HARBOUR SPA

The Cork Harbour SPA represents the only European Site likely to occur within the sphere of influence of the project. The next step in this Screening Assessment identifies the special conservation interests occurring within the potential sphere of influence of the project.

Cork Harbour SPA is a large European Sites consisting of a number of discrete sections associated with river estuaries. The section relevant to the project site is that occurring along either bank of the River Lee Estuary. Other areas of the SPA are located in the outer River Lee estuary and Cork Harbour and due to the harbours hydrodynamics and specifically tidal influences are not considered to occur within the sphere of influence of the project.

The special conservation interests of Cork Harbour SPA include a list of 23 wetland bird species and wetland habitats.

The special conservation interest bird species (with EU Birds Directive Code No. in parenthesis) are as follows:

- Little Grebe (Tachybaptus ruficollis) [A004]
- Great Crested Grebe (Podiceps cristatus) [A005]
- Cormorant (Phalacrocorax carbo) [A017]
- Grey Heron (Ardea cinerea) [A028]
- Shelduck (Tadorna tadorna) [A048]
- Wigeon (Anas penelope) [A050]
- Teal (Anas crecca) [A052]
- Pintail (Anas acuta) [A054]
- Shoveler (Anas clypeata) [A056]
- Red-breasted Merganser (Mergus serrator) [A069]
- Oystercatcher (Haematopus ostralegus) [A130]
- Golden Plover (Pluvialis apricaria) [A140]
- Grey Plover (Pluvialis squatarola) [A141]
- Lapwing (Vanellus vanellus) [A142]
- Dunlin (Calidris alpina) [A149]
- Black-tailed Godwit (Limosa limosa) [A156]
- Bar-tailed Godwit (Limosa lapponica) [A157]
- Curlew (Numenius arquata) [A160]
- Redshank (Tringa totanus) [A162]
- Black-headed Gull (Chroicocephalus ridibundus) [A179]
- Common Gull (Larus canus) [A182]
- Lesser Black-backed Gull (Larus fuscus) [A183]
- Common Tern (Sterna hirundo) [A193]

The wetland habitats of the SPA include intertidal mudflats, saltmarshes and estuaries.

These wetland habitats of the SPA occur within the River Lee Estuary section of the SPA and are considered to occur within the potential sphere of influence of the project due to the hydrological link between the project site and these wetland habitats.

Whether special conservation interest bird species of the SPA occur within the potential zone of influence of the project depends upon the known distribution of these species within the River Lee Estuary Section of the SPA.

The distribution of special conservation interest bird species within the River Lee Estuary section of the SPA is based on the results of baseline surveys for the Cork Harbour SPA, as published by the NPWS (NPWS, 2014). The distribution of species within this section of the SPA have been identified during Irish Wetland Bird Surveys spanning the period 1994/95 to 2012/13. These surveys are based on wetland bird surveys and counts within subsites of the Cork Harbour SPA. The IWeBS subsites occurring along the most westerly sections of the River Lee Estuary within the SPA (and closest to the project site) are OL486, OL536 and OL539. The role these subsites play as foraging and roosting sites for special conservation interest bird species of the SPA is summarised in Table 6.1 below. In Table 6.1 the importance of each subsite is ranked from low (L); moderate (M); high (H) and very high (V). The British Trust for Ornithology (BTO) species codes are used to indicate relevant species on Table 6.1.

Table 0.1: Ranked Importance of Subsite OL486; OL536; and OL539 for Intertidal and Subtidal Foraging, Roosting and Other Behaviour (Source NPWS, 2014)

Subsite	**Foraging**				**Roosting & Other Behaviour**			
	L	**M**	**H**	**V**	**L**	**M**	**H**	**V**
OL486	T.; LG	SU; WN; CA; H; OC; CU; RK; BH; LB	DN; BW	BA	L	RK; CM	CA; BW; CU	OC; BH
OL536	CA; BH	T.; RM; CM	BW; BA; RK	GG; OC; DN; CU; LB	BW		GP	CA; BA
OL539	OC; RK; BH	WN; CA; BW; CU	GG		BH	CA; OC; CM; LB	GG	

BA – Bar-tailed Godwit; BH – Black-headed Gull; CA – Cormorant; CM – Common Gull; CU – Curlew; DN – Dunlin; BW – Black-tailed Godwit;

GG – Great-crested Grebe; GP – Golden Plover; H. – Grey Heron; L – Lapwing; Lb – Lesser Black-backed Gull; LG – Little Grebe;

OC – Oystercatcher; RK – Redshank; RM – Red-breasted Merganser; SU – Shelduck; T. – Teal; WN – Wigeon

Table 6.1 lists 19 (of the total no. of 23) special conservation interest bird species of the Cork Harbour SPA as regularly occurring within the River Lee Estuary section of the SPA. This section of the SPA supports important numbers (i.e. moderate to very high) of 16 of these species (teal, little grebe and lapwing regularly occur in low numbers).

As such the special conservation interest bird species of the SPA occurring within the potential sphere of influence of the project are:

- Great Crested Grebe
- Cormorant
- Grey Heron
- Shelduck
- Wigeon
- Red-breasted Merganser
- Oystercatcher
- Golden Plover
- Dunlin
- Black-tailed Godwit
- Bar-tailed Godwit
- Curlew
- Redshank
- Black-headed Gull
- Common Gull
- Lesser Black-backed Gull

1.11.1 Documented threats & pressures

The NPWS have documented threats and pressures to the Cork Harbour SPA in their Natura 2000 Data Return Form for this SPA. The threats and pressures to this SPA have been ranked in terms of low, medium and high impacts. These threats and pressures and their associated impact rank are as follows:

- Nautical sports (medium impact);
- Shipping lanes (medium impact);

- Fertilisation (medium impact);
- Leisure fishing (medium impact);
- walking, horseriding and non-motorised vehicles (medium impact);
- Marine and Freshwater Aquaculture (High Impact);
- Industrial or commercial areas (high impact);
- Roads, motorways (high impact);
- Urbanised areas, human habitation (high impact);
- Port areas (high impact).

In addition to the threats and pressures listed above the Conservation Objectives Supporting Documentation (NPWS, 2014) for the Cork Harbour SPA has identified activities within or in the vicinity of the River Lee Estuary and the associated sub-sites that have the potential to result in a disturbance effect to wetland bird species. The activities that have the potential to result in disturbance events to birds within these subsites are as follows:

1. Shipping channels;
2. Railway;
3. Power boating and water skiing; and
4. Walking, including dog walking.

1.11.2 Conservation Objectives

Site-specific Conservation Objectives for the Cork Harbour SPA have been published by the NPWS (NPWS, 2014a). The overall Conservation Objectives for the special conservation interest bird species of the Cork Harbour SPA is to maintain the favourable conservation status of bird species for which the SPA is designated. The favourable conservation status of bird species will be achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and

- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis

Favourable conservation status of wetland habitats is achieved when:

- its natural range, and area it covers within that range, are stable or increasing
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and;
- the conservation status of its typical species is favourable.

The site-specific Conservation Objectives for the Cork Harbour SPA aim to define the favourable conservation status its special conservation interest bird species. The site-specific Conservation Objectives for these species occurring within the sphere of influence of the project are outlined in Table 3.1 below.

Table 0.2: Site-Specific Conservation Objectives for Cork Harbour SPA Special Conservation Interest Species

Attribute	Measure	Target	Notes
Cork Harbour SPA			
Population trend	Percentage change	Long term population trend stable or increasing	Waterbird population trends are presented in part four of the conservation objectives supporting document
Distribution	Number and range of areas used by waterbirds	No significant decrease in the range, timing and intensity of use of areas by light-bellied brent geese, Oystercatcher, Black-tailed Godwit,	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives

		Dunlin and Redshank other than that occurring from natural patterns of variation	supporting document.

1.12 WATER QUALITY OF THE RIVER SHOURNAGH & LOWER RIVER LEE

The project site is located within the River Shournagh sub-catchment, which drains to the lower River Lee near Ballincollig.

Eventhough recent water quality monitoring for the River Shournagh and the River Martin downstream of the project site has been classified as high and goo to high respectively the Water Framework Directive status of these watercourses downstream of the project site have been classified as "at risk". The lower River Lee downstream of the Shournagh confluence has also been classified as "at risk". The transitional waters of the River Lee further downstream (the Lee Estuary Lower) where the Cork Harbour SPA River Lee section occurs has been identified as a transitional water that is moderately polluted and of intermediate water quality status. The Water Framework Directive status of this transitional waterbody is also classified as "at risk".

EXAMINATION OF IMPACTS

1.13 SURFACE WATER RUNOFF

The potential impacts that may arise as a result of the project relate to the discharge of contaminated surface water from the project site during the construction phase and operation phase or during works associated with the replacement of the existing culvert crossing the Tower Road R617. In the event that surface waters become contaminated during construction works or as a result of operation phase surface water runoff, such waters will be discharged to the Shournagh sub-catchment and downstream to the lower River Lee Estuary.

Earthworks associated with the construction phase of the project will denude surfaces and have the potential to generate silt-laden surface water runoff from the project site. In the event that water generated in the construction footprint is of a poor water quality standard or becomes contaminated from construction works, its discharge will have the potential to perturb water quality receiving waters downstream. In addition potentially contaminating materials such as oils, fuels, lubricants, other construction related solutions and cement-based products will be used on site during the construction phase and the accidental emission of such material via surface water runoff to the Shournagh sub-catchment and downstream to the River Lee Estuary will have the potential to contribute to existing water quality pressures to these receiving waterbodies.

During the operation phase surface water generated at the project site will discharge via the proposed surface water pathway to the Shournagh River sub-catchment and will be conveyed downstream to the River Lee Estuary and the Cork Harbour SPA. The potential will exist for surface water runoff from impermeable sufaces and car parking areas to be contaminated in the event of fuel leaks or accidental spills. Any untreated discharge of contaminated surface water runoff from the project site to the Shournagh River sub-catchment and on downstream to the Lee estuary and the SPA could contribute to existing pressures to water quality within the SPA.

While it is noted that the uncontrolled release of contaminated surface drainage waters to the Shournagh River sub-catchment and the River Lee is likely to be rapidly diluted and distributed within this tidal waterbody, any deposition of contaminants such as hydrocarbons or cement material to intertidal habitats downstream along the River Lee estuary could result in the contamination of benthic fauna and epifauna which function as a prey resource of the wetland bird species of the Cork Harbour SPA. The toxic effect of such contaminants, particularly hydrocarbons, on feeding, growth, development and reproduction are known to cascade and bioaccumulate throughout the food chain affecting benthic fauna, fish, birds and mammals (Ferrando, 2015).

The significance of the impact of the uncontrolled release of contaminants from the project site or during works associated with the replacement of the culvert along the R617 to the Shournagh River sub-catchment and downstream to the River Lee Estuary and the intertidal habitats of the SPA will depend upon the frequency of the release and the concentration of contaminating materials in surface water discharging from the site. In a worst-case scenario the ongoing discharge of waters with high concentrations of contaminating substances could over time

contribute to the conveyance poor water quality downstream with consequent effects for wetland intertidal habitats. Revitt et al. (2014) demonstrated the potential of car parking areas to result in a build-up of diffuse pollution loads on their surfaces with subsequent mobilization and direct discharge to receiving waters. In the absence of appropriate design safeguards (such as the inclusion of hydrocarbon interceptors) the discharge of such contaminated surface water from car parking area during the operation phase could represent a source of ongoing contamination to surface drainage waters being discharged to the Shournagh River catchment and downstream to the Lower River Lee. Accidental spillages of contaminating materials during the construction phase and/or operation phase could also represent sources of acute pollution to the Shournagh River sub-catchment and conveyance of polluted waters downstream to the River Lee Estuary.

The exposure of estuarine fauna, including birds, to such polluted waters can result in disturbance and stress effects. Upon detection of such contaminants wetland birds may simply move away from the affected area, with the potential to result in a decline in the distribution of bird species within the SPA. For sessile benthic fauna, upon which many of the wetland bird species of the SPA rely, there will be no potential for escape and their exposure to contaminants may result in biological changes designed to aid survival. In some cases these benthic species may acclimatise to contaminated conditions, while in others the contaminants may lead to mortality and changes in the population and community structure of intertidal wetland habitats. Such an effect would have the potential to undermine the conservation status of wetland habitats occurring downstream of the project site within the SPA.

1.14 IN-COMBINATION EFFECTS

A review of Cork County Councils On-line map-based planning portal, E-Plan was undertaken to identify other planning approved or planning applications for projects, within the last five years, in the vicinity of the project site within or near Blarney. The following projects were identified:

Planning Reference No.: 16/7122: The demolition of an existing dwelling house and construction of 88 no. residential units, a crèche and all ancillary site development works. Construction is underway for this project since 2019 and is now largely complete.

Planning Reference No.: 14/4879: Retention of a single storey utility room to the rear of an existing dwelling.

Planning Reference No.: 15/5689: Extension to an existing two storey house.

Planning Reference No.: 15/5448: Extension to an existing two storey house.

Planning Reference No.: 15/6413: Extension to an existing house.

Planning Reference No.: 17/6849: Extension to an existing house.

Planning Reference No.: 20/39502 /An Bord Pleanála Reference No.: 308670: This planning application consists of a 3-storey primary care centre with 5 no. ground floor retail units and café at St. Ann's road, Monacnapa.

Planning Reference No. 20/39597/An Bord Pleanála Reference No.: 309152: Proposed mixed use development, Blarney Town Centre: This planning application consists of a mixed-use development including supermarket at the former Blarney Park Hotel site to the south of the current project site.

Planning Reference No. 20/39101: planning approval for the demolition of an existing single storey sunroom and the construction of a two-storey extension to the rear of an existing dwelling.

It is noted that other projects are granted or proposed downstream of the project site along the Shournagh River sub-catchment and the lower River Lee. These projects include a number of development site within Cork city adjacent to the river as well as larger scale projects such as the planning approved Cork Docklands to City Centre Road Network Improvements Scheme (Part 8 Process) and Lower Lee Flood Relief Scheme (Being considered under Arterial Drainage Act).

Each of the above planning applications (approved or live), as well as those proposed or approved within Cork City have been subject to either Screening for Appropriate Assessment or a Natura Impact Statement, which have found that (where required) construction phase practices and operational designs will be implemented that aim to avoid discharges of

contaminated waters to the Shournagh River sub-catchment or the River Lee and Cork Harbour. Each of the assessments completed for these projects have that project will not have the potential to combine with other projects to result in likely significant effects to European Sites. In light of this the current project will not have any potential to combine with these other projects to result in an additive cumulative impact to water quality within the River Lee estuary downstream of the project site or noise conditions within the vicinity of the lower River Lee.

With regard to the existing threats and pressures to the SPA as documented by the NPWS in their Natura 2000 Standard Data Return Forms and listed in Section 3.1.1 above it is noted that none of these threats and pressures are relevant to the project site.

As noted in Section 3.2 above the Shournagh River, the lower River Lee and the transitional waters of the River Lee Estuary have been assigned a Water Framework Directive status of "at risk". The existing land use pressures that have been identified as the source of pressures to the water quality status of these waters is related to urban run-off. Urban stormwater runoff is a complex mixture of precipitation, suspended sediment, natural and anthropogenic debris, and chemical pollutants that are washed off the urban landscape during rain event. This mixture can include total suspended solids, heavy metals and polycyclic aromatic hydrocarbons (PAHs)). The ongoing discharge of such pollutants to receiving waters can result perturbations to overall catchment health and disturb many catchment functions such as aquatic biodiversity. In the absence of appropriate safeguards the project will have the potential to represent another source of urban run-off within the Shournagh sub-catchment and the Lee catchment and contribute to the loss of such substances to these catchments with downstream effects.

DESCRIPTION OF HOW THE PROJECT COULD AFFECT KEY HABITATS & SPECIES

An NIS is required to assess the potential for impacts to the integrity of a European Site, with respect to the site's structure and function and its Conservation Objectives. The structural and functional elements of a European Site to maintain the favourable conservation status of qualifying features of interest are embedded into the list of detailed SSCOs for each of the site's interest features. As such a European Sites' SSCOs represent the parameters against which a project's potential to adversely affect the integrity of a European Sites should be considered.

Table 5.1 lists the Conservation Objectives attributes and targets for each of special conservation interests of the Cork Harbour SPA and assesses the potential for the project to result in adverse effects to these attributes and targets.

It is noted that the appraisal outlined in Table 5.1 has been completed without any regard to the mitigation measures that will be implemented as part of the project. These mitigation measures are considered later in Section 8 below.

Table 0.1: Consideration of Potential Impact to the Site-Specific Conservation Objectives for Features of Interest occurring within the Zone of Influence of the Project

Attribute No.	Attribute	Target	Consideration of likely significant effects
Special conservation interest bird species			
1	Population trend	Long term population trend stable or increasing	The discharge of inadequately treated storm water runoff from the project site during the construction phase or operation phase or the contamination of surface waters during works associated with the replacement of the culvert crossing the R617 will have the potential to undermine water quality downstream along the Shournagh and lower Lee catchments and contribute to the discharge of polluted waters downstream to the River Lee Estuary and the section of the Cork Harbour SPA occurring at the estuary. Adverse effects to water quality at the estuary, will in turn have the potential to undermine the habitats and the associated prey resource upon which the wetland bird species of the SPA rely. Such adverse effects could, over time, result in a decline in the long-term population trend supported by the sections of the SPA surrounding the project site and discharge locations.
2	Distribution	No significant decrease in the range, timing and intensity of use of areas by light-bellied brent geese, Oystercatcher, Black-tailed Godwit,	For reasons outlined for Attribute No. 1 and in Section 4 above the discharge of inadequately treated and contaminated storm water will have the potential to undermine the targets for this attribute.

		Dunlin and Redshank other than that occurring from natural patterns of variation	
Wetland Habitats			
3	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	The discharge of inadequately treated and contaminated storm water to this habitat will not have the potential to undermine the extent of wetland habitats at favourable conservation status within the River Lee estuary section of the Cork Harbour SPA downstream of the project.
4	Community distribution	Conserve the following community type in a natural condition: Mixed sediment to sandy mud with polychaetes and oligochaetes community complex.	For the reasons outlined for attribute no. 1 and 4 above the project will have the potential to undermine the status of invertebrate and flora communities supported wetland habitats of the River Lee estuary section of the Cork Harbour SPA.

A DESCRIPTION OF HOW THE INTEGRITY OF THE SITE IS LIKELY TO BE AFFECTED BY THE PROJECT

EU Guidelines (2001) recommend as part of a Stage 2 Appropriate Assessment that a checklist of site integrity is carried out (see Table 7.1). This aids in establishing the nature of potential adverse effects to the integrity of the European Sites, as defined by the conservation objectives of special conservation interests occurring within the sphere of influence of the project.

Table 0.1: Checklist of Site Integrity

Conservation Objectives	
Does the Project have the potential to:	
Cause delays in progress towards achieving the conservation objectives of the site	Yes. In the absence of mitigation the project will have the potential to contribute to water quality perturbations downstream at the Cork Harbour SPA and undermine the status of wetland habitats and their communities. Such effects will also have the potential to undermine the status of foraging habitat for special conservation interest bird species of the Cork Harbour SPA.
Interrupt progress towards achieving the conservation objectives of the site	Yes. See response to first question above.
Disrupt those factors that help to maintain the favourable conditions of the site	Yes. See response to first question above.
Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.	Yes. See response to first question above.
cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	Yes. See response to first question above.
change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	Yes. The discharge of potentially contaminated surface water from the project site to wetland habitats and their intertidal communities could contribute to a localised effect to the keystone fauna communities occurring downstream of the project.
interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?	Yes. The discharge of potentially contaminated surface water from the project site could result in a decrease in the diversity of key

	fauna communities supported by wetland habitats.
reduce the area of key habitats?	Yes. The prolonged discharge of potentially contaminated surface water runoff from the project site to the Cork Harbour SPA could contribute to a reduction in the extent of key communities supported by wetland habitats, which would in turn result in a reduction in the extent of such habitats at favourable conservation status. Such effects will also have the potential to undermine the status of foraging habitat for special conservation interest bird species of the SPA
reduce the population of key species?	Yes. See response to questions above.
change the balance between key species?	Yes. The prolonged discharge of potentially contaminated surface water runoff from the project site to wetland qualifying habitats could result in a reduction in the diversity of fauna communities that characterise the key communities supported by these habitats.
reduce diversity of the site?	Yes. See response to the question above.
result in fragmentation?	No.
result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?	Yes. Any prolonged discharge of polluted surface water runoff from the project site to wetland qualifying habitats will have the potential to result in the reduction of key communities supported by these habitats.

A DESCRIPTION AND EVALUATION OF MITIGATION MEASURE

Targeted mitigation measures are provided to safeguard against the potential effects of the project to the water quality of the River Lee estuary and Cork Harbour during the construction phase and operation phase of the project. The measures to be implemented to protect the water quality downstream at SPA are outlined in the following sub-sections.

1.15 MEASURES TO PROTECT SURFACE WATER QUALITY DURING CONSTRUCTION AT THE PROJECT SITE

In order to minimise the potential for pollution to surrounding surface waters the proposed approach to surface water management as outlined in Section 1.3 above will be implemented in full.

The construction management of the site will take account of the recommendations of the CIRIA guides *Control of Water Pollution from Construction Sites* (2001) and *Control of Water Pollution from Linear Construction Projects* (2006) and Inland Fisheries Ireland's (IFI's) *Requirements for the Protection of Fisheries Habitat during Construction and Development Works*.

During construction key requirements for the prevention of perturbations to surface water quality will include:

- The open land drain that is to be constructed to the north of the net developable area shall be installed as the first item of works of the construction phase. This will provide for a "catch-drain" to the north of the project site during the construction phase and minimise the runoff, from sloping ground to the north of the developable area, over the footprint of the construction site. The clean surface water runoff collected in the catch drain will be directed to the west to an existing field drain and will be allows to drain along the field drain to the south.

- Storage – all equipment, materials and chemicals will be stored away from any watercourse. Chemical, fuel and oil stores will be sited on impervious bases and within a secured bund of 110% of the storage capacity, within the lay down area;

- Any excavations to be stored on site will be stored in a designated stockpile area located in the construction site compound or other suitable location on site for the storage of segregated wastes prior to their transport for recovery/disposal at suitably licensed/permitted facilities. . Topsoil will be stockpiled on site for reuse in soft landscaping and will be stored separately to subsoils. Stockpiles will be graded to a <1:4 profile Stockpiles will be covered with plastic sheeting during wet weather and a temporary berm will be constructed around the stockpile area to prevent runoff to

watercourses or drainage channels. Excess inert spoil material, not to be reused on site, will be transported off site for deposition. All waste spoil material arising from the construction phase will be inert, non-hazardous spoil material and will be disposed at an approved facility.

- Any stockpiles of spoil or waste material generated from the construction process is to be temporarily stored at a remote distance (i.e. greater than 50m) from the un-named minor stream to the southwest of the project site or the field drain along the western boundary of the project site and will be separated from any drainage channels associated with the construction phase surface water management system by a minimum of 25m, before being removed to an accepting licensed waste disposal facility.

- Waste material arising on site during the construction phase will be managed in accordance with the waste management hierarchy detailed in the Construction Environmental Management Plan (CEMP) prepared for the project and provided under separate cover.

- As fuels and oils are classed as hazardous materials, any on-site storage of fuel/oil, all storage tanks and all draw-off points will be bunded (or stored in double-skinned tanks) and located in the dedicated site compound. Provided that these requirements are adhered to and site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel/oil wastage at the site.

- Oil and fuel stored on site for construction should be stored in designated areas. These areas shall be bunded and should be located away from surface water drainage and features.

- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.

- All fuel oil fill areas will have an appropriate spill apron.

- Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable, refuelling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface watercourse and surface water drains;

- Maintenance – maintenance to construction plant will not be permitted on site, unless vehicles have broken down necessitating maintenance at the point of breakdown. All necessary pollution prevention measures will be put in place prior to commencement of maintenance in this instance;

- Concrete - Wet concrete operations would not be carried out within watercourses or adjacent to watercourses or surface drains. Runoff from wastewaters or contaminated storm water will be directed to drains installed as part of the surface water management plan;

- Weather conditions and seasonal weather variations will also be taken account of when planning excavations, with an objective of minimizing soil erosion.

- Concrete batching will take place off site or in a designed area with an impermeable surface.

- Concrete wash down and wash out of concrete trucks will take place off site or in an appropriate facility.

- A designated impermeable cement washout area will be provided. The washout area will be located within the project site at a remote distance (i.e. greater than 50m) from the un-named minor stream to the southwest of the project site and will be separated from any drainage channels associated with the construction phase surface water management system by a minimum of 25m.

- A silt fence will be erected on site to prevent the release of silt-laden waters to the minor stream or woodland to the south of the project site. The silt fence will be implemented prior to the commencement of construction and will remain in place throughout the construction phase. The silt fence will be maintained in line with the

requirements detailed in the accompanying CEMP throughout the construction phase. The location of the silt fence to be installed is shown on Figure 6.1.

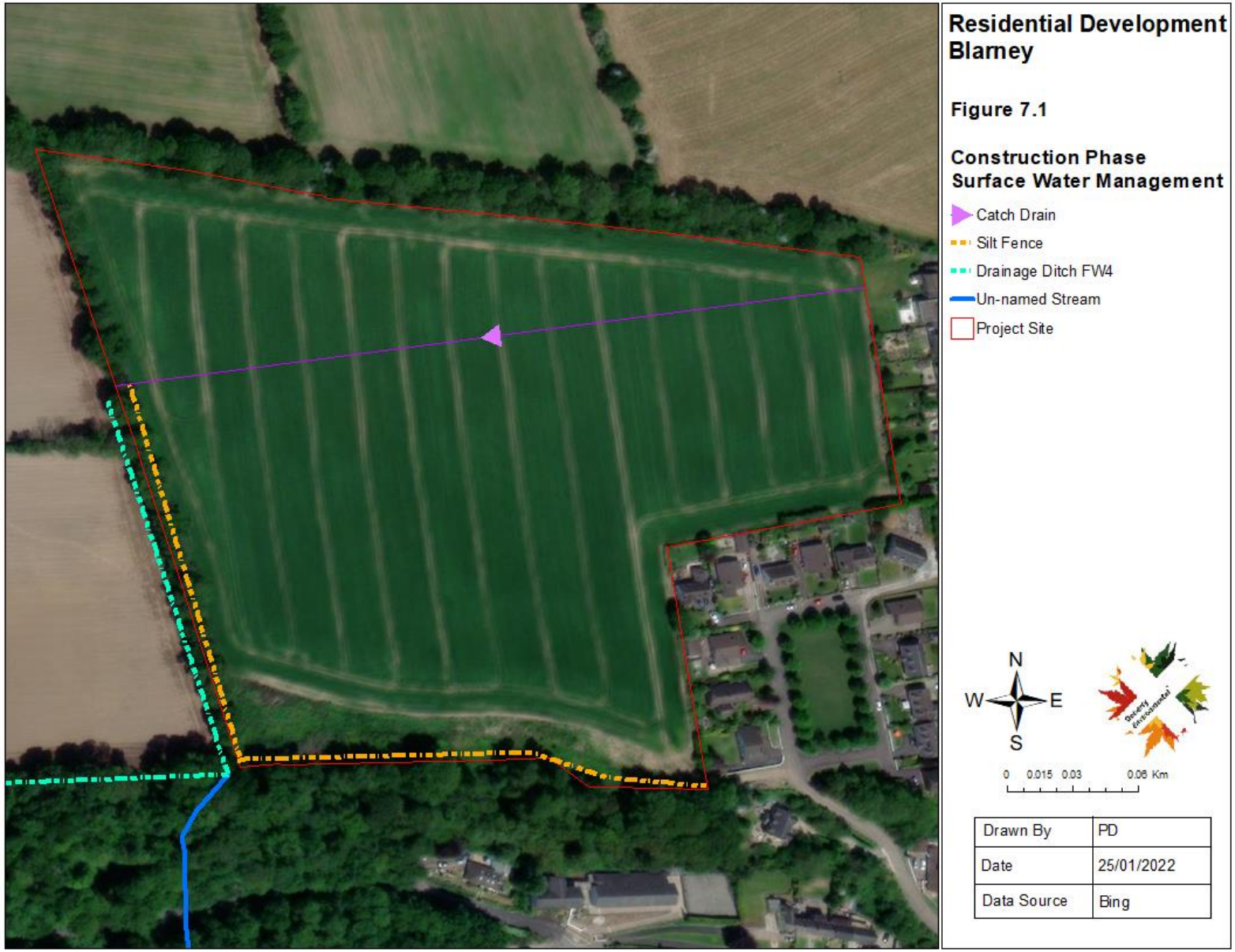
- Any in-situ concrete work to be lined and areas bunded (where possible) to stop any accidental spillage.

- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines.

- All surface water infrastructure is to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with Local Authority Requirements.

- Connections to the public network are be carried out to the approval and / or under the supervision of the Local Authority prior to commissioning.

All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.


Residential Development
Blarney
Figure 7.1
Construction Phase
Surface Water Management
Catch Drain
Silt Fence
Drainage Ditch FW4
Un-named Stream
Project Site
N
W
E
S
0 0.015 0.03 0.06 Km
Drawn By PD
Date 25/01/2022
Data Source Bing

- Care will be required for the environmental management of the site to ensure that no potential contamination issues are experienced.

- Mess, sanitation and welfare facilities will be required during construction and will be located at the construction compound. Foul effluent will make use of chemical facilities with periodic removal for offsite disposal.

Surface water generated at the project site during the operation phase will be discharged via the operation phase surface water management system as described in Section 1.3 above. The surface water management system has been designed to capture surface water generated at the project site and discharge water at greenfield runoff rates. A suitable level of surface water attenuation has been catered for within the management system. Following attenuation and prior to release all surface water will be treated via a combine silt and hydrocarbon interceptor so that only treated surface water is discharged to the receiving stream and storm water network.

The provision of these design features will ensure that surface water emitted from the project site during the operation phase is adequately treated and will eliminate any risk of polluted surface water being discharged from the project site during operation.

1.16 MEASURES TO PROTECT WATER QUALITY DURING CONSTRUCTION WORKS ASSOCIATED WITH THE REPLACEMENT OF THE CULVERT CROSSING THE R617

As outlined in Section 2.4.3 above a "worst case" approach has been considered in respect to the required remedial works for this crossing in the absence of information on the condition of the precast pipe. In this regard and for the purposes of comprehensive environmental assessment, it is assumed that the entire precast pipe crossing may need to be replaced. The following is an outline scope of the works required to replace the crossing in its entirety:

- Implement Traffic Management appropriate to the task and scope of the works in hand - this may necessitate a temporary road closure depending on how the contractor plans to undertake the works.

- Retain the existing culvert in operation for the duration of the laying of the new culvert crossing to prevent unnecessary contamination of surface water.

- Saw cut existing road surfacing, excavate trenching for new precast pipe and dispose of all waste materials to appropriate licensed facilities by licensed contractors.
- Lay new 600mm Precast Pipe Crossing, backfill with suitable fill material.
- Install new head wall at pipe outfall location.
- Divert surface water flow to new culvert and make good to inlet screen upstream of culvert.
- Decommission/remove old pipework.
- Backfill/reinstate road crossing in preparation for laying road surfacing.
- Lay road surfacing to match existing, seal all joints.
- Reinstate public footpath, hedgerows and existing boundaries .
- Reinstate road markings and signage where affected.
- Stand down traffic management procedures.

The implementation of the approach to these works, as outlined above, will ensure that the new replacement culvert is installed under dry conditions with contact to the existing minor stream waters being avoided. Only after the new culvert is in place will the stream be connected to the newly installed culvert. This will ensure that the potential for pollution to these waters as a result of the culvert installation is eliminated.

1.16.1 Operation Phase

1.16.1.1 Surface Water Management System

Surface water generated at the project site during the operation phase will be discharged via the operation phase surface water management system as described in Section 2.4 above. The surface water management system has been designed to capture surface water generated at the project site and discharge water at greenfield runoff rates. A suitable level of surface water attenuation has been catered for within the management system. Following attenuation and prior to release all surface water will be treated via a combine silt and hydrocarbon interceptor so that only treated surface water is discharged to the receiving stream and storm water network.

The provision of these design features will ensure that surface water emitted from the project site during the operation phase is adequately treated and will eliminate any risk of polluted surface water being discharged from the project site during operation.

1.17 EVALUATION OF MITIGATION MEASURES

The mitigation measures and environmental safeguards outlined above for the construction phase of the project are taken from established best practice guidelines that have been successfully implemented for a wide range of project-level infrastructural developments. These measures have undergone extensive and rigorous monitoring for their effectiveness at development sites where they have previously been applied to ensure adverse environmental impacts are avoided.

It is further noted that the range of mitigation measures outlined in this NIS and the associated EcIA to avoid perturbations to water quality and thereby avoid disturbance to protected fauna and habitats supported by the River Lee downstream of the project site have been successfully implemented for a range of other development projects with the vicinity of the River Lee Estuary section of the Cork Harbour SPA. Examples of these projects include One Albert Quay, Navigation Square, Elysian Development, Half Moon St, St. Patrick Street and Beasley Street Projects.

The results of this monitoring and the recommendation of these measures as standard best practice guidelines is based upon their high degree of success in ensuring negative environmental impacts are avoided.

The best practice guidance that have informed the mitigation measures and environmental safeguards proposed in this NIS and that will be adhered to throughout the construction and operation of the proposed development include:

- The Good Practice Guidance notes proposed by EA/SEPA/EHS:
- PPG 1: Understanding your environmental responsibilities - good environmental practices
- GPP 2: Above ground oil storage tanks
- PPG 3: Use and design of oil separators in surface water drainage systems
- GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer

- GPP 5: Works and maintenance in or near water
- PPG 6: Working at construction and demolition sites
- PPG 7: Safe storage - The safe operation of refuelling facilities
- GPP 8: Safe storage and disposal of used oils
- GPP 8: Safe storage and disposal of used oils
- GPP 8: Safe storage and disposal of used oils
- GPP 19: Vehicles: Service and Repair
- GPP 21: Pollution incident response planning
- GPP 22: Dealing with spills
- GPP 26 Safe storage - drums and intermediate bulk containers
- PPG 27: Installation, decommissioning and removal of underground storage tanks
- CIRIA Environmental Good Practice on Site.
- CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.
- CIRIA SuDS Manual Technical Guidance C697.
- Development on Unstable Land. Department of Environment (DOE), UK. .

CONCLUSION

This NS presents an analysis of the potential for the project to result in adverse impacts to the Cork Harbour SPA. An evaluation of the potential impact of discharges of surface drainage waters has been completed.

During the evaluation of potential impacts associated with the discharge of surface drainage waters it was found that, in the absence of mitigation measures, the potential will exist for contaminants to be released from the project site to the Shournagh Estuary and downstream to the Lower River Lee and for negative impacts to intertidal habitats and wetland bird species downstream. A range of mitigation measures have been prescribed in this NIS that aim to avoid the discharge of contaminated surface drainage waters from the project site during the construction phase and operation phase and during works associated with the replacement of a culvert crossing under the Tower Road R617. These mitigation measures have been evaluated and reference has been made to their successful implementation for other similar development projects in the vicinity of the project site and the River Lee within Cork City. It has been concluded that, provide all mitigation measures that aim to avoid the discharge of contaminated

surface drainage waters are implemented, the potential for this impact to occur will be eliminated and associated adverse impacts to the Cork Harbour SPA will not arise.

Based upon the information provided in this NIS, it is the considered view of the authors of this NIS that it can be concluded by An Bord Pleanála that the project will not, alone or in-combination with other plans or projects, result in adverse effects to the integrity and conservation status of European Sites in view of their Conservation Objectives and on the basis of best scientific evidence and there is no reasonable scientific doubt as to that conclusion.

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APPENDIX 1: SCREENING REPORT FOR APPROPRIATE ASSESSMENT

1.18

Residential Development

Monacnapa, Blarney, Cork

Screening Report for Appropriate Assessment

Doherty Environmental Consultants Ltd.

3rd February 2022

Residential Development

Monacnapa, Blarney, Co. Cork

Screening Report for Appropriate Assessment

Document Stage	Document Version	Prepared by
Final	1	Pat Doherty MSc, MCIEEM

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1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by Eoin Sheehan to undertake a Screening Report in support of an Appropriate Assessment (AA), under Article 6 of the EU Habitats Directive, for a proposed residential development (the project) at Monacnapa, Blarney, Cork (see Figure 1.1 for the location of the project site and Figure 1.2 for an aerial view of the project site).

This Screening Report for Appropriate Assessment forms Stage 1 of the Habitats Directive Assessment process and is being undertaken in order to comply with the requirements of the Habitats Directive Article 6(3). The function of this Screening Report is to determine if it can or cannot be excluded, on the basis of objective information, that the project, individually or in combination with other plans or projects, will have a significant effect on a European Site. This Screening Report has been prepared to provide information to the competent authority to assist them in their determination as to whether a Stage 2 Appropriate Assessment is required for the project.

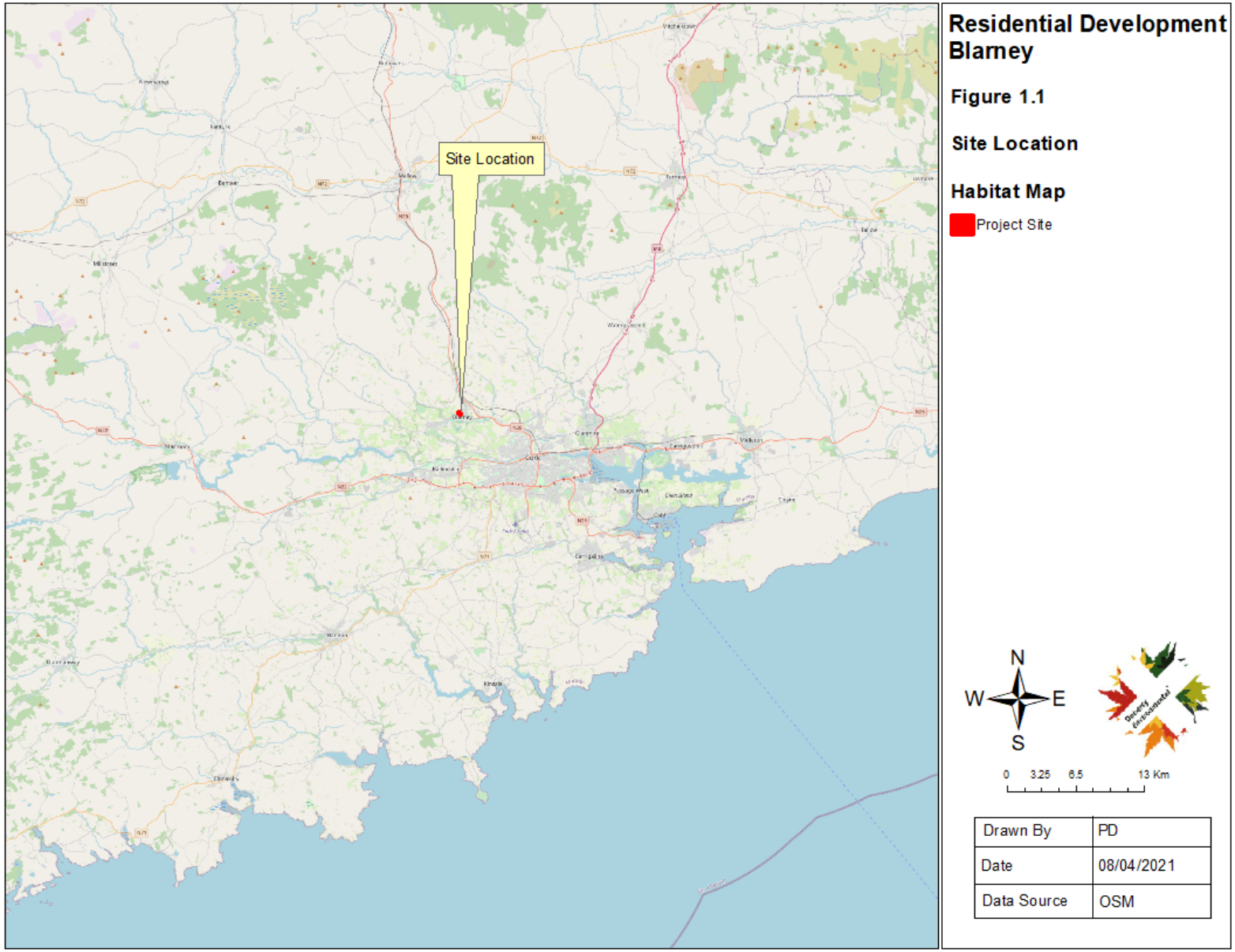
1.1 LEGISLATIVE CONTEXT

This Screening Report for Appropriate Assessment is being prepared in order to enable the competent authority to comply with Article 6(3) of Council Directive 92/43/EEC (The Habitats Directive). It is prepared to assess whether or not the project alone or in combination with other plans and projects is likely to have a significant effect on any European Site in view of best scientific knowledge and in view of the conservation objectives of the European Sites and specifically on the habitats and species for which the sites have been designated

1.1.1 Requirement for an Assessment under Article 6 of the Habitats Directive

According to Regulation 42(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015, the competent Authority has a duty to:

- Determine whether the proposed Project is directly connected to or necessary for the management of one of more European Sites; and, if not,


Site Location
Residential Development Blarney
Figure 1.1
Site Location
Habitat Map
Project Site
N
W
E
S
0 3.25 6.5 13 Km
Drawn By PD
Date 08/04/2021
Data Source OSM


Residential Development
Blarney
Figure 1.2
Aerial View of the
Project Site
Project Site
N
W
E
S
0 0.03 0.06 0.12 Km
Drawn By PD
Date 25/01/2022
Data Source Bing

- Determine if the Project, either individually or in combination with other plans or projects, would be likely to have a significant effect on the Eurpoean Site(s) in view of best scientific knowledge and the Conservation Objectives of the site(s).

This Report contains information to support a Screening for Appropriate Assessment and is intended to provide information that assists the competent authority when assessing and addressing all issues regarding the construction and operation of the project and to allow the competent authority to comply with the Habitats Directive. Article 6(3) of the Habitats Directive defines the requirements for assessment of projects and plans for which likely significant effects on European Sites may arise. The European Communities (Birds and Natural Habitats) Regulations, 2011 – 2015 (the Habitats Regulations) transpose into Irish law Directive 2009/147/EC (the Birds Directive) and Council Directive 92/43/EEC (the Habitats Directive) together which list habitats and species that are of international importance for conservation and require protection. The Habitats Regulations requires competent authorities, to carry out a Screening for Appropriate Assessment of plans and projects that, alone or in combination with other plans or projects, would be likely to have significant effects on European Sites in view of best scientific knowledge and the Site's conservation objectives. This requirement is transposed into Irish Law by Part 5 of the Habitats Regulations and Part XAB of the Planning and Development Act, 2000 (as amended).

1.2 SCREENING METHODOLOGY

This Screening Report has been prepared in order to comply with the legislative requirements outlined in Section 1.1 above and aims to establish whether or not the proposed project, alone or in combination with other plans or projects, would be likely to have significant effects on European Sites in view of best scientific knowledge and the Site's conservation objectives. In this context "likely" means a risk or possibility of effects occurring that **cannot** be ruled out based on objective information and "significant" means an effect that would undermine the conservation objectives of the European sites, either alone or in-combination with other plans and projects (Office of the Planning Regulator (OPR), 2021) .

The nature of the likely interactions between the Plan and the Conservation Objectives of European Sites will depend upon the:

- the ecological characteristics of the species or habitat, including their structure, function, conservation status and sensitivity to change; *and/or*

- the character, magnitude, duration, consequences and probability of the impacts arising from land use activities associated with the plan, in combination with other plans and projects.

This Screening Report for Appropriate Assessment has been undertaken with reference to respective National and European guidance documents: Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (DEHLG 2010) and *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; Office of the Planning Regulator – OPR Practice Note PN01: Appropriate Assessment Screening for Development Management,* and recent European and National case law. The following guidance documents were also of relevance during the preparation of this Screening Report:

- A guide for competent authorities. Environment and Heritage Service, Sept 2002. Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (2010). DEHLG.

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/42/EEC. European Commission (2001).

- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC. European commission (2018).

The EC (2001) guidelines outline the stages involved in undertaking a Screening Report for Appropriate Assessment for projects. The methodology adopted during the preparation of this Screening Report is informed by these guidelines and was undertaken in the following stages:

1. Describe the project and determine whether it is necessary for the conservation management of European Sites;

2. Identify European Sites that could be influenced by the project;

3. Where European Sites are identified as occurring within the zone of influence of the project identify potential effects arising from the project and screen the potential for such effects to negatively affect European Sites identified under Point 2 above; and

4. Identify other plans or projects that, in combination with the project, have the potential to affect European Sites.

2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

The project will consist of a strategic housing development of 143no. residential units, comprising 105no. houses and 38no. apartments, ranging in height from 2-3 storeys above ground, including split-level houses at the project site at Monacnapa, Blarney, Cork. The project will also consist of the demolition of an existing garage and southern boundary wall, to be replaced with a new southern boundary wall, as well as the lowering of the existing eastern boundary wall and pier, at no. 1 Sunberry Drive; a crèche; all associated ancillary site development and landscaping works, to include bin stores, bicycle and car parking, ground works and retaining structures, foul drainage, stormwater drainage, water supply, service ducting and cabling, public lighting, relocation of existing ESB substation, and all boundary treatments. The proposed development is to be accessed via the existing Sunberry Heights/Sunberry Drive off the Blarney Relief Road (R617). An upgrade is proposed to the existing Sunberry Heights/Sunberry Drive and the existing access to the proposed strategic housing development, including the widening of the footpath at the junction with the Blarney Relief Road (R617), raised platforms, security barriers and fencing as necessary, road markings, and road resurfacing to facilitate improved pedestrian/cycle connectivity.

2.2 CONSTRUCTION PHASE

The estimated duration of work will be 24 months in total. The construction compound for the project will be located towards the southwestern boundary such that there is sufficient separation between the compound and the dwellings on Sunberry Heights. The compound area will consist of a crushed stone working platform, utilities, offices, welfare facilities and stores.

The site will require temporary connections for water and a connection to the Foul Sewer on the nearby Estate Road. It may be decided to install the permanent connections on the Estate Road to minimise disruption on the Public Road during the initial site setup and mobilisation phase. It will also be necessary to provide temporary power to the Site which will include the installation of a temporary distribution board on site.

Following completion of the works; all construction materials will be removed from the compound, all temporary services decommissioned and disconnected and the area will be reinstated with finishes (e.g. topsoil) consistent with the landscaping features as identified in the project Landscape Masterplan.

Plant and machinery to be used during the construction phase will be typical construction machinery, including front-tip loaders, wheel loaders/load shovels, 360 degree excavators, off-road dump trucks, track machines, graders, telescopic handlers, compactors/rollers and backhoe loaders. Typical materials to be used during the construction phase will include concrete, concrete blocks, bricks, slate, plaster, sand, insulated cladding panels, steel members etc. Hydrocarbons, such as petrols, diesels, oils etc and other plant and machinery lubricants will be used onsite during the construction phase. Aside from these latter materials, no hazardous material will be used during the construction phase. All hydrocarbons and other aqueous construction material will be stored in bunded areas within the construction compound on site. All refuelling by plant and machinery will be undertaken in designated bunded areas within the construction compound during the construction phase.

Any excavations to be stored on site will be stored in a designated stockpile area located in the construction site compound or other suitable location on site for the storage of segregated wastes prior to their transport for recovery/disposal at suitably licensed/permitted facilities. . Topsoil will be stockpiled on site for reuse in soft landscaping and will be stored separately to subsoils. Stockpiles will be graded to a <1:4 profile The stockpile area will be located over 50m from any watercourse or drainage channels occurring within the site. Stockpiles will be covered with plastic sheeting during wet weather and a temporary berm will be constructed around the stockpile area to prevent runoff to watercourses or drainage channels. Inert spoil material will be transported off site for deposition. All waste spoil material arising from the construction phase will be inert, non-hazardous spoil material and will be disposed at an approved facility.

2.3 CONSTRUCTION PHASING

The proposed development will be constructed in four phases in accordance with the phasing strategy set out in the Architect's Design Statement that accompanies this planning application. Development will start from the south and east of the site and develop firstly towards the north and then anticlockwise to the northwest and southwest areas of the site.

Within each phase of the development works, the provision of services and site infrastructure will be developed as required by each phase of development. This will involve the laying of new sewers and water mains within the site, the provision of footpaths, lighting and roadways. As part of any works (i.e. provision of services) along the public areas/roads in the vicinity of the site, it will be ensured that the surface of the roads/areas will be re-instated to a high standard.

The construction of the residential units will, to a certain degree respond to the demand/sale of the units involved, however, it is anticipated that the units will be constructed/completed over a 2 year period and will involve up to 90 no. construction staff (depending on the number of units being constructed at any one time).

2.4 SURFACE WATER MANAGEMENT

The surface water drainage system at the project site has been designed to take account of the following requirements:

- Surface water shall be collected in a series of stormwater drains that will be laid on the estate roads. The drains will collect stormwater arising from roofs and hard-standing areas within the individual properties and stormwater collected on the estate roads via the road gullies.

- The Surface water system shall include Attenuation designed for the 1/100 Year event. The Attenuation shall be provided for in three zones, constructed of Wavin Aquacell Plus Cells installed as per manufacturers' instructions in each zone.

- The principal point of discharge for surface water shall be to an existing stream/watercourse located to the west of the site (see Figure 2.1 for discharge point

location). The existing stream/watercourse currently provides drainage from the project site. Discharge to the existing stream/watercourse shall be at a rate equal to the greenfield run-off rate to ensure no significant changes in flow in the existing stream/watercourse.

- The second point of discharge for surface water shall be to the existing surface water sewer on Sunberry Drive (see Figure 2.1 for location). This discharge point shall only be used to serve the most south-easterly area of the site which cannot be facilitated by the principal discharge due to levels. This discharge will serve circa 3.5% of the site and the discharge will be limited to the greenfield runoff rate.

2.4.1 Details of Existing Principal Stormwater Outfall at Western Boundary

A minor un-named stream/watercourse occurs to the southwest of the project site and this will be the principal point of discharge for treated surface water from the project site to this stream.

Discharge to this existing stream/watercourse shall be at a rate equal to the Greenfield Runoff Rate to ensure no significant changes in flow in the existing stream/watercourse. This unnamed stream flows into the River Martin. The River Martin is a tributary of the River Shournagh, which finally drains into the River Lee to the east of Ballincollig.

The unnamed stream/watercourse begins as an open land drain running in a north to south direction within the western boundary of the development site. At the southwest point of the development site, this open land drain joins with a similar land drain from the adjacent property to discharge into an existing unnamed stream/watercourse which descends through the wooded area towards the Kilowen Road and subsequently towards the R617 Regional Road. The watercourse crosses both roads via precast concrete culvert crossings.

A catchment runoff assessment of the potential impact of surface water discharge from the development site to the receiving un-named stream/watercourse was completed by Irish

Hydrodata Ltd.[1] The modelling assessment demonstrates that the proposed development will give a 16% (19.2 litres/second) increase in the 1/100-year rainfall event. Irish Hydrodata Ltd. conclude that the post development flow of 142litres per second is well below the culvert capacities. Therefore, there will be no negative impact on the existing watercourse and associated road crossings which are deemed to have sufficient capacity.

The project engineers (OLS Consulting Ltd.) undertook consultations with Cork County Council with respect to the stormwater outfall pathway. Cork County Council advised that there was uncertainty surrounding the discharge point of the culverted road crossing on the R617 Tower Road which forms part of the existing watercourse to which the proposed surface water discharge is to be made. Cork City Council sought clarity in this matter to ensure the existing watercourse was connected to the watercourse south of the Tower Road which ultimately discharges to the River Martin. The following actions were taken to demonstrate connectivity:

The culverted road crossing on the R617Tower Road was visually inspected by OLS Consulting Engineers on Tuesday 23rd November 2021. The crosssing comprised of a 600mm diameter concrete pipe which was clearly visible on the upstream side of the crossing.

The crossing was dye traced on the day of the inspection and the outlet was located south of the R617 Tower Road where it discharges to an open watercourse which runs in a southerly direction from the R617 Tower Road. The 600mm diameter pipe was found to be heavily silted on the day of inspection and in need of cleaning.

The dye tracing confirmed that the open land drain which descends through the woodland crossing the Killowen Road initially and subsequently the R617 Tower Road

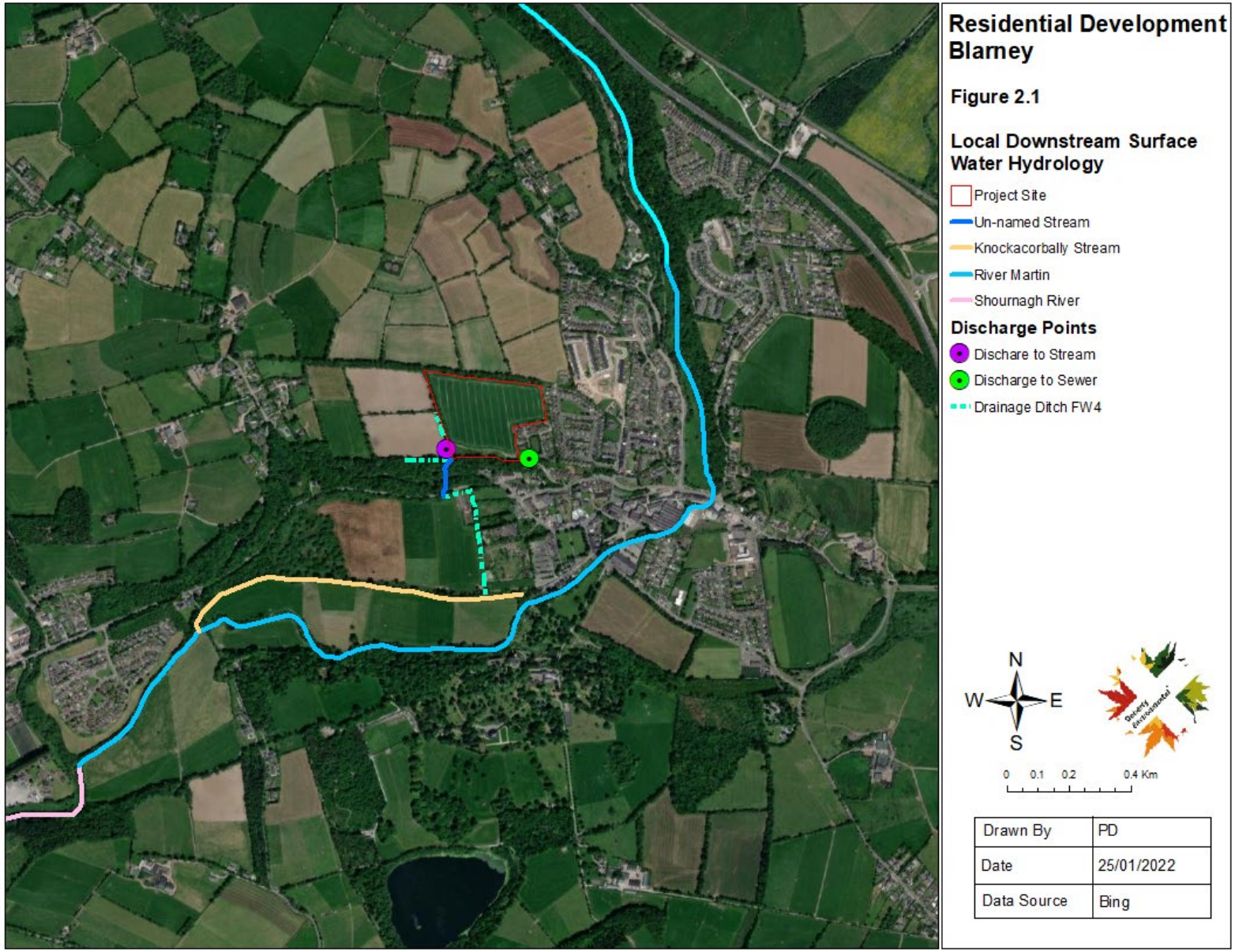
[1] **The Irish Hydrodata Ltd. Catchment Runoff Assessment is provided under separate cover as Appendix 5 to the Engineering Services Report**

does connect to the open watercourse to the south of the R617 Tower Road which ultimately discharges to the River Martin.

The matter of the condition of the culverted road crossing on the R617 Tower Road was subsequently discussed with Mr. Simon Lyons of the Water and Drainage Services Department of Cork City Council. It was agreed that that piped crossing will need to be cleaned and CCTV surveyed to ascertain the condition of the pipe. Cork City Council intend to undertake the cleaning and CCTV works in due course, however, Mr. Simon Lyons has indicated that the Planning Application may be lodged on the basis that connectivity has been demonstrated.

Following the undertaking of the CCTV works on the piped crossing and at the point where the condition of the piped crossing has been established, it has been agreed that should remedial works be required to ensure the piped crossing is fit for purpose, the applicant shall enter into an agreement with Cork City Council to pay a contribution towards any remedial works to the crossing proportionate to the quantity of surface water discharging through the piped crossing from the proposed development.

For the purposes of this application and predominantly from an environmental perspective, a "worst case" approach has been considered in respect of the necessary remedial works. From an environmental perspective, it has been assumed that the road crossing may have to be replaced in its entirety and all environmental assessment and reporting is based on this "worst case" scenario although it is not envisaged that such extensive remedial works will be required.


Residential Development Blarney
Figure 2.1
Local Downstream Surface Water Hydrology
Project Site
Un-named Stream
Knockacorbally Stream
River Martin
Shournagh River
Discharge Points
Dischare to Stream
Discharge to Sewer
Drainage Ditch FW4
N
W
E
S
0 0.1 0.2 0.4 Km
Drawn By PD
Date 25/01/2022
Data Source Bing

2.4.2 Surface Water Management on Upper Site Area (North of Net Developable Area)

The area of the development site north of the Net Developable Area shall be retained as existing Meadow. The site is sloping in a north to south direction towards the developable area of the site.

To prevent excess surface water entering the developable area, an open swale shall be constructed north of the net developable area/on the southern extremity of the existing meadow. The open swale shall facilitate infiltration and shall also be connected to the existing open land drain located on the western boundary of the development site.

2.4.3 "Worst Case" Remedial Works to the R617 Tower Road Crossing

The culverted road crossing on the R617 Tower Road was inspected on the 23rd November 2021 where it was found to be heavily silted at the outfall of the culvert on the southern side of the R617 Tower Road.

The crossing will need to be fully cleaned and CCTV surveyed to ascertain the condition of the crossing which comprises of a 600mm diameter precast concrete pipe. There is an element of screening installed on the upstream side of the culvert to prevent large debris entering the pipe but this needs to be cleaned and maintained.

As outlined in the previous section a "worst case" approach has been considered in respect to the required remedial works for this crossing in the absence of information on the condition of the precast pipe. In this regard and for the purposes of comprehensive environmental assessment, it is assumed that the entire precast pipe crossing may need to be replaced. The following is an outline scope of the works required to replace the crossing in its entirety:

- Implement Traffic Management appropriate to the task and scope of the works in hand - this may necessitate a temporary road closure depending on how the contractor plans to undertake the works.

- Retain the existing culvert in operation for the duration of the laying of the new culvert crossing to prevent unnecessary contamination of surface water.

- Saw cut existing road surfacing, excavate trenching for new precast pipe and dispose of all waste materials to appropriate licensed facilities by licensed contractors.
- Lay new 600mm Precast Pipe Crossing, backfill with suitable fill material.
- Install new head wall at pipe outfall location.
- Divert surface water flow to new culvert and make good to inlet screen upstream of culvert.
- Decommission/remove old pipework.
- Backfill/reinstate road crossing in preparation for laying road surfacing.
- Lay road surfacing to match existing, seal all joints.
- Reinstate public footpath, hedgerows and existing boundaries .
- Reinstate road markings and signage where affected.
- Stand down traffic management procedures.

2.4.4 Stormwater Attenuation Design

The management of surface water on the site has been considered in the context of the CIRIA SuDS Manual 2015. In this regard, it is proposed to attenuate surface water generated on the site in a series of 3 attenuation zones designed in accordance with the guidelines set out in Chapter 21 of the SuDS Manual 2015.

Attenuation of surface water on site is considered to be the most effective means of controlling and managing surface water discharge from this site to ensure that surface water arising within the site is discharged at a controlled rate equal to the Greenfield Runoff Rate for the Site.

2.4.4.1 Design Flood Event

The attenuation volume for all zones is calculated on the basis of a 1 in 100 year return period and the outflow from each zone shall be equal to the greenfield run-off rate calculated for each zone.

Detailed attenuations calculations for the 1 in 100 Year Event are contained in the Engineers Report provided for the project under separate cover. The greenfield runoff rates, required and proposed attenuation volumes are summarised in Table 2.1 below.

2.4.4.2 Siting of Attenuation Chambers

All attenuation chambers will be sited in green areas/soft landscaped areas within the site and at least 15m from any dwelling on the site.

Table 2.1: Attenuation Volume Summary

Zone	Storage Volume Required (m^3)	Storage Volume Provided (m^3)*
Zone 1	738.43	760.00 20m x 20m x 2m Zone 4,000 Aquacell Plus Units laid in 5 Layers 800 Units/Layer
Zone 2	533.61	570.00 30m x 10m x 12m Zone 3,000 Aquacell Plus Units laid in 5 Layers 600 Units/Layer
Zone 3	47.35	57.00 7.5m x 5m x 1.6m Zone 600 Aquacell Plus Units laid in Layers

		150 Units/Layer
***Note Volume Provided is calculated on 95% Void Ratio for Aquacell Plus Units which have a volume of 0.19m^3/Unit**		

2.4.4.3 Attenuation Storage Proposal

It is proposed to install a Wavin Aquacell Underground Attenuation System on site. The system shall comprise of 3 no. Attenuation Zones distributed throughout the site.

The Aquacell Plus Cells are wrapped in a fully sealed & welded geomembrane and an outer protective layer to prevent damage to the geomembrane. This will give a fully sealed installation with no potential for groundwater infiltration.

The units shall be installed as per manufacturers' instructions. The outline method of construction as prescribed by the manufacturer is a s follows:-

a) Excavate the trench to the required depth ensuring that the plan area is slightly greater than that of the Aquacell units.

b) Lay 100mm bed of coarse sand, level and compact.

c) Lay the geotextile over the base and up the sides of the trench.

d) Lay the geomembrane on top of the geotextile over the base and up the sides of the trench.

e) Lay the Aquacell units parallel with each other. In multiple layer applications, wherever possible, continuous vertical joints should be avoided. AquaCell units can be laid in a 'brick bonded' formation (i.e. to overlap the joints).

f) Wrap the geomembrane around the Aquacell structure and seal to manufacturers recommendations.

g) If side connections into the Aquacell units is required, (other than the preformed socket), use the appropriate Flange Adaptor (6LB104 or 6LB106). Fix the flange adaptor to the unit using self-tapping screws. Drill a hole through the Flange Adaptor and connect the pipework. (6LB106 should not be used with Aquacell Eco).

h) In order to prevent silt from entering the tank, clogging inlet pipework and reducing storage capacity, it is recommended that the Domestic Silt Trap (6LB300) or the standard Silt Trap (6LB600) is installed prior to the inlet pipework.

i) Wrap and overlap the geotextile covering the entire AquaCell structure, to protect the geomembrane.

j) Lay 100mm of coarse sand between the trench walls and the AquaCell units and compact.

k) Lay 100mm bed of coarse sand over the geotextile and compact. Backfill with suitable material.

The outfall manhole from each attenuation zone shall be fitted with a Vortex Flow Control Valve to limit the flow to the outfall discharge points to the Greenfield Runoff Rate.

The outfall discharge works by gravity as follows:

- The Outfall Manhole which shall be constructed with a weir fills with water and continues to discharge normally for flows up the greenfield runoff rate.
- As flows increases, the outfall manhole fills with water up to the top of the weir wall.
- Water overflows the weir wall and enters the Aquacell Storage Chamber.
- The Aquacell Chamber fills with water for the duration of the rainfall event.
- After the rainfall event; water flows back out of the Aquacell storage chamber, finding its own level and through the non-return flap valve fitted at the bottom of the weir wall.
- The water discharges from the outfall manhole via the vortex flow control valve so that flow from the attenuation zones at all times is limited to the greenfield run-off rate.

2.4.5 Oil & Silt Interception

A Hydrocarbon Interceptor shall be installed prior to each attenuation zone. The units to be installed shall be Kingspan Environmental Class 1 Bypass Separator which shall suitably sized to treat surface waters generated in each attenuation zone.

All Attenuation Zones will be preceded by a Wavin Silt Trap (6LB600) to prevent excessive silt build up in the Aquacell Chambers.

2.5 WASTEWATER MANAGEMENT

It is proposed to discharge foul effluent arising within the development to the Public Foul Sewer located on Sunberry Drive, which is located to the southeast extremity of the site.

There has been consultation with Irish Water in this matter through the submission of a Pre-Connection Enquiry for the development which was submitted on the 25th January 2021. Irish Water subsequently issued Confirmation Feasibility on the 24th March 2021 confirming the proposed connection to the Irish Water Network could be facilitated.

A Statement of Design Acceptance has also been issued by Irish Water on 16th September, 2021 in respect of wastewater services, confirming that Irish Water has no objection to the submitted proposals.

Irish Water advised in their confirmation of Feasibility Letter that it is likely that an upgrade of the foul sewer in Sunberry Drive will be necessary to facilitate the development and have advised that should the works proceed. Irish Water may seek a contribution towards the upgrade of the network. Irish Water advise the detail surrounding any such upgrades and possible contributions can be agreed as part of the putting in place of a valid connection agreement.

All houses on the site are served by 160/225mm diameter gravity foul sewers which collect foul effluent from each dwelling connection on the site. The new sewer shall be connected to the existing foul sewer network on Sunberry Drive.

The Foul Sewerage System shall be designed and installed in accordance with the guidance contained in the " Code of Practice for Wastewater Infrastructure" published by Irish Water in July, 2020 (Rev. 2).

The following key guidance criteria has been established from the above publication:

- The sewers have been designed on the basis of 6 times Dry Weather Flow (6DWF). Dry weather flow (DWF) is taken as 446 litres per dwelling (2.7 persons per house and a per capita wastewater flow of 150 litres per head per day with provision for a 10% consumption allowance).

- All sewers have been designed with gradients that ensure self cleansing velocities are achieved. This is based on a minimum flow velocity of 0.75m/second at one third design flow or during average flow conditions (2 times DWF).

In addition to satisfying the criterion on self cleansing velocity the following conditions shall also be satisfied:

- 150mm nominal internal diameter gravity sewer shall be laid at gradients not flatter than 1:150 where there is at least ten dwelling units connected;
- 225mm nominal internal diameter gravity sewer shall be laid at gradients not flatter than 1:225 where there is at least twenty dwelling units connected;
- A service connection with a nominal internal diameter of 100mm laid to a gradient not flatter than 1:80, where there is at least one WC connected and 1:40 if there is no WC connected.

On the basis of the guidance above, sewer connections from individual houses shall be 100mm diameter pipes laid at a minimum gradient of 1 in 60.

A Statement of Design Acceptance has also been issued by Irish Water on 16th September, 2021 in respect of the proposed water services for the site.

All wastewater will be conveyed from the project site, via the Irish Water sewerage system to the Blarney/Tower wastewater treatment plant (WWTP). Following treatment effluent will be discharged from the WWTP to the River Shournagh, which is a tributary of the River Lee.

The latest available Annual Environmental Report (AER) for the Blarney Agglomeration published on the EPA website is for 2019 (published August, 2020). The 2019 AER reported an exceedance in the emissions limit values (ELVs) for orthophosphate and total phosphorous as a result of low influent flows and inadequately adjusted chemical dosing, however the discharges from the wastewater treatment plant were found not to have an observable impact on water quality of the River Shournagh, which is the receiving watercourse for effluent from the WWTP.

The results of the AER monitoring show that effluent from the WWTP does not negatively impact the River Shournagh and given this result and the adequate capacity available at the WWTP to treat additional loads generated by the project site, all wastewater generated by the

project will be adequately treated prior to discharge to the River Shournagh and the Lee catchment such that it will not have the potential to perturb the water quality of the River Shournagh and Lee catchment.

2.6 WATER SUPPLY

There has been consultation with Irish Water in this matter through the submission of a Pre-Connection Enquiry for the development which was submitted on the 25th January 2021. Irish Water subsequently issued Confirmation of Feasibility on the 24th March 2021 confirming the proposed connection to the Irish Water Network could be facilitated.

Irish Water advised in their Confirmation of Feasibility that the preferred connection point for water is the 150mm water main running through the northeast of the site.

The proposed development will be served by a network of 150mm diameter watermain laid out as shown on the accompanying drawings to the Engineering Services Report (provided under separate cover).

Fire Hydrants will be provided such that each house will be within 46m 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 water main connections to ensure sections of the development or areas of the development can be isolated for maintenance and repair as required.

A Statement of Design Acceptance has also been issued by Irish Water on 16th September, 2021 in respect of the proposed water services for the site.

2.7 LIGHTING

Outdoor public street lighting will be provided during the operation of the development along the estate public roads.

The entire proposed development will consist of low rise residential buildings, no more than 3-storeys in height and will not involve any tall or brightly illuminated structures. The principal source of night-time lighting associated with the project will be public lighting along the

housing estate roads. The proposed development will aim to control the levels of light emitted by all public lighting associated with the development by implementing best practice approaches that aim to minimise light pollution. These measures are as follows:

- All external lighting will be designed to avoid night sky pollution/upward light spill;
- All lighting will be shielded and pointed so that is shines downward onto the ground, minimising the levels of sky glow and glare;
- The minimum amount of light will be used to allow adequate ground level illumination;
- No street lighting will be directed towards the existing hedgerow and treeline bounding the north of the project site and the woodland bounding the south of the project site. These habitat features will be located outside the 1 lux contour of the proposed lighting regime as detailing in the Outdoor Lighting Report prepared for the project.
- Street lighting has also been designed to ensure that new woodland landscape planting to be provided to the north of the developable area will also be located outside the lux contour associated with the outdoor lighting design. This will ensure that this area of proposed woodland habitat will not be subject to elevated lighting and will be optimised to function as habitat for wildlife.

2.8 LANDSCAPING

It is proposed to retain all vegetation associated with the existing woodland habitats bounding the project site to the north, south and west. The project includes a significant programme for tree planting (which is shown on the Landscape Masterplan drawings, presented under separate cover as part of the project planning application documentation). The landscaping design proposes to plant additional specimen and small/medium woodland trees along the northern boundary of the proposed project layout. The specimen woodland trees and small/medium woodland trees will include native species such as *Quercus petraea, Betula pendula, Corylus avellana, Alnus glutinosa, Sorbus acuparia* and *Pinus sylvestris*. The enhancement tree planting will augment the extent of woodland habitat occurring within the footprint of the project site.

The upper part of the site is excluded from development and the long-term planting strategy will provide green infrastructure in keeping with existing field boundary trees to provide a

natural backdrop to the development and contribute towards integration of the new houses in the local landscape setting.

Landscape planting will also be provided along the southern boundary to the south of Apartment Blockd 1 and 2. This planting will consist of a line of tall growing Koster columnar oaks that will provide screening of the apartment blocks and also provide for a corridor between the oak treeline and the woodland to the south.

3.0 DESCRIPTION OF THE SITE LOCATION

The project site is comprised of one stubble field used for arable agriculture. Where vegetation occurs within the field, commonly occurring ruderal species dominant the assemblage. The field is bounded to the north by hedgerows associated with a dismantled railway line, to the west by a hedgerow field boundary, to the east by mature broadleaved woodland and to the east by existing residential housing.

The woodland to the south consists of a canopy dominated by mature *Quercus petraea, Fagus sylvatica, Pinus sylvestris* and *Fraxinus excelsior*. *Taxus baccata* occurs in the woodland to the east. *Ilex aquifolium* is the most prevalent tree in the shrub layer. The ground flora in the woodland to the south of the project site include *Ranunculus ficaria, Heracleum sphondylium, Hedera helix, Rubus fruticosus agg., Pteridium aquilinium, Blechnum spicants, Phyllitis scolopendrium, Hyacinthoides non-scripta, Brachythecium rutabulum* and *Isothecium myosuroides*.

A section of dismantled railway corridor forms the northern boundary of the project site. The species occurring along the hedgerow and treeline include *Quercus petraea, Fraxinus excelsior* and *Fagus sylvatica. Crataegus monogyna, Prunus spinosa, Salix cinerea, Salix aurita* and *Ulex europeaus* dominate the shrub layer. Much of the dismantled railway corridor is colonised by dense *Rubus fruticosus* agg. cover.

The eastern boundary is characterised by the rear boundaries of existing residential houses and consists of range of ornamental hedgerows and fencing. The western boundary supports a hedgerow and treeline that is dominated by *Quercus petraea, Fraxinus excelsior, Crataegus monogyna* and *Prunus spinosa*.

A number of the mature *Quercus petraea, Fraxinus excelsior* and *Fagus sylvatica* trees occurring within the woodland to the south and along the northern and western boundaries support features, such as crevices and thick ivy cover that are known to be used by bat species as roost sites.

Within the woodland a number of dormant badger setts were recorded. There was no evidence indicating the use of these entrances and setts by mammals in recent times. The threatened slug species *Tandonia rustica* occurs in the woodland habitat to the south of the project site.

The project site is located within the River Lee catchment and the River Shournagh sub-catchment. There is an existing field drain located along the western boundary of the site. This merges within another field drain that drains along a field boundary from west east to the southwest corner of the project site. The two field drains form a minor first order stream that flows south through the woodland to the south of the project site. The minor stream crosses the Rower Road R617 to the south via an existing culvert and connects to a drain that flows south to the Knockacorbally Stream. The Knockacorbally Stream is a minor first order tributary of the River Martin, which in turn drains to the River Shournagh, a principal tributary of the River Lee. The local hydrology surrounding the project site is shown on Figure 2.1 above.

4.0 IS THE PROJECT NECESSARY FOR THE CONSERVATION MANAGEMENT OF EUROPEAN SITES

The project has been described in Section 2 of the Screening Report and it is clear from the description provided that the project is not directly connected with or necessary for the future conservation management of any European Sites.

5.0 IDENTIFICATION OF EUROPEAN SITES WITHIN THE ZONE OF INFLUENCE OF THE PROJECT

Current guidance (OPR, 2021) informing the approach to screening for Appropriate Assessment defines the zone of influence of a proposed development as the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. It is recommended that this is established on a case-by-case basis using the Source-Pathway-Receptor (SPR) framework.

As a first step in identifying the European Sites that could be connected to the project via SPR pathways all European Sites occurring in the wider surrounding area were identified. As can be seen in Figures 5.1 two European Sites, comprising Cork Harbour SPA and Great Island Channel SAC, occur within the wider area surrounding the project site. All other European Sites are located at a remote distance from the project site and are not connected to it via any SPR pathways.

As the nearest European Site, the Cork Harbour SPA, is located approximately 11km (as the crow flies) or 23km downstream from the project site, the project will not have the potential to result in direct impacts to European Sites. Thus, this Screening exercise focuses on investigating whether it can or cannot be excluded, on the basis of objective information anda very precautionary approach, that the project will have the potential to result in indirect effects to European Sites or effect mobile species associated with European Sites beyond the boundaries of their designated conservation areas.

Using the SPR framework the project, as described in Section 2 of this Screening Report, represents the source of potential impacts to European Sites.

Potential pathways are restricted to hydrological pathways and the potential for mobile qualifying species of European Sites to interact with the project site.

The receptors represent European Sites and their associated qualifying features of interest.

European Sites and their associated qualifying features are likely to occur in the zone of influence of the project only where hydrological pathways establish a link between the project and the European Site or where there is potential for qualifying species of surrounding European Sites to occur at the project site. Other pathways such as noise and aerial emission pathways, lighting and disturbance pathways are not considered to have the potential to link the project site to surrounding European Sites due to the distance between the site and these European Sites.

Table 5.1 examines whether each European Site within the wider area surrounding the project site occurs within the zone of influence of the project. This has been undertaken in line with the following questions:

- Is there a pathway link between the Project site and European Sites?
- Are qualifying habitats of these European Sites at risk of experiencing impacts as a result of the project?
- Does the project site have the potential to interact with Annex II qualifying species/ special conservation interest species of these European Sites?

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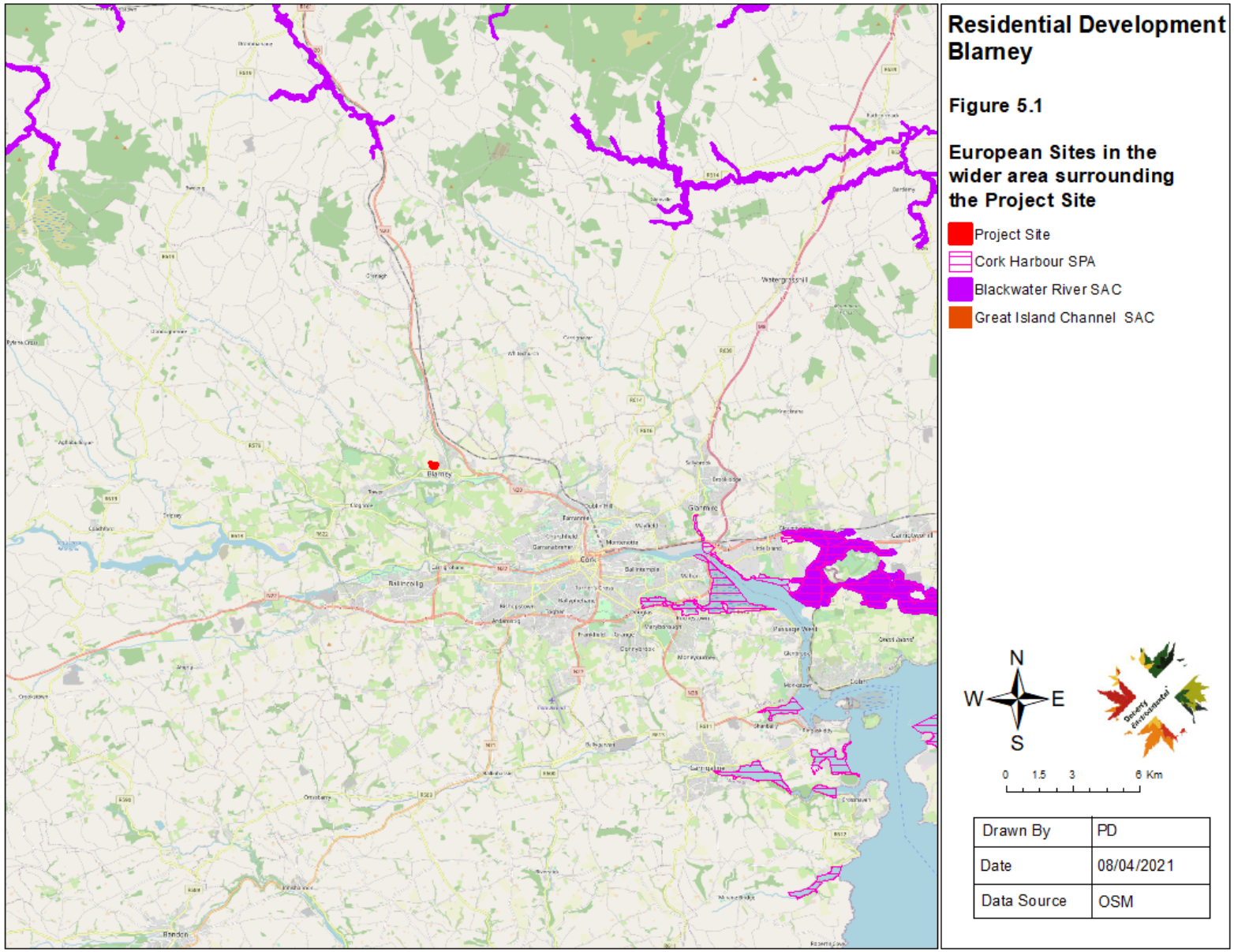
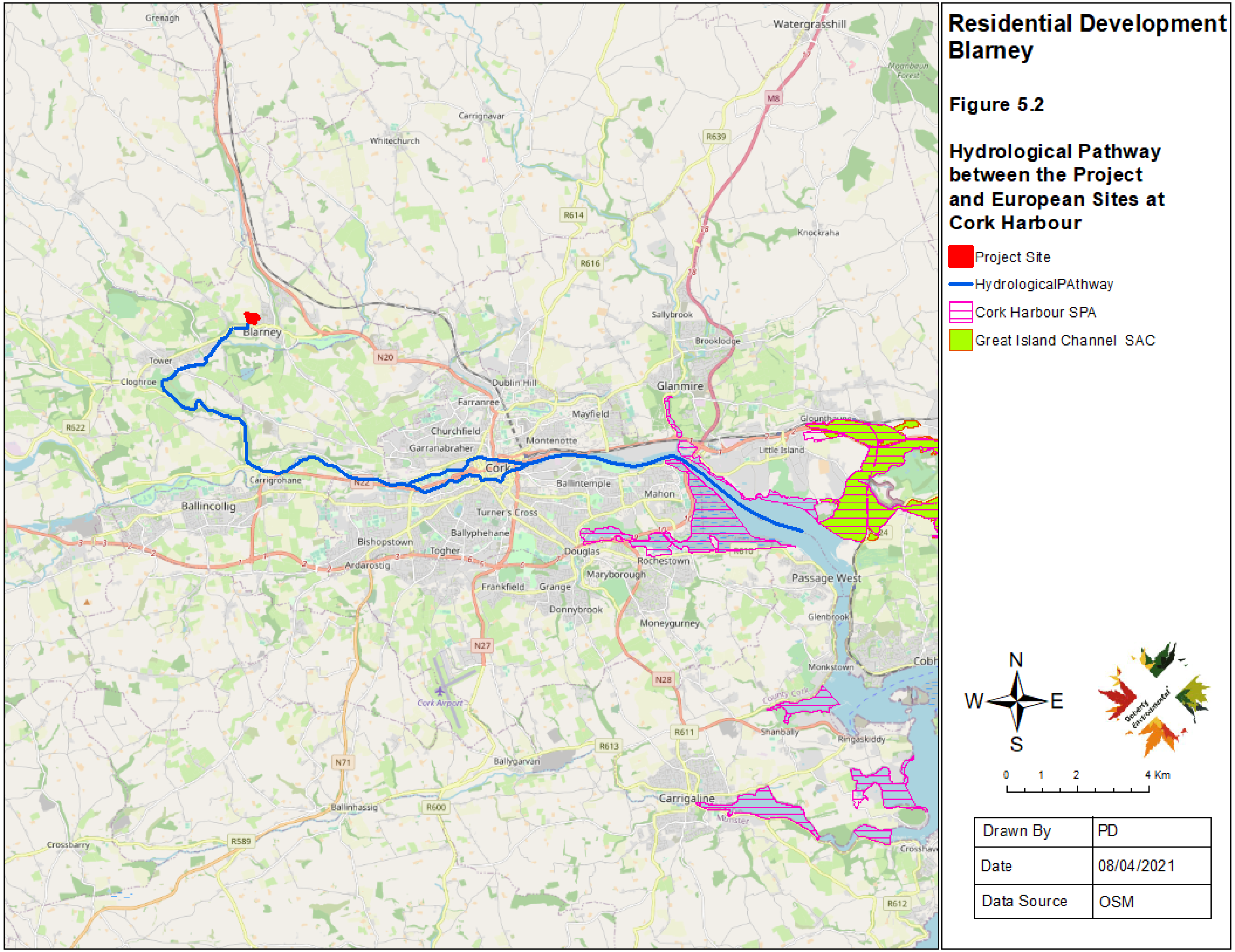

Residential Development Blarney
Figure 5.1
European Sites in the wider area surrounding the Project Site
Project Site
Cork Harbour SPA
Blackwater River SAC
Great Island Channel SAC
N
W
E
S
0 1.5 3 6 Km
Drawn By PD
Date 08/04/2021
Data Source OSM



Residential Development Blarney
Figure 5.2
Hydrological Pathway between the Project and European Sites at Cork Harbour
Project Site
HydrologicalPAthway
Cork Harbour SPA
Great Island Channel SAC
N
W
E
S
0 1 2 4 Km
Drawn By PD
Date 08/04/2021
Data Source OSM
Blarney
Cork
Ballincollig
Glanmire
Passage West
Carrigaline
Watergrasshill

Table 5.1: Identification of European Sites within the Zone of Influence of the Project

European Sites	**Distance from Project Site**	**Hydrological Pathway**	**Do qualifying habitats occur within the zone of influence of the project.**	**Does the Project have the potential to interact with Mobile Species**	**Do European Sites occur within the Projects Zone of Influence?**
Cork Harbour SPA	23km downstream	Yes. A hydrological pathway links the project site to Cork Harbour. This hydrological pathway is established by the proposed discharge of surface water from the project site to the River Lee catchment. Wastewater generated at the project site during the construction phase will be held on site within bunded impermeable containers that will be routinely serviced by an authorised wastewater contractor with all	Yes. Due to the presence of a hydrological pathway, there is in theory a potential for the project to interact with the wetland habitats of this SPA.	Yes. Due to the presence of a hydrological pathway, there is, in theory, a potential for the project to interact with the wetland habitats of this SPA, upon which the special conservation interest bird species of the SPA rely. The habitats occurring at the project site do not represent important habitats upon which special conservation interest bird species of this SPA. These habitats are located inland, approximately 11km as the	Yes. A hydrological pathway links the project to this European Site.

		wastewater being transported offsite for treatment at an approved wastewater treatment plant prior to final release to the receiving environment. While it is noted that wastewater generated at the project site will ultimately be discharged to the River Shournagh and the Lee catchment, wastewater emissions are not considered to represent a potential risk to water quality in the Lee catchment due to the presence of the existing Blarney/Tower WWTP, which has been identified over multiple monitoring years as not having a negative effect on surface water quality along the River Shournagh and within the Lee catchment (see Section 3.3 above). Irish Water have confirmed that sufficient capacity is available at the Blarney/Tower WWTP to adequately treat all wastewater		crow flies from the nearest point of the SPA and represent a small area of agricultural land in the wider area surrounding the SPA.	

		generated at the project site during the operation phase.			
Great Island Channel SAC	29km downstream	No. There is no direct hydrological pathway linking the project site to this SAC. Hydrodynamic modelling of Cork Harbour has shown that the Great Island Channel is influenced by tidal flows with little influence on this area of the harbour by freshwater inputs from the River Lee (see T.J.O'Connor & Associates Consulting Engineers, 2009). Given the tidal dominance on hydrodynamics and water quality in the Great Island Channel, along with the very minor flows from the project site, which will be further attenuated by the pond downstream, and the dilution and assimilation of such flows along the hydrological pathway it is concluded that no hydrological impact pathway links the project site to this SAC.	No. As no hydrological impact pathway links the project site to this SAC there will be no potential for the project to interact with the qualifying habitats of this SAC.	No. No qualifying species are listed as qualifying features of interest for this SAC	No. There are no pathways linking the project to this European Site.

River Blackwater SAC	14km to the north	No. No surface water pathways link the project site to this SAC. The project site is located in separate surface water catchment to this SAC.	No. The project site is located in a separate surface water catchment to this SAC and there is no potential for it to interact with the qualifying habitats of this SAC.	No. This SAC is designated for its role in supporting freshwater qualifying species. The project site does not support freshwater habitats and there is no potential for the project to interact with the populations of freshwater-reliant qualifying species of this SAC.	No. There are no pathways linking the project to this European Site.

Table 5.1 above examines the relationship between the project site and the European Sites occurring within the surrounding area. As noted within this table no European Sites occur in close proximity to the project site. The site is hydrologically linked to the Cork Harbour SPA (see Figure 5.2: Hydrological Pathway). This European Site is located approximately 23km downstream from the project site. Given the presence of a hydrological pathway between the project site and the Cork Harbour SPA, the remainder of this Screening aims to identify whether this pathway has the potential to function as an impact pathway. This is determined by considering whether the project will have the potential, alone or in-combination with other plans or projects, to result in likely significant effects to the water quality of the River Lee estuary, over 23km downstream.

As part of this Screening exercise the examination of the hydrological pathway's potential to function as an impact pathway (outlined in Section 8 below) has been undertaken without regard to any construction phase or operation phase design measures or best practice mitigation measures that are intended to avoid or reduce harmful environmental effects. Such measures have been described as part of the project description in Section 2 of this Screening Report, however these measures are not relied upon during the examination of the hydrological pathway and its potential to function as an impact pathway to the Cork Harbour SPA, as outlined in Section 8.1 below. Prior to detailing this evaluation the following Sections of this report provide baseline information on the Cork Harbour SPA, it Conservation Objectives and the nature of typical environmental impacts associated with a residential development as proposed for the current project.

6.0 EUROPEAN SITE BASELINE

The Cork Harbour SPA represents the only European Site likely to occur within the sphere of influence of the project. The next step in this Screening Assessment identifies the special conservation interests occurring within the potential sphere of influence of the project.

Cork Harbour SPA is a large European Sites consisting of a number of discrete sections associated with river estuaries. The section relevant to the project site is that occurring along either bank of the River Lee Estuary. Other areas of the SPA are located in the outer River Lee estuary and Cork Harbour and due to the harbours hydrodynamics and specifically tidal influences are not considered to occur within the sphere of influence of the project.

The special conservation interests of Cork Harbour SPA include a list of 23 wetland bird species and wetland habitats.

The special conservation interest bird species (with EU Birds Directive Code No. in parenthesis) are as follows:

- Little Grebe (Tachybaptus ruficollis) [A004]
- Great Crested Grebe (Podiceps cristatus) [A005]
- Cormorant (Phalacrocorax carbo) [A017]
- Grey Heron (Ardea cinerea) [A028]
- Shelduck (Tadorna tadorna) [A048]
- Wigeon (Anas penelope) [A050]
- Teal (Anas crecca) [A052]
- Pintail (Anas acuta) [A054]
- Shoveler (Anas clypeata) [A056]
- Red-breasted Merganser (Mergus serrator) [A069]
- Oystercatcher (Haematopus ostralegus) [A130]
- Golden Plover (Pluvialis apricaria) [A140]
- Grey Plover (Pluvialis squatarola) [A141]
- Lapwing (Vanellus vanellus) [A142]
- Dunlin (Calidris alpina) [A149]
- Black-tailed Godwit (Limosa limosa) [A156]
- Bar-tailed Godwit (Limosa lapponica) [A157]
- Curlew (Numenius arquata) [A160]
- Redshank (Tringa totanus) [A162]
- Black-headed Gull (Chroicocephalus ridibundus) [A179]
- Common Gull (Larus canus) [A182]
- Lesser Black-backed Gull (Larus fuscus) [A183]
- Common Tern (Sterna hirundo) [A193]

The wetland habitats of the SPA include intertidal mudflats, saltmarshes and estuaries.

These wetland habitats of the SPA occur within the River Lee Estuary section of the SPA and are considered to occur within the potential sphere of influence of the project due to the hydrological link between the project site and these wetland habitats.

Whether special conservation interest bird species of the SPA occur within the potential zone of influence of the project depends upon the known distribution of these species within the River Lee Estuary Section of the SPA.

The distribution of special conservation interest bird species within the River Lee Estuary section of the SPA is based on the results of baseline surveys for the Cork Harbour SPA, as published by the NPWS (NPWS, 2014). The distribution of species within this section of the SPA have been identified during Irish Wetland Bird Surveys spanning the period 1994/95 to 2012/13. These surveys are based on wetland bird surveys and counts within subsites of the Cork Harbour SPA. The IWeBS subsites occurring along the most westerly sections of the River Lee Estuary within the SPA (and closest to the project site) are OL486, OL536 and OL539. The role these subsites play as foraging and roosting sites for special conservation interest bird species of the SPA is summarised in Table 6.1 below. In Table 6.1 the importance of each subsite is ranked from low (L); moderate (M); high (H) and very high (V). The British Trust for Ornithology (BTO) species codes are used to indicate relevant species on Table 6.1.

Table 6.1: Ranked Importance of Subsite OL486; OL536; and OL539 for Intertidal and Subtidal Foraging, Roosting and Other Behaviour (Source NPWS, 2014)

Subsite	Foraging				Roosting & Other Behaviour			
	L	M	H	V	L	M	H	V
OL486	T.; LG	SU; WN; CA; H; OC; CU; RK; BH; LB	DN; BW	BA	L	RK; CM	CA; BW; CU	OC; BH
OL536	CA; BH	T.; RM; CM	BW; BA; RK	GG; OC; DN; CU; LB	BW		GP	CA; BA
OL539	OC; RK; BH	WN; CA; BW; CU	GG		BH	CA; OC; CM; LB	GG	

BA – Bar-tailed Godwit; BH – Black-headed Gull; CA – Cormorant; CM – Common Gull; CU – Curlew; DN – Dunlin; BW – Black-tailed Godwit;

GG – Great-crested Grebe; GP – Golden Plover; H. – Grey Heron; L – Lapwing; Lb – Lesser Black-backed Gull; LG – Little Grebe;

OC – Oystercatcher; RK – Redshank; RM – Red-breasted Merganser; SU – Shelduck; T. – Teal; WN – Wigeon

Table 6.1 lists 19 (of the total no. of 23) special conservation interest bird species of the Cork Harbour SPA as regularly occurring within the River Lee Estuary section of the SPA. This section of the SPA supports important numbers (i.e. moderate to very high) of 16 of these species (teal, little grebe and lapwing regularly occur in low numbers).

As such the special conservation interest bird species of the SPA occurring within the potential sphere of influence of the project are:

- Great Crested Grebe
- Cormorant
- Grey Heron
- Shelduck
- Wigeon
- Red-breasted Merganser
- Oystercatcher
- Golden Plover
- Dunlin
- Black-tailed Godwit
- Bar-tailed Godwit
- Curlew
- Redshank
- Black-headed Gull
- Common Gull
- Lesser Black-backed Gull

6.1 CORK HARBOUR SPA CONSERVATION OBJECTIVES

Site-specific Conservation Objectives for the Cork Harbour SPA have been published by the NPWS (NPWS, 2014). The overall Conservation Objectives for the special conservation interest bird species of the Cork Harbour SPA is to maintain the favourable conservation status of bird species for which the SPA is designated. The favourable conservation status of bird species will be achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis

The site-specific Conservation Objectives for the Cork Harbour SPA aim to define the favourable conservation status its special conservation interest bird species. The site-specific Conservation Objectives for these species occurring within the sphere of influence of the project are outlined in Table 6.2 below.

Table 6.2: Site-Specific Conservation Objectives for Cork Harbour SPA Special Conservation Interest Species

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Waterbird population trends are presented in part four of the conservation objectives supporting document
Distribution	Number and range of areas used by waterbirds	No significant decrease in the range, timing and intensity of use of areas by special conservation interest bird species of the SPA other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

6.2 DOCUMENTED THREATS & PRESSURES

The NPWS have documented threats and pressures to the Cork Harbour SPA in their Natura 2000 Data Return Form for this SPA. The threats and pressures to this SPA have been ranked in terms of low, medium and high impacts. These threats and pressures and their associated impact rank are as follows:

- Nautical sports (medium impact);
- Shipping lanes (medium impact);
- Fertilisation (medium impact);;
- Leisure fishing (medium impact);
- walking, horseriding and non-motorised vehicles (medium impact);
- Marine and Freshwater Aquaculture (High Impact);
- Industrial or commercial areas (high impact);
- Roads, motorways (high impact);
- Urbanised areas, human habitation (high impact); and
- Port areas (high impact)

In addition to the threats and pressures listed above the Conservation Objectives Supporting Documentation (NPWS, 2014) for the Cork Harbour SPA has identified activities within or in the vicinity of Lough Mahon and the associated sub-sites that have the potential to result in a disturbance effect to wetland bird species. The activities that have the potential to result in disturbance events to birds within these subsites are as follows:

1. Shipping channels;
2. Railway;
3. Power boating and water skiing; and
4. Walking, including dog walking.

6.3 WATER QUALITY OF THE RIVER SHOURNAGH & LOWER RIVER LEE

The project site is located within the River Shournagh sub-catchment, which drains to the lower River Lee near Ballincollig.

Eventhough recent water quality monitoring for the River Shournagh and the River Martin downstream of the project site has been classified as high and goo to high respectively the Water Framework Directive status of these watercourses downstream of the project site have been classified as "at risk". The lower River Lee downstream of the Shournagh confluence has also been classified as "at risk". The transitional waters of the River Lee further downstream (the Lee Estuary Lower) where the Cork Harbour SPA River Lee section occurs has been identified as a transitional water that is moderately polluted and of intermediate water quality status. The Water Framework Directive status of this transitional waterbody is also classified as "at risk".

7.0 IN-COMBINATION EFFECTS

In the absence of appropriate safeguards, the project will have the potential to generate polluted surface waters on site and in the event of their discharge from the project site, the potential for the project to combine with any other existing sources of pollutants or pressures to the Shournagh sub-catchment and the lower River Lee catchment downstream cannot be ruled out at the screening stage. A Natura Impact Statement will be required to identify other plans, projects or land uses with which the project could combine to result in adverse cumulative effects to the Cork Harbour SPA and particularly the River Lee Estuary section of the SPA.

8.0 IDENTIFICATION OF LIKELY SIGNIFICANT EFFECTS

The potential environmental effects generated by the project may arise as a result of the discharge of deleterious surface water runoff from the project site to the Shournagh River sub-catchment during the construction phase or operation phase. Construction phase operations will have the potential to result in the generation of silt-laden surface waters, or could contaminate surface water generated on site with other construction related materials such as hydrocarbons, cement-based products or other construction solutions. In addition, in the absence of an appropriately sensitive approach to the (worst-case scenario) works associated with the replacement of the culvert under the Tower Road R617 the potential will exist of pollution to

the stream conveyed along this culvert with risks of pollution downstream to the River Martin and Shournagh.

During the operation phase, in the absence of an appropriate surface water drainage network, the potential will exist for surface water generated on hard surfaces to be contaminated with hydrocarbons from vehicles.

During both phases of the project the discharge of contaminated surface waters to the Shournagh River sub-catchment could combine with other existing pressures to water quality along the Shournagh River and contribute to reductions in water quality downstream along the River Shournagh and the lower River Lee.

While it is acknowledged that the volume of surface drainage waters discharging from the project site to the Shournagh sub-catchment and on downstream to the Lower River Lee will be miniscule in the context of the receiving waterbody, in the absence of appropriate safeguards the potential will exist for the discharge of pollutants that could contribute to the "at risk" status of these waterbodies.

9.0 SCREENING CONCLUSION

The proposed project has been screened for its potential to result in likely significant effects to the conservation status and integrity of surrounding European Sites. As this project site is located approximately 11km (as the crow flies) and 23km upstream from the nearest European Sites, a Source-Pathway-Receiver model was used to identify potential impact pathways linking the project site to European Sites. The potential impact pathways identified were restricted to hydrological and mobile species pathways. Given the distance of the project site from the nearest point of the Cork Harbour SPA and the small size of the project site with commonly occurring agricultural habitats it was found that the project does not provide important habitat for special conservation interest bird species or waterbirds of the Cork Harbour SPA and is not relied upon by such species. As such this potential pathway was ruled out during this screening exercise.

Only one European Site, the Cork Harbour SPA, was identified as being connected to the project. This SPA is designated for its role in supporting 23 wetland bird species and wetland habitats. Of the 23 special conservation interest bird species of the SPA, 16 were identified as

potentially occurring with along the River Lee estuary downstream of the project site. In addition wetland habitats of the SPA, particularly estuaries and mudflats were also identified as occurring downstream of the project.

The potential for the project to result in effects to special conservation interests bird species and wetland habitats occurring downstream of the project site was screened in during the examination completed in this report. The reason for screening in likely significant effects downstream at key intertidal foraging and roosting locations at the River Lee estuary is based on the existing at risk status of this waterbody and the potential for the project, in the absence of appropriate safeguards, to combine with other projects and land use activities, and contribute to water quality pressures that are undermining the status of this waterbody and the implications polluted water quality has for estuarine mudflat habitats and the waterbird species that rely upon them.

For the reasons outlined above it is the considered view of the authors of this Screening Report for Appropriate Assessment that the potential for likely significant effects to European Sites cannot be ruled out at the Screening stage and that an Appropriate Assessment of the project is required. Based on this conclusion a NIS has been prepared to inform the competent authority during its Appropriate Assessment of the project and its potential to result in adverse effects to the integrity of the Cork Harbour SPA.

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