

MWP

Ecological Impact Assessment (EclA)

Bantry Mill Culvert Upgrade Project

Cork County Council

November 2024

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MWP, Engineering and Environmental Consultants

Address: Reen Point, Blennerville, Tralee, Co. Kerry, V92 X2TK

www.mwp.ie



1. Introduction

1.1 Overview of the Proposed Project

Malachy Walsh and Partners (MWP), Engineering and Environmental Consultants were commissioned by Cork County Council to prepare an Ecological Impact Assessment (EclA) for proposed upgrade works to a culvert over the River Mealagh/Mill at Bantry, Co. Cork (hereafter referred to as the 'proposed development site').

This Ecological Impact Assessment (EclA) report has been prepared to support the competent authority in making their planning decision by describing the baseline biodiversity and ecological characteristics of the site, the proposed development, and the potential impacts on the receiving environment as a result of the proposed development.

This report considers mitigation and avoidance measures in relation to habitats, flora and fauna within the zone of influence (ZOI) of the Proposed Development and on the receiving environment in the context of the relevant statutory requirements. Potential cumulative impacts are considered with consented, planned, and reasonably foreseeable projects. Should the likelihood of significant environmental effects exist, mitigation measures and alternative solutions will be advised such that, as far as is practicable, there will be no significant environmental effect on the receiving environment as a result of the proposed development.

MWP were also commissioned to prepare a Screening for Appropriate Assessment report for the proposed upgrade works.

1.2 Scope of the Assessment

- Identify and document protected habitats and species in the study area through desk top studies.
- Undertake baseline ecological surveys at the site.
- Evaluate the nature conservation importance of the ecological resources identified using a scientifically robust and objective methodology based on current National and International best practice guidelines.
- Predict the potential direct, indirect and cumulative effects of the project on local biodiversity.
- Prescribe mitigation measures to minimise potential effects to biodiversity.
- Identify habitats within the study area that could benefit from ecological management for the purpose of local biodiversity enhancement.

1.3 Statement of Competency

This Ecological Impact Assessment (EclA) has been prepared by Otto Storan (BSc. (Hons), MSc.) Ecologist, with Malachy Walsh and Partners (MWP). Ecological field surveys were undertaken by Otto Storan and Gerard Hayes, senior ecologist with MWP.

Otto is an experienced ecologist with 5+ years professional experience working in consultancy. Otto is a member of the Chartered Institute of Ecologists and Environmental Managers (CIEEM) and has diverse experience in undertaking environmental and ecological assessments for a range of coastal, marine, and terrestrial projects.

This report was reviewed by Gerard Hayes. Gerard is a Senior Ecologist with MWP and has over 15 years' experience in environmental consultancy. He is a member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and the Freshwater Biological Association (FBA). Gerard has a diverse ecological profile,

with Phase 1 habitat, mammal (including bats), bird, amphibian, macroinvertebrate and tree survey experience. He is co-author and/or carried out surveys for NPWS Irish Wildlife Manual Nos. 15, 24, 26, 37, 45.

2. Details of Proposed Development

2.1 Site Location and Context

Bantry is located in County Cork, 85km west of Cork City. The Culvert runs down Bridge Street and New Street and Wolfe Tone Square (see **Figure 1**).

The Bantry catchment is centred around the 2.2 km long Mill River, also known as the Bantry River, a steep channel upstream before it passes into a tidal culvert under Chapel Street in Bantry. The culvert passes under Bantry Town Centre and has an outfall into Bantry Harbour. There are multiple tributaries which join the Mill River: the Knocknaveagh, Sheskin East, Carrignagat, Alley River, and Scart. These are relatively steep and narrow, with many engineered sections including culverts, weirs, bridges, and aqueducts. The Alley River, also known as the Reenrou, has a shallower gradient, and is culverted in its lower reaches.

Bantry's culverts consist of a main culvert and two side culverts. The main culvert is 445m long and carries the Mill River under the centre of Bantry along New Street until it outfalls west of Wolfe Tone Square. There is a 103m long side culvert from the south which carries the Scart Stream into the main culvert at Bridge Street approximately 440m upstream of the outfall. The other side culvert connects from the north and carries the Alley River into the Mill River approximately 309m upstream of the outfall.

There are surface water capacity issues with the Mill River and existing surface water culverts which contribute to flooding in the area. Foul water in the Bantry area is conveyed via a combined sewer system to the Bantry Wastewater Treatment Plant (WWTP), which has a design capacity of 6,000 population equivalent (PE) and is situated on the northern side of Bantry Harbour. Sewage treatment discharge locations were gathered from EPA maps (2024). The primary discharge location for foul water is in Inner Bantry Bay, approx. 2.6 km west of the Mill River outflow into Bantry Harbour. A secondary outflow is at the junction of Glengarriff Road and Barrack Street, while emergency outflows are located on the Scart Rd south of the Harbour, at Reenrou East north of the Harbour, and in Bantry Harbour itself, near the WWTP.

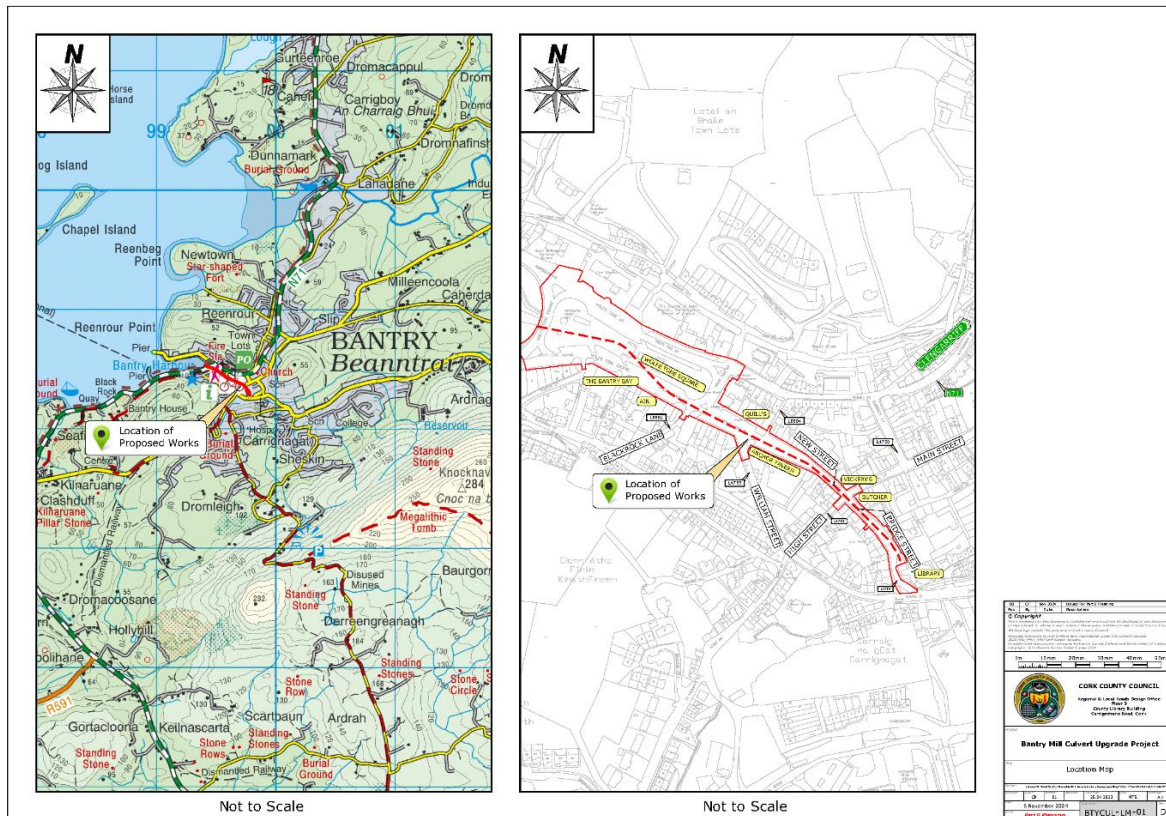


Figure 1: Location of proposed site

2.2 Description of the Proposal

The purpose of the Bantry Mill Culvert Upgrade Project (BMCUP) is to upgrade the existing Mill River culvert within the town and remove the existing foul connections to the culvert and change these to discharge into an independent foul network.

The proposed development comprises:

- Reconstruction of a new Mill River Culvert along Bridge Street and New Street and Wolfe Tone Square and connection to the existing Mill River Culvert at chainage 80m; This includes:
 - A new Mill River Culvert of internal dimensions 5.2m wide, 1.5m high which will be constructed from a tie in at Wolfe Tone Square, at Chainage 80m, to William Street, at Chainage 242m
 - A new Mill River Culvert of internal dimensions 3.6m wide, 1.5m high which will be constructed from William Street junction at Chainage 242m to the Mill on Bridge Street at Chainage 452m
- Connect to existing drainage/services at William Street and Main Street
- Repair/upgrade works to be carried out to the Mill River Culvert from Chainage 0 to 80m
- Road and footpath reinstatement works
- Removal and reinstatement of the sections of Wolf Tone Square will be required to facilitate the tie in of the New Mill River culvert and backfilling of the old offline stone culvert

- Construction of new services and utilities including foul water drainage. Surface water drainage, watermain infrastructure, electricity and communications will be required at Wolfe Tone Square, New Street and Bridge Street;
- Including modifications to existing services including foul, surface water and services generally to facilitate the proposed scheme
- Construction of 2 No. surface water pumping sumps in Wolfe Tone Square

Mechanical machinery and electrical equipment typically used for construction projects will be required to facilitate the proposed development. The following is a non-exhaustive list of plant that is typical of heavy civil engineering work and which may be used in this proposed development. The exact equipment to be used is not known at this stage, however the plant and machinery listed below are typical of plant that are commonly used in construction projects of this nature and scale.

- Telescopic Handler
- Mobile Crane
- 15-30T Excavator
- 12T Roller
- Dump truck
- Tractor & Trailer
- 15-20T Rubber Tired Excavator
- 3-10T mini digger
- Diesel Generator

The proposed development for which permission is being sought consists of the construction and operation of the following elements:

- The new culvert will be constructed using traditional open cut excavation methods whereby the ground is excavated from the existing road/surface level down to the proposed culvert formation level. Where space permits, the sides of the excavations will typically be battered and where the excavation is in proximity to existing buildings or other structures, a temporary shoring system such as trench boxes or sheet piles will be required.
- Where excavations are close to buildings or other structures, investigations will be carried out prior to commencing the main works to establish the nature and depth of foundations and, where necessary, temporary supports or underpinning will be provided.
- It is anticipated that the majority of excavation will be carried out using an excavator or similar with an attached toothed bucket. It is anticipated that some areas will require excavation assisted by rock ripping or localised use of rock breakers.
- A mass concrete levelling blinding will be placed where required on the existing soil/rock to ensure a uniform surface is provided to support the culvert.
- The majority of the new culvert will be manufactured off site and transported to the site in segments before being lifted into position by a crane and joined together.

- Localised sections of the culvert will be cast in-situ, typically at interfaces with existing culverts or at irregular or non-uniform geometries. Cast in-situ sections will typically be constructed using the following methods:
 - Steel reinforcement for the culvert base slab will be lifted onto the formation/blinding and fixed into position before pouring concrete.
 - Starter bars will be left out of the base slab to allow the reinforcement for the walls to be lapped on to provide continuity in the structure. Conventional formwork will be lifted into position using a crane before pouring concrete for the culvert walls. The culvert roof will also include conventional soffit formwork and may be poured at the same time as the walls.
 - Once the concrete has sufficiently cured the formwork will be stripped.
- Due to the limited space available for the construction works at many locations, it is anticipated that the construction will be carried out in a phased manner whereby the works will be divided into suitably sized segments. The basic sequence of works for each segment will likely include:
 - Initial excavations and temporary services diversions will be undertaken.
 - Excavation for the culvert will typically include the additional excavation required for the new/upgraded services and utilities which will be installed on each side of the new culvert.
 - The permanent services and utilities will be installed and the excavation/trenches will be backfilled.
 - The road/pavements will then be reinstated. It is envisaged that a temporary finish will initially be provided for each segment.
 - Once all sections of the culvert are installed, it may be necessary to undertake additional excavations each side of the new culvert to access the new services/utilities and make the final permanent connections for properties.
 - Alternatively, the culvert could be installed in its entirety with temporary services and, following completion of the culvert installation, the new services and utilities would be constructed each side of the culvert.
- The majority of the new culvert will be constructed along the line of the existing culvert and at such locations temporary over-pumping will be carried out. Over-pumping will involve the collection of water at the upstream end of each segment of works and pumping it back into the culvert at the downstream end of that segment. This will allow the stream flows to by-pass the works therefore construction will be carried out in the dry.
- Sections of the N71 road, New Street and Bridge Street will need to be closed at times to facilitate the works. Prior to commencing the works, a detailed traffic management system will be implemented to minimise disruption caused by the works. Traffic and pedestrian diversions will be put in place. Where feasible, access to all properties will be maintained however there may be short timeframes when access cannot be safely maintained to particular properties.
- All material which is excavated during the construction works will be sorted and, where feasible, will be re-used in the new works. Where material is not suitable for use elsewhere in the works, it will be disposed of off-site.

3. Methodology

3.1 Scope of Assessment

This ecological assessment has been prepared for the proposed development following a comprehensive desk study, supplemented by ecological walkover surveys undertaken in February and June 2024 to establish an ecological baseline of the proposed development.

The EclA objectives included the following:

- Establish an ecological baseline of the proposed development;
- Identify and evaluate the natural environment and relevant ecological features regarding nature conservation importance in compliance with current methodologies outlined under National and International best practise guidelines
- Determine, assess and evaluate potential direct, indirect and cumulative impacts and effects on biodiversity
- Anticipate and prescribe mitigation and avoidance measures to reduce or remove potential impacts of the proposed development

3.2 Legislation and Published Guidance

This report has been prepared in accordance with the relevant legislation and sectoral guidance documents and publications:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2022)
- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland – Terrestrial, Freshwater, Coastal, and Marine (CIEEM¹, 2018)
- A Guide to Habitats of Ireland (Fossitt, 2000)
- Habitat Survey Guidelines: A Standard Methodology for Habitat Survey and Mapping in Ireland (The Heritage Council, 2011)
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (National Roads Authority², 2009).

The legislative framework underpinning biodiversity and nature conservation in Ireland were also considered:

- Irish Wildlife Act 1976 to 2012 (as amended)
- EU Habitats Directive (92/43/EEC)
- EU Birds Directive (2009/147/EEC)
- The European Communities (Birds and Natural Habitats) Regulations 2011-2021
- Flora Protection Order (FPO), 2015

¹ Chartered Institute of Ecological and Environmental Management guidance available at <https://cieem.net/wp-content/uploads/2019/02/Combined-EclA-guidelines-2018-compressed.pdf>.

² National Roads Authority, currently known as Transport Infrastructure Ireland (TII). Guidelines available at <https://www.tii.ie/technical-services/environment/planning/Guidelines-for-Assessment-of-Ecological-Impacts-of-National-Road-Schemes.pdf>

- EU Water Framework Directive (2000/60/EC)
- Planning and Development Act 2000, as amended³

3.3 Zone of Influence

The Zone of Influence, which encompasses the study area includes identification and evaluation of important ecological features (IEFs), the values and sensitivities of these ecological features, and assessments of the potential impacts of the Proposed Development on these IEFs with reference to relevant legislation and guidelines.

Distinguishing the ZOI of the proposed development considers the following:

- The nature, size and location of the project
- Sensitive species or habitats
- Habitats identified for high conservation value species
- Ecological connectivity between the project and the wider landscape
- Key ecological receptors, their sensitivities and identification of potential effect pathway/connectivity's to IEFs
- Habitat connectivity, landscape matrix and potential foraging/commuting ranges of faunal species

3.4 Important Ecological Features (IEFs)

Important Ecological Features (IEFs) are ecological features/resources for which detailed assessment is required and, in the context of the study area, are taken to be those features deemed to have a 'Locally Important (higher value)' or higher classification.

The cumulation of desk study and ecological walkover surveys determined the IEFs likely to occur in the zone of influence (ZOI) of the proposed development. IEFs include protected habitats and species listed under the following legislation;

- Annexes listed in the EU Habitats Directive (92/43/EEC)
- Qualifying Interest (QI) of Special Protection Areas (SPA)/ Special Areas of Conservation (SAC) within the likely Zone of Influence
- Species Protected under the Wildlife Acts 1976-2021 (as amended)
- Species Protected under the Flora Protection Order (FPO), 2015

Relevant habitats and associated flora, fauna, conservation sites and other ecological features/resources will be identified in **Section 7**, and then evaluated in terms of their local, national and international conservation importance using the evaluation criteria described in **Section 4**. Based on the outcomes of these evaluations, an assessment will then be made as to which of the ecological resources/features should be classed as an IEF. Finally, the significance of the potential ecological effects of the project on these IEFs will be assessed in **Section 10**.

³ The Planning and Development (Amendment) Regulations 2023.

3.5 Desk-top Study

A comprehensive desktop study of relevant available published data, data sets and publications for the site and the geographical area extending away from it was collated. The available information included sites designated for nature conservation, other ecologically sensitive areas and important features, and habitats and species of interest.

The ecological available data reviewed includes the following:

- Ordnance Survey Ireland (OSI) aerial photography 1:50000 mapping
- Environmental Protection Agency (EPA) online map viewer
- National Parks and Wildlife Services (NPWS) online datasets and literature
- National Biodiversity Data Centre (NBDC) online data sets
- Species protected under the Wildlife Acts, species listed in Annex II, Annex IV, and Annex V of the EU Habitats Directive, and species on Irish Red Lists.
- Ireland Red List No. 11 for Vascular Plants (Jackson, et al., 2016)
- Conservation Status Assessment Reports¹ (CSARs), relevant documents and maps prepared in accordance with Article 17 of the Habitats Directive
- Geological Survey Ireland (GSI) online area maps
- Teagasc Soil online area maps
- Bat Conservation Ireland online resources
- Birds of Conservation Concern in Ireland (BoCCI) 2020 to 2026 (Gilbert, Stanbury, & Lewis, 2021)
- BirdWatch Ireland on-line resources

3.5.1 Database Searches and Data Requests

The study area lies within the Ordnance Survey National Grid hectad V94. Concise and site-specific information on species records available for the hectad V94 was retrieved from the NBDC online database and reviewed.

A data request was submitted to the NPWS on the 30th of July 2024 to determine the presence of protected species within the study area. At the time of writing, NPWS has yet to respond to the request for information. Information received from the NBDC database searches was considered sufficient for use in assessment and was utilised to inform the impact assessment in relation to the proposed upgrade works.

3.6 Field Survey

The desk top study was supplemented by two ecological walkover surveys on February 9th and June 19th, 2024, to inform and provide a comprehensive baseline ecology of the study area. The ecological walkover survey on February 9th was carried out to identify and assess habitats, flora, fauna and invasive species, owing to features and locations of ecological importance, whilst the surveys conducted on June 19th were relatively targeted and included biological surveying of the intertidal and freshwater areas, water sampling and habitat identification.

The surveys also included recording any observations and/or evidence of mammals, birds, amphibians and reptiles. Observations of birds were noted and counts recorded. Observations of invasive alien plant species (IAPS) within the site and extended environment inclusive were also documented.

Ecological surveys were undertaken in accordance with the following guidelines:

- Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2011)
- NRA-TII Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (National Roads Authority, 2009)
- Joint Nature Conservation Committee (JNCC) marine habitat classification scheme (Connor *et al.*, 2004)
- Marine Nature Conservation Review (MNCR) intertidal methods (Wilding *et al.*, 2001)
- A Guide to Habitats in Ireland' (Fossitt, J. A., 2000)

3.7 Study Area

The study area for the proposed development comprised the full extent of all elements of the proposal including the entire footprint of the proposed works as well as the immediate receiving waters and intertidal zone of the marina.

3.7.1 Habitat Assessment

The desk top study was supplemented by ecological surveying of the intertidal and freshwater course on the 19th of June 2024. The ecological walkover survey was undertaken to identify and assess the habitats, habitat features, and potential features of ecological importance as per national best practice guidance set out in the Habitat Survey Guidelines: A Standard Methodology for Habitat Survey and Mapping in Ireland (The Heritage Council, 2011) and A Guide to Habitats of Ireland (Fossitt, 2000) and Guidelines; Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (National Roads Authority, 2009). This site visit contributed to the baseline information provided in this report.

The following literature was referred to during field surveys and throughout the ecological assessment process:

- Irish Red Lists: Terrestrial Mammals (Marnell, *et al.*, 2019); Amphibians, Reptiles and Freshwater Fish (King, *et al.*, 2011)
- Birds of Conservation Concern in Ireland 2020 – 2026 (Gilbert *et al.*, 2021)
- Irish Wildlife Manuals (IWM) 116 Checklists of protected and threatened species in Ireland. Version 2.1 Dec 2021 (Nelson, *et al.*, 2019)
- Irish Red Data Book for Vascular Plants (Curtis & McGough, 1988)
- Review of records of plant species protected under the Flora (Protection) Order of 2015 and the Irish Red Data Book (Wyse *et al.*, 2016).

3.7.1.1 Habitats and Flora

Baseline habitat and flora surveys were carried out as part of the MWP ecological walkover survey on February 9th, 2024, and were undertaken in accordance with the Heritage Council Guidelines (Smith *et al.* 2011) and a 'look-see' search methodology (NRA, 2009) to identify habitat features likely to support protected species and record any species which may occur. Hard, intertidal surveys were undertaken on June 19th, 2024, using the Marine Nature Conservation Review (MNCR) intertidal methods (Wildling *et al.*, 2001). Soft, sedimentary habitats were sampled using a 0.01m² hand corer and visually inspected made at each site with records made of colour, smell, texture and visual inspection of the redox potential discontinuity (RPD) layer.

A habitat map for the overall proposed development site was prepared and is available in **Figure 4, Section 6.2**. Habitats recorded within the proposed development site were evaluated with regard to potential links with EU Annex I habitats. The habitat types recorded within the study area were used to assist in identifying the fauna considered likely to utilise the area. Habitats occurring were assessed for their potential suitability for faunal species such as otter (*Lutra lutra*), badger (*Meles meles*) and bat species.

In conjunction with the habitat survey, a botanical survey was completed within the development footprint and included a 'look-see' search methodology (NRA, 2009) within habitat features likely to support protected species. This aimed to confirm the presence of plant species considered to be rare in both a national and local context.

Floral species listed under the following were documented:

- Annex II of the EU Habitats Directive (92/43/EEC)
- Flora Protection Order Species (FPO) (2015)
- Flora species listed in The Irish Red Data Book (Jackson *et al.*, 2016)

3.7.1.1.1 River Corridor Survey

Habitat assessment was carried out upstream of the culvert using the methodology given in the Environment Agency's 'River Habitat Survey in Britain and Ireland Field Survey Guidance Manual 2003' (EA, 2003) and the Irish Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000). The river was photographed at upstream of the study area before it flows into underground via culvert. The river here was assessed in terms of:

- Width and depth and other physical characteristics;
- Substrate type, listing substrate fractions in order of dominance, i.e. large rocks, cobble, gravel, sand, mud etc.;
- Flow type, listing percentage of riffle, glide, and pool in the study area;
- Instream vegetation, listing plant species occurring and their percentage coverage of the stream bottom at the sampling site (as applicable) and on the bankside; and

3.7.1.2 Non-native/Invasive Flora

The presence of Invasive Alien Plant species (IAPS) including species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) was determined within the study area. Further information including survey results for IAPS can be found in **Section 6.3.7.2**.

3.7.1.3 Fauna

The assessment of fauna considers both aquatic and terrestrial taxa, which are addressed independently in the following subsections. Other fauna including birds, bats, and amphibians/reptiles are also addressed in the following subsections. The conservation status of mammals within Ireland and Europe were considered, with status assessment indicated in the following: Irish Wildlife Acts 1976-2012, EU Habitats Directive and the Red List for Terrestrial Mammals (Marnell *et al* 2009).

3.7.1.3.1 Terrestrial Fauna

Walkover surveys for protected terrestrial mammals such as otter were undertaken by MWP in February and April 2024. The habitats within the study area were searched for any evidence of mammal activity such as prints, droppings, burrow-holes, dens/setts, feeding signs. The surveys had regard to '*Animal Tracks and Signs*' (Bang and Dahlstrom, 2006).

The waterbody (River Mealagh) upstream of the proposed site was evaluated in terms of potential suitability for otter. Otter field signs, if any, such as tracks, prints, feeding signs, spraints, or the presence of couches or holts were noted to indicate the presence/absence of otter. The otter survey had regard to methodology outlined in 'Monitoring the Otter *Lutra lutra*' (Chanin, 2003).

3.7.1.3.2 Aquatic Fauna

Due to the location of the proposed works in proximity to the marina, intertidal biological surveys were undertaken. Communities located on hard substrates were assessed by determining abundance of each taxa within a 0.25m² quadrat and methods detailed in Wilding *et al*, (2001). Taxa were identified to the lowest taxonomic level practicable. Fauna were enumerated and the abundance of algal species was expressed as percentage cover.

On softer sediments, five replicate cores were taken for biological analysis to a depth of 15cm using the 0.01m² hand corer and washed over a 0.5mm sieve (BS410). Organisms retained in sieve were identified to at least family levels and to species level where possible.

Dip netting for fish in estuary and freshwater bodies were also used to qualitatively determine fish species present in the waterbodies above and below the proposed upgrade works. The results of the ecological walkover and dip-netting survey were used in conjunction with the document 'Ecology of the Atlantic Salmon' (Hendry and Cragg-Hine, 2003) to assess habitat suitability for salmonids. A survey of the sand and silt in deposition areas upstream of the culvert entrance was undertaken to determine the presence of lamprey species (*Lampetra spp.*) in the Mill Stream. Lamprey habitat evaluation was carried out following the Lamprey Habitat Quality Index (LHQI) scoring system as per Macklin *et al.* (2018). Targeted locations along the river channel were assessed for suitable spawning lamprey habitat and samples were surveyed using a dip net. Samples were collected using agitation sampling for lamprey for 15 seconds upstream of the river with a hand-help macroinvertebrate net (250 µm mesh). Samples were taken upstream to avoid re-recording of lamprey dislodge from an earlier kick sample. Riverbed substrate was sorted by hand and lamprey species, if any, were photographed, verified and documented.

3.7.1.3.3 Bats

The NBDC online database was consulted for the desktop review, utilising the Bat Landscape model element. This model features the Bat Habitat Suitability Index (BHSI) and provides elevation ratings ranging from least favourable (0) to most favourable (100) based on analysis of habitat and landscape associations of Irish bats.

Daytime visual assessments were carried out on February 9th, 2024, for bat roost potential and potential foraging/commuting routes within the site boundaries and adjoining habitats. Non-intrusive observations were made from ground level to identify potential roost habitats and Potential Roost Features (PRF) as per guidance set out in Collins (2023). The scheme describing potential suitability for PRF's is summarized in **Table 1**. In this assessment, PRF's comprised old stone structures with a focus on the culvert itself.

All bat species are protected under the Wildlife Acts and EU Habitats Directive Annex IV, with additional protection for lesser horseshoe bat, protected under Annex II & V of the EU Habitats Directive.

Table 1: Criteria for Potential Roost Features (PRF's) as per Collins (2016) guidelines.

Suitability	Description Roosting Habitats	Commuting & Foraging Habitats
Negligible	Negligible features which are likely to be used by roosting bats.	Negligible features which are likely to be used by commuting or foraging bats.
Low	A feature with one or more potential roost sites that could be used by individual bats opportunistically. Potential roost sites which do not provide appropriate conditions and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	Habitats potentially used by small numbers of commuting bats such as gappy hedgerows or unvegetated streams but are isolated (i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small number of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to characteristics and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edges. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed parkland. Site is close to and connected to known roosts.

After 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)', Collins (2016).

3.7.1.3.4 Birds

All evidence, sightings and calls of bird species and their general locations were documented, including incidental observations and calls.

All bird species observed or heard calling during field surveys were recorded to assist in determining the bird community occurring within the site.

All bird species are protected under the Wildlife Acts (1976 and 2000, as amended) and Birds Directive (2009/147/EC). Bird species which are considered to be of particular conservation concern are species listed under Annex I of the Bird Directive (2009/147/EC), Red and Amber listed species of Bird of Conservation Ireland (BoCCI) 2020-2026. (Gilbert, Stanbury, & Lewis, 2021) and Bird Species of Special Conservation Interests (SCIs) for any relevant Natura 2000 sites.

3.7.1.3.5 Amphibians and Reptiles

A review of the NBDC database informed the ecological baseline for amphibian and reptile species within the site. The survey undertaken in early February 2024 was undertaken outside the recommended surveying period for

these taxa, however, some activity may occur⁴. The survey undertaken during June 2024 was within the optimal surveying period for amphibians and reptiles. Areas potentially utilised by amphibian and reptile species including suitable breeding and spawning areas were recorded.

Licensing is required from the NPWS for any interference with amphibians and reptiles.

3.7.1.3.6 Other Taxonomic Groups

The desktop study provided the basis for other taxonomical groups documented in this assessment. Throughout the ecological walkover surveys undertaken in February and June 2024, any other taxa encountered were recorded.

3.7.1.4 Survey Limitations

The initial ecological walkover survey was undertaken outside the optimal survey season for bats (excluding hibernation roost surveys). Otter surveys were conducted during the optimal survey period for activity surveys⁵. The February survey was carried during the wintering bird season and the surveying in June took note of species which occur during the breeding season.

4. Assessment Criteria

This section outlines the criteria upon which evaluations of the importance of ecological features and the assessments of the ecological impact of the project on these features are made, referring to relevant legislation and guidelines.

4.1 Evaluation

The evaluation outlined in this report and the assessment of the effects of the proposed project follows methodologies detailed in 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2018) and 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (NRA, 2009). The EPA (2022) 'Guidelines on information to be contained in Environmental Impact Assessment Reports' was also considered.

The habitats, flora, fauna and other ecological features or resources identified during desktop and field surveys are evaluated based on their conservation value by using the NRA (2009) guidelines which provided a basis for determination of whether a particular ecological receptor is of importance on the following scale:

- International
- National
- County
- Local Importance (higher value), and
- Local Importance (lower value)

The NRA (2009) guidelines clearly set out the criteria by which each geographic level of importance can be assigned. At the lowest end of the scale, Locally Important (lower value) receptors contain habitats and species that are widespread, of low ecological significance, and are of importance only in the local area. In contrast,

⁴ Information on Freshwater Ecology Survey and Mitigation calendar PDF available at https://ecofact.ie/wp-content/uploads/2013/01/ECOFACT_SurveyMitigation_Calendar1.pdf [Accessed 06/03/24]

⁵ Ecofact environmental consultants' terrestrial ecology survey and mitigation calendar is available at <https://ecofact.ie/>.

Internationally Important receptors can comprise sites designated for conservation at an international level as part of the Natura 2000 Network (SAC or SPA) or which provide the best examples of habitats, or internationally important populations of protected flora and fauna.

The value of habitats is assessed based on habitat condition, size, rarity, conservation and legal status. The value of fauna is assessed on biodiversity value, legal status and conservation status. Biodiversity value is based on its national distribution, abundance or rarity, and associated trends.

4.2 Impact Assessment

The ecological significance of the effects of the proposed development are assessed with regard to CIEEM (2018). This guidance document states that, “For the purposes of EclA, a ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general”.

Conservation objectives may be specific or broad and can be considered at a wide range of scales ranging from international to local (CIEEM, 2018). An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status.

Significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution). CIEEM (2018) defines the ‘conservation status’ for habitats and species, as follows:

- Habitats: conservation status is determined by the sum of the influences on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species: conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

Significant effects should be qualified with reference to an appropriate geographic scale (CIEEM, 2018).

EPA (2022) guidance and criteria were also considered in determining significance and for assessing impact. Professional judgement is used. The EPA (2022) criteria for assessing quality of effects and the significance of effects are set out in **Table 2** and **Table 3**.

Table 2: Criteria for assessing impact quality based on EPA (2022)

Quality of Effect	Criteria
Positive	Change that improves the quality of the environment (for example, by increasing species diversity; or improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
Neutral	No effects or effects that are imperceptible within normal bounds of variation or within the margin of forecasting error.
Negative/Adverse	A change which reduces the quality of the environment (e.g., lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health/property or by causing nuisance).

Table 3: Criteria for assessing effect significance based on EPA (2022)

Significance of Effects	Definition
Imperceptible	An effect capable of measurement but without significant consequences
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences

Significance of Effects	Definition
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment
Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics

The following terms are used when quantifying the duration and frequency of the potential effects:

- Momentary – effects lasting from seconds to minutes
- Brief – effects lasting less than a day
- Temporary – effects lasting less than a year
- Short-term – effects lasting 1 to 7 years
- Medium term – effects lasting 7 to 15 years
- Long term – effects lasting 15 to 60 years
- Permanent – effects lasting over 60 years
- Reversible – effects that can be undone, for example through remediation or restoration
- Frequency – How often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)

Where ecological effects are assessed to be potentially significant, mitigation measures are proposed to remove or reduce the effects. The significance of the cumulative effects of the proposed project is also assessed by determining the ecological effects of the proposal in combination with other developments that either have planning permission, are under construction or are already in existence within the area. The cumulative impact with existing activities in the area is also considered in terms of potential in-combination effects. The significance of the residual effects after mitigation is then assessed.

4.2.1 Cumulative Impacts

Cumulative impacts of the proposed development were assessed by determining the ecological impacts and effects of the proposal in combination with other developments that either have planning permission, are under construction or are already in existence within the area and existing activities in the area in terms of potential in-combination effects. The significance of the residual effects after mitigation is then assessed.

5. Description of Existing Environment

5.1 General Site Description

The proposed development site is located within an urban setting in Bantry, Co. Cork, and comprises primarily local business and industry buildings and built land. The CORINE (2018) landcover data series (available on EPA's interactive map viewer) shows that landcover at the proposed development site is classified as 'Discontinuous Urban Fabric' (Code: 112). Lands nearby the proposed development site are classified as 'Pastures' (Code: 231) surrounding the town, whilst 'Sea and ocean' (Code: 523) occurs to the west⁶.

According to the Geological Survey Ireland (GSI) online map viewer, the proposed development site is underlain by massive and flaser-bedded sandstone. Soils at the proposed development site are categorised as 'Made/Built Land'⁷. The underlying GSI bedrock aquifer at most part of the site is categorized as a 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones'.

The groundwater vulnerability of the aquifer is recorded primarily as 'Low Vulnerability' for most of the length of the proposed works location. This increases from 'Low' to 'Moderate' to 'High' to 'Extreme' over a length of metres between New Street and Bridge Street, likely driven by decreasing depth to bedrock as 'Rock at or near Surface or Karst' is recorded in large pockets throughout the area defined for 'Extreme' vulnerability. The GSI define groundwater vulnerability as "a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities".

The proposed development site is not located within a Special Area of Conservation (SAC) or Special Protection Area (SPA), collectively known as European Sites. SPAs and SACs occurring within 20km of the proposed development site are identified in **Section 6.1**.

5.2 Hydrology and Hydrogeology

The site lies within the Mealagh_SC_010 Water Framework Directive (WFD) Sub-Catchment (ID: 21_20) which is within the Dunmanus-Bantry-Kenmare WFD Catchment (ID: 21)⁸. The proposed upgrade works are located on the EPA River Waterbody 'Bantry_010' (Code: IE_SW_21B310750) which runs roughly southeast to northwest, where it enters a culvert near the Bantry Library on Bridge Street and runs underground until ultimately draining into Bantry marina, a WFD transitional waterbody 'Inner Bantry Bay' (Code: IE_SW_190_0220) (see **Figure 2**).

⁶ CORINE (2018) landcover available at <https://gis.epa.ie/EPAMaps/>. [Accessed 15/02/2024].

⁷ Geological Survey Ireland information available at <https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx> [Accessed 08/08/2024].

⁸ Information available at <https://gis.epa.ie/EPAMaps/> [Accessed 13/02/2024]

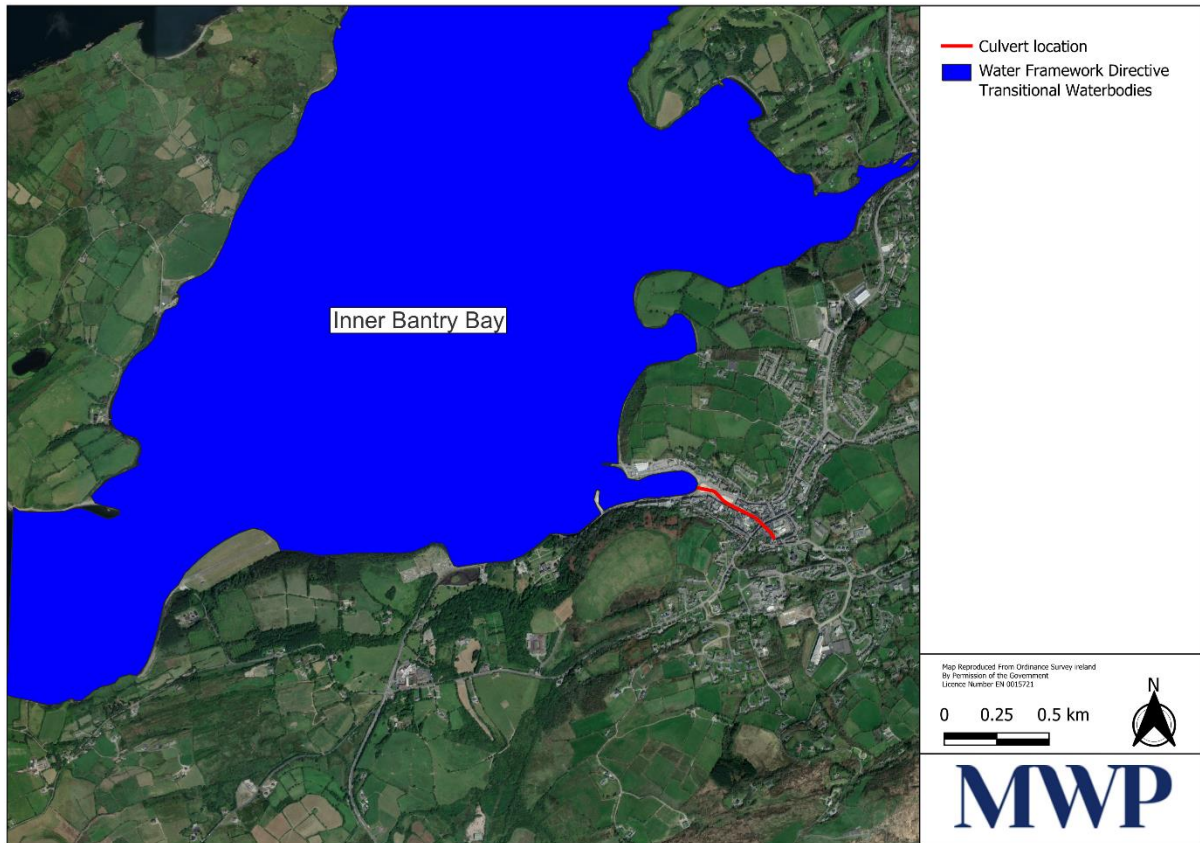


Figure 2: Water Framework Directive Transitional Waterbody, Inner Bantry Bay

The River Waterbody Water Framework Directive (WFD) status for the 2016-2021 of the Bantry_010 watercourse was classified as 'Good' and it's WFD Risk status is categorised as 'Not at risk' for the length of the river upstream including all upstream tributaries and lower reaches entering Bantry marina. The Inner Bantry Bay transitional waterbody was assessed as being of 'High' status for the 2016-2021 monitoring period. The transitional waterbody is projected to be 'Not at risk'.

Outer Bantry Bay is a coastal waterbody under the WFD and is classified as being of 'High' status and 'Not at risk' in most recent assessments.

6. Results

6.1 Designated Sites

This section describes the designated sites considered to be within the potential ZOI of the proposal, including their qualifying features, distance from the proposed development, and whether it is considered that a source-receptor ecological pathway exists between the proposed development and each designated site.

6.1.1 Sites of International Importance

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats of wild fauna and flora by the designation of Special Areas of Conservation (SACs), while the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). It is the responsibility of each member state to

designate SPAs and SACs. SPAs and SACs form part of Natura 2000, a network of protected sites throughout the European Union. Through adoption of the precautionary principle, European sites and other designated sites identified within 20km as well as those with hydrological or ecological pathways to the proposed development were included in the assessment.

Adopting the precautionary principle in identifying potentially affected European sites, it was decided to include all SACs and SPAs within a 20-kilometre radius of the proposal site. Due to the nature and scale of the project under consideration, European sites outside this 20-kilometre radius which may have ecological or hydrological connection to the proposed development were also considered. **Table 4** lists the European sites which were assessed as part of the Appropriate Assessment Screening report and includes each site’s qualifying features. All sites are mapped in **Figure 3**.

Table 4: Qualifying features of European sites assessed as part of the Screening for Appropriate Assessment.

Designated Site	Site Code	Proximity of Designated Site to Nearest Point of Subject Site	Qualifying features of conservation interest
Caha Mountains SAC	000093	9.5km northwest of nearest point	<p>Habitats</p> <ul style="list-style-type: none"> • Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] • Natural dystrophic lakes and ponds [3160] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] • Blanket bogs (* if active bog) [7130] • Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110] • Calcareous rocky slopes with chasmophytic vegetation [8210] • Siliceous rocky slopes with chasmophytic vegetation [8220] <p>Species</p> <ul style="list-style-type: none"> • Kerry Slug (<i>Geomalacus maculosus</i>) [1024] • Killarney Fern (<i>Trichomanes speciosum</i>) [1421]
Derryclogher (Knockboy) Bog SAC	001873	9.8km north of PDS	<p>Habitats</p> <ul style="list-style-type: none"> • Blanket Bogs (* if active bog) [7130]
Dunbeacon Shingle SAC	002280	11km southwest of PDS	<p>Habitats</p> <ul style="list-style-type: none"> • Perennial vegetation of stony banks [1220]
Sheep’s Head SAC	000102	11.5km northwest of PDS	<p>Habitats</p> <ul style="list-style-type: none"> • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]

Designated Site	Site Code	Proximity of Designated Site to Nearest Point of Subject Site	Qualifying features of conservation interest
			<ul style="list-style-type: none"> European dry heaths [4030] <p>Species</p> <ul style="list-style-type: none"> Kerry Slug (<i>Geomalacus maculosus</i>) [1024]
Reen Point Shingle SAC	002281	13.5km southwest of PDS	<p>Habitats</p> <ul style="list-style-type: none"> Perennial vegetation of stony banks[1220]
Sheep’s Head to Toe Head SPA	004156	21.7km to the southwest of the PDS	<p>Species</p> <ul style="list-style-type: none"> Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]
Beara Peninsula SPA	004155	25.8km to the west of the PDS	<p>Species</p> <ul style="list-style-type: none"> Fulmar (<i>Fulmarus glacialis</i>) [A009] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]
Glengarriff Harbour and Woodland SAC	000090	7.5km to the northwest of the PDS	<p>Habitats</p> <ul style="list-style-type: none"> Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] <p>Species</p> <ul style="list-style-type: none"> Kerry Slug (<i>Geomalacus maculosus</i>) [1024] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] Otter (<i>Lutra lutra</i>) [1355] Harbour Seal (<i>Phoca vitulina</i>) [1365] Fulmar (<i>Fulmarus glacialis</i>) [A009]

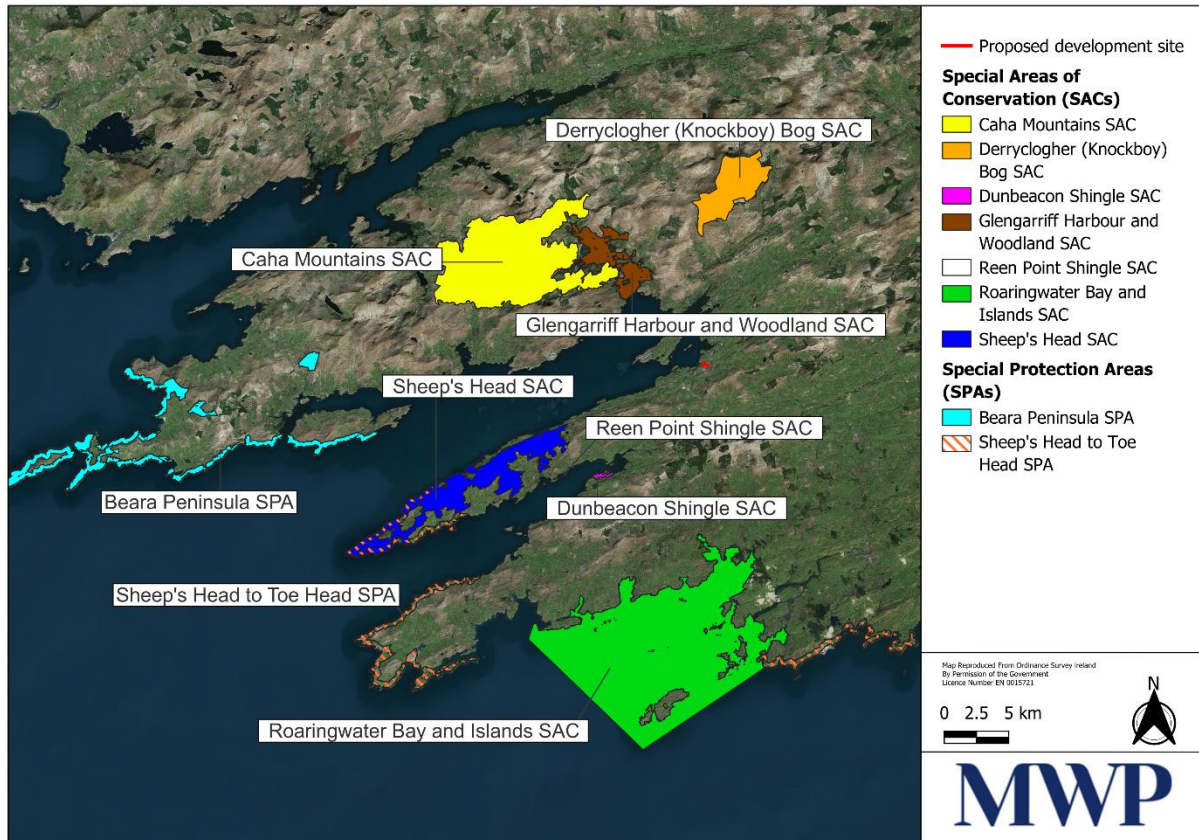


Figure 3: Natura 2000 network within potential ZOI of the proposed works.

6.1.2 Sites of National Importance

Natural Heritage Areas (NHA's) and proposed Natural Heritage Areas (pNHAs) are sites of national importance designated under the Wildlife Acts 1976 to 2010, as amended. These sites are important for the protection of habitats, flora, fauna, and geological sites of national importance. No current legal protection for pNHAs is in place until consultative processes have been completed.

In accordance with the precautionary principle, nationally designated sites within 10 kilometres of the proposed development are deemed to be within the potential ZOI. With regards to the nature and scale of the project, NHA's located outside the ZOI are considered unlikely to experience impacts from the proposed works.

Mapping of the sites determined that there were no NHA's within a 10km radius of the proposed site.

The following pNHAs are situated within 10km of the proposed site.

- Cusroe, Whiddy Island (000110) (2.5km west)
- Glengarriff Harbour and Woodland (000090) (7.6km northwest)
- Domestic Building Near Glengarriff (002049) (8.2km northwest)
- Loughavaul (000098) (9.1km northwest)
- Sheelane Island (001977) (9.1km west)
- Derryclogher (Knockboy) Bog (001873) (9.8km north)

The Glengarriff Harbour and Woodland pNHA overlaps with the Glengarriff Harbour and Woodland SAC, which has been assessed as part of the Natura 2000 network in the **Screening for Appropriate Assessment Report** for this project.

The Cusroe, Whiddy Island pNHA (site code: 000110) is located 2.5km west of the proposed works. This site consists of a gravel spit on the south-east part of Whiddy Island where a colony of Arctic Terns have been recorded since 1864, albeit with fluctuating success. This site was considered initially due to distance; however, the proposed works site does not contain any suitable habitat for seabirds and in consideration of the standard measures in place such as damming so that works are undertaken entirely in the dry, there is no pathway for potential significant impacts to occur which may impact seabirds.

Consequently, there are no connections between the proposed site and the following pNHAs:

- Cusroe, Whiddy Island (000110) (2.5km west)
- Glengarriff Harbour and Woodland (000090) (7.6km northwest)
- Domestic Building Near Glengarriff (002049) (8.2km northwest)
- Loughavaul (000098) (9.1km northwest)
- Sheelane Island (001977) (9.1km west)
- Derryclogher (Knockboy) Bog (001873) (9.8km north)

6.1.3 Additional Sites

The Convention on Wetlands of International Importance especially as Waterfowl Habitat, more commonly known as the Ramsar Convention, was ratified by Ireland in 1984 and came into force for Ireland on 15th March 1985. Ireland presently has 45 sites designated as Wetlands of International Importance, with a surface area of 66,994 ha.

There are no RAMSAR sites located in the vicinity of the proposed works site, the nearest being the Gearagh SAC which incorporates the RAMSAR site (RAMSAR site no. 472) located c. 40 km northeast of the proposed site.

The Important Bird and Biodiversity Areas (IBAs) Programme, overseen by Birdlife International, aims to identify, conserve and protect those areas throughout the world considered to be of the greatest significance to bird populations⁹. Bird Life International has produced a compendium of Important Bird Areas (IBAs) in Europe. The IBA programme of BirdWatch Ireland is a worldwide initiative aimed at identifying and protecting a network of critical sites of importance for birds. There are 105 IBAs on the island of Ireland in which the majority support wintering water birds. IBAs in the vicinity of Bantry Bay are located in the outer bay area and include Beara peninsula and Sheep's Head and Mizen Head peninsulas. These IBAs have overlap with European site SPAs including Beara Peninsula SPA (designated for Fulmar and Chough) and Sheep's Head to Toe Head SPA (designated for Peregrine and Chough). These sites were considered as part of the **Screening for Appropriate Assessment Report** and were considered to be outside the ZOI for the proposed works.

There were no Bird Reserves or National Parks identified within the potential ZOI of the proposal¹⁰.

⁹ Further information available at: <http://www.birdlife.org/worldwide/programmes/important-bird-and-biodiversity-areas-ibas>. Accessed [06/03/24].

¹⁰ Further information available at www.npws.ie. Accessed [12/08/24].

6.1.4 Evaluation of Designated Sites as Ecological Receptors

The **Screening for Appropriate Assessment report** concluded that the proposed development is unlikely to adversely affect (either directly or indirectly) the integrity of European sites within the vicinity of the proposed works area. Therefore, if there is no potential for impacts on European sites, the NHAs/pNHAs with spatial overlap with European sites are equally as unlikely to be impacted by the proposed development.

Cusroe, Whiddy Island pNHA is not ecologically linked to the proposed works with regard to its ecological features of interest and considering source pathway where standard measures are implemented and buffering capacity and dilution effect of the intervening waterbody of inner Bantry bay, there is no potential impact pathway through which significant effects could ensue.

Therefore, significant effects on these sites as a result of the proposed works are unlikely to occur. These sites are therefore not considered to comprise IEFs in relation to the project and will not be considered further in this evaluation.

6.2 Habitats

The desk study determined the habitats within the footprint and with connection to the proposed works location. Habitats identified within the entire proposed development site are provided in **Figure 4**.

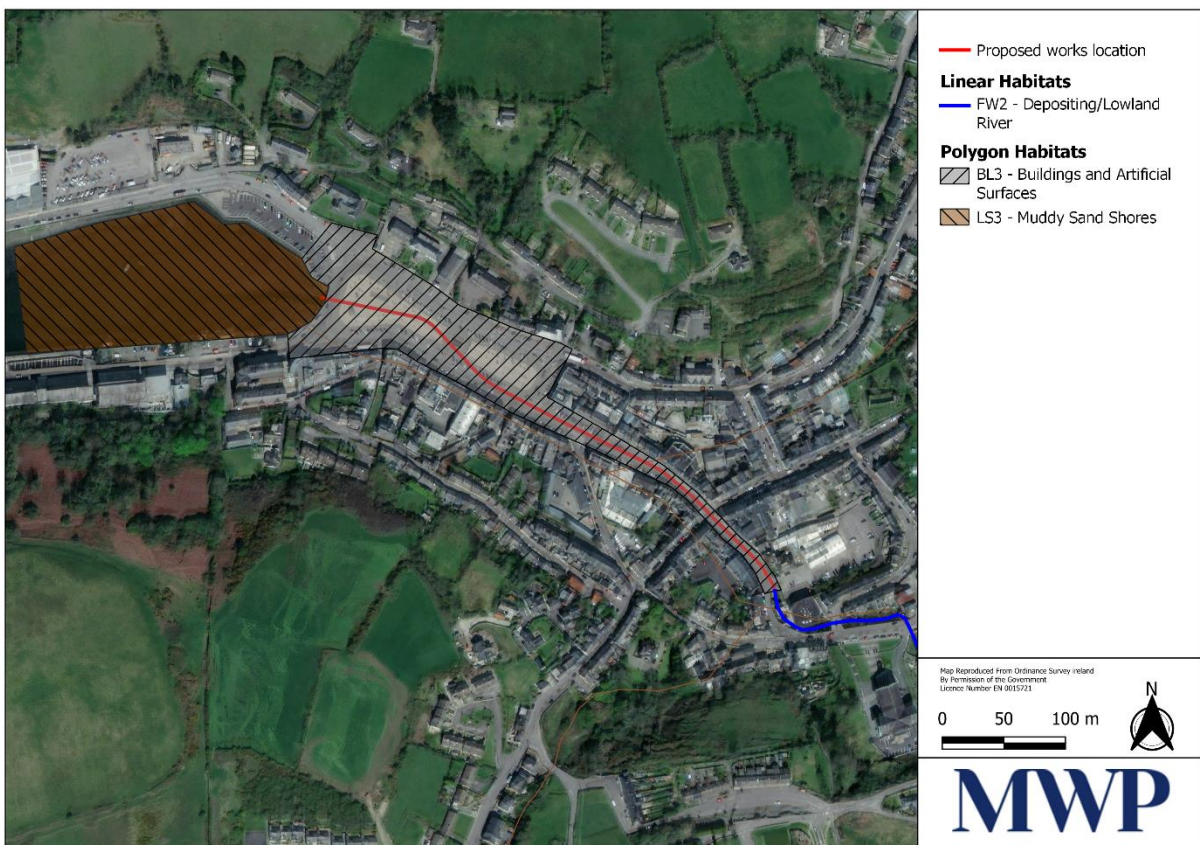


Figure 4: Habitats identified in the vicinity of the Mill culvert

6.2.1 Habitats

No Annex I habitats listed under the Habitats Directive were noted within the study site. No botanical species protected under the Flora (Protection) Order 2015, listed in Annex II or IV of the EU Habitats Directive (92/43/EEC) were recorded.

Habitats present within the proposed site are described below following Fossitt (2000) characterisation. A habitat map is presented in **Figure 4** in and photographs of habitats identified are presented in **Plate 1** to **Plate 5**.

The only habitat within the proposed development site is buildings and artificial surfaces. There is no overlap between the extent of works footprint and any European sites.

6.2.1.1 Buildings and artificial surfaces (BL3)

The entire length of the proposed works are located under artificial surfaces comprising the streetscape of Bantry, Co. Cork. The proposed works are undertaken entirely within this habitat and will result in the excavation of the culvert ceiling in order for appropriate works to be carried out. All properties in the vicinity are set back from the proposed works and no demolition of buildings are proposed. The subterranean culvert broadly follows the same route as the Bridge street to New street route which runs southeast to northwest towards Bantry marina.



Plate 1: Streetscape viewing southeast on New Street towards Bridge Street (Left). Pedestrianised area on Wolfe Tone Square.

6.2.1.2 Depositing/lowland river (FW2)

The River Mealagh, which feeds into the culvert at the Bantry library on Bridge Street has an approximate width of ca. 2-3m. Substrates are a mix of soft sediments and gravels. Flows at normal river level are typically glide-pool sequences however falls do occur on the course due to the high gradient of the area. Watercourse flow was the same during surveying on the 9th of February 2024 and the 19th of June 2024.

The river corridor in the watercourse upstream of the culvert entrance reflected a high gradient, highly modified watercourse, with bedrock, boulder and gravel substrates. Channel width was variable, approx. 3-5m in width. Significant silt deposits upstream of the mill wheel occurred where water was impounded and flow was slower. These areas might have indicated suitable habitat for juvenile lamprey however this area was not accessible to migrating fish. Flow was primarily glide, though there were two falls located upstream of the culvert entrance with one natural fall located approximately 15m upstream of the library whilst a weir is located just south of the library which creates an impasse for fish species moving upstream. The river is highly modified on both banks

upstream of the culvert entrance. Faunal species noted within the river were limited to trout (*Salmo trutta*) which were isolated to the pool located just downstream of the weir at the waterwheel.

Watercress species (*Nasturtium* spp.) were common in slow-moving waters above the weir. Bank-side vegetation included waterweed species (*Elodea* spp.), marginally located brooklime (*Veronica beccabunga*) and hemlock water-dropwort (*Oenanthe crocata*) were also present above the weir. The sudden change in elevation, depth of receiving pond and bedrock substrate prohibited the growth of species below the weir prior to flowing underground.



Plate 2: River Mealagh (left) on 19th of June, facing upstream; right bank highly modified with wall installation whilst left bank left relatively natural. Weir installed on River Mealagh (right) facing downstream with library on right.



Plate 3: View upriver from weir (left), view of pond below weir (right). Entrance to culvert can be seen in right background.

6.2.1.3 Muddy Sand Shores (LS3)

The culvert exits onto soft sediments with a high mud and sand fraction and intermittent outcropping of bedrock c. 10 -15m from culvert exit. This habitat is reflected over the majority of the inner marina area. Due to its low gradient and the latent sheltered conditions, there is very little vertical zonation reflected in the area. Wrack seaweed species were located throughout with species including channelled wrack (*Pelvetia canaliculata*), spiralled wrack (*Fucus spiralis*), and egg wrack (*Ascophyllum nodosum*). The majority of seaweeds are limited to areas with outcropping of hard substrates where they can attach with holdfasts. The entire inner marina area is

submerged at high tide. Birds noted at site included a single oystercatcher (*Haematopus ostralegus*), a pair of whooper swans (*Cygnus cygnus*), and little egret (*Egretta garzetta*). More common species present included jackdaw (*Coloeus monedula*), hooded crow (*Corvus cornix*), and common gull (*Larus canus*). Infaunal species were limited to errant polychaetes of the Phyllodocida, surf clam (*Spisula* spp.), prawns (*Palaemon* spp.) and a single crab (*Carcinus* spp.). Barnacles (*Semibalanus balanoides*) and periwinkles (*Littorina littorea*) were common on hard substrates. The main channel which carries outfall from the culvert provides some flow continuously, even at low tides, which creates a central channel with sediments of larger particle size including stones and cobble as finer sediments have relatively little opportunity to settle. Sea lettuce (*Ulva fenestrata*) and red hornweed (*Ceramium virgatum*) were common in the central channel and fish species were limited to stickleback (*Gasterosteus aculeatus*) and goby (*Gobius cruentatus*). With regard to the JNCC marine habitat classification, the marina exhibits strong characteristics of Littoral mixed sediment marine habitat (LS.LMx).



Plate 4: View of south (left) and north (right) views of the marina from over the culvert exit.



Plate 5: Green and red seaweeds in central channel (left), goby sheltering amongst larger stones in central channel (right)

6.2.1.4 Annex I Habitats

Though Muddy sand shore LS3 can have links to the habitat 'mudflats and sandflats not covered by sea water at low tides (1140)', this area of highly modified sediments do not represent links to habitat of value considered under the Habitats Directive. Consequently, no Annex I habitats were identified throughout the ecological walkover surveys undertaken throughout the proposed projects length.

6.3 Fauna Results

6.3.1 Non-volant Terrestrial Mammals

Results from the NBDC online database records for terrestrial fauna are described in **Table 5**. As the works are limited to an urban area, with connections downstream to a highly modified coastal/marine environment, there is reduced risk to terrestrial fauna due to a lack of pathway for impacts to arise. Marine mammal records were available and are presented in **Table 6**.

6.3.1.1 Desk Study

The proposed development site is located within the 10km hectad V94. Results of the NBDC online database for non-volant terrestrial mammals records only Otter (*Lutra lutra*) within V94. Otter is designated under Annex II of the Habitats Directive. Results from the NBDC data request for rare and protected fauna is provided in **Table 5**.

Table 5: Desktop NBDC records of non-volant terrestrial mammal species within hectad V94.

Common Name	Species Name	Desk Source	Study	Legal Protection	Conservation Status
European Otter	<i>Lutra lutra</i>	NBDC		Annex II/V of Habitats Directive, Wildlife Acts (1976 & 2000 as amended).	Least Concern

6.3.1.2 Field Study

No evidence of otter was recorded within the culvert or environs of marine area during surveys undertaken in February and June 2024. Though otters are found throughout Ireland in a range of habitat types, the underground culvert does not represent suitable or feasible habitat for otters as the walls of the culvert are constructed, there is no soft sediment in the walls which could be dug out for the creation of a holt. In the marina area, where the culvert exits, coastal otters may forage in these areas, however the shoreline is entirely surrounded by steep rock and built wall so access to the shoreline is relatively limited from Bantry town due to intervening road network and walls. Upstream of the culvert, fish species were limited to trout in the environs of the town. Modification of the river within the town and limited prey availability limits the potential for otter to forage within the town. Otters may forage higher in the catchment where more natural conditions are likely. A pre-construction survey is not recommended as part of these works.

6.3.2 Aquatic Mammals

6.3.2.1 Desk Study

The NBDC dataset results for marine mammals records 2 protected species for hectad V94 and is limited to 2 pinniped species common seal (*Phoca vitulina*) and grey seal (*Halichoerus grypus*). There were 103 record counts of common seal and 2 records of grey seal within the V94 hectad.

Common seal and grey seal are resident in Irish waters. Harbours and estuaries are known to provide an adequate food source for common seal including resting areas within their range such as mudflats and sandbanks. Grey seal foraging habitats are similar to common seal; however, grey seal resides within the continental shelf, including rock and cliff shores¹¹. It is considered that the proposed development will not significantly affect any habitats of importance to seal species identified **Table 6**. There is currently no Irish Red List for marine mammals.

Table 6: Desktop NBDC records of marine mammal species within hectad V94.

Common Name	Species Name	Legal Protection
Common Seal	<i>Phoca vitulina</i>	Annex II/V of Habitats Directive, Wildlife Acts (1976 & 2000 as amended).
Grey Seal	<i>Halichoerus grypus</i>	Annex II/V of Habitats Directive, Wildlife Acts (1976 & 2000 as amended).

6.3.2.2 Field Survey

No sightings or field sings of marine mammals were recorded during walkover surveys in February and June 2024. Due to the highly modified nature of the proposed works and marina, the presence of mammals within the works area is not considered likely.

6.3.3 Bats

6.3.3.1 Desk Study

The desk study and walkover surveys provided baseline information for evaluating bat potential of the site’s landscape. The publicly available NBDC data set for bat landscapes informed the basis for bat habitat suitability index (BHSI) of the site and surrounding landscape prior to surveying. Features of ecological importance for bat species including potential roost habitats and foraging/commuting habitats were documented where they occurred.

The Lesser horseshoe bat is further listed under Annex II of the Habitats Directive in which core areas of their habitat must be protected within the Natura 2000 network of protected sites. There were 24 records of lesser horseshoe bat within the V94 hectad. Other bats recorded in the V94 hectad by NBDC include 42 counts of Brown Long-eared bat, 130 counts of Common Pipistrelle, 109 counts of Soprano Pipistrelle, 51 counts of Lesser Noctule, and a single record of Natterer’s Bat.

An overall BHSI value of 28.33 out of 100 for the ‘all bats’ category (NBDC, 2020) for hectad V94 in which the proposed site is situated. The value suggests a landscape with relatively low bat habitat suitability for the proposed development site according to the Model of Bat Landscapes of Ireland, compiled in Lundy et. al. (2011).

The NBDC BHSI results for all bat species and individual bat species are presented in **Table 7**. The highest rating value for any individual bat species is 49 and majority of species ranged between a rating value of 30-40. These ratings, while not predicative, provide meaningful metrics that characterise the probable value of the area within and surrounding proposed site to bat species. They are an indicator as to the likelihood that different bat species are, or are not, likely to, typically, be a significant presence in the area within and around the proposed site. This

¹¹ Information on pinnipeds available at www.conserveireland.com. Accessed [26/03/24].

likelihood, in turn, indicates the probability that bats may use areas within the proposed site. The landscape within the area is diverse, consisting of an urban area at Bantry, pasture, and coastline areas; all of which may contain roost features for bat species. The proposed site area is located entirely within the urban area and is limited to ground works entirely and therefore all works are located in an area with low value to all bat species. No buildings or mature trees are proposed to be removed as part of the works and therefore any potential habitat for bats does not exist within the proposed works area.

The number of records within the V94 hectad is not reflected similarly in the habitat suitability score for lesser horseshoe bat in the area (9), however this may be due to the bat landscape unit reflecting a 6km² area compared to the 10km² area reflected by hectad V94. The bat suitability for the area to the east-southeast of the 6km² area wherein the subject site is located has a higher index score for lesser horseshoe bat, albeit a very small increase (10).

Table 7: NBDC Bat Habitat Suitability value ratings for environs of subject site.

Common Name	Species Name	Habitat Suitability Overall: 28.33
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	40
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	40
Brown long-eared bat	<i>Plecotus auritus</i>	49
Leisler’s bat	<i>Nyctalus leisleri</i>	31
Whiskered bat	<i>Myotis mystacinus</i>	12
Natterer’s bat	<i>Myotis nattereri</i>	38
Daubenton’s bat	<i>Myotis daubentonii</i>	33
Nathusius’ pipistrelle	<i>Pipistrellus nathusii</i>	3
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	9

6.3.3.2 Field Survey Results

No potential roosting features were identified within the proposed development site. The culvert itself is frequent to flooding and is therefore not suitable for roosting bats to utilise. No building demolitions will be required as part of the proposed works.

6.3.4 Amphibians and Reptiles

6.3.4.1 Desk Study

The NBDC dataset for amphibian records two species for hectad V94, common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*). The most recent record of common frog was in 2020 whilst a single record of smooth newt was recorded in 2018.

6.3.4.2 Field Survey Results

The proposed site does not contain any suitable habitat for amphibian species. There were no sightings or evidence of amphibians within the proposed site during surveys in February or June 2024.

6.3.5 Birds

6.3.5.1 Desk Study

All breeding bird species are protected under the Wildlife Acts 1976/2000. Raptors are given further protection under the fourth schedule of the Wildlife Acts. Wintering waders are protected under the EU Birds Directive as too are a number of other raptors, waders, ducks, geese and swans. The NBDC online records for bird species previously recorded in hectad V94 are provided in **Table 8**. Protected bird species listed under the Birds Directive, Wildlife Acts, including Birds of Conservation Concern Ireland¹² are also provided in **Table 8**.

Table 8: NBDC records for bird species identified within hectad V94.

Common Name	Species name	BoCCI Conservation Status	Legal Protection* ¹³
Common Coot	<i>Fulica atra</i>	Amber listed	Annex II (HD), Annex III (BD), WA
Common Goldeneye	<i>Bucephala clangula</i>	Amber listed	Annex II, WA
Common Pheasant	<i>Phasianus colchicus</i>	-	Annex II & III, WA
Common Pochard	<i>Aythya ferina</i>	Amber listed	Annex II/III, WA
Common Scoter	<i>Melanitta nigra</i>	Red listed	Annex II (BD)
Common Snipe	<i>Gallinago gallinago</i>	Amber listed	Annex II & III, WA
Common Wood Pigeon	<i>Columba palumbus</i>	-	Annex II & III, WA
Eurasian Curlew	<i>Numenius arquata</i>	Red listed	Annex II, WA
Eurasian Teal	<i>Anas crecca</i>	Amber listed	Annex II/III, WA
Eurasian Wigeon	<i>Anas penelope</i>	Amber listed	Annex II/III, WA
Eurasian Woodcock	<i>Scolopax rusticola</i>	Amber listed	Annex II & III, WA
Goosander	<i>Mergus merganser</i>	Amber listed	Annex II (BD)
Greater Scaup	<i>Aythya marila</i>	Amber listed	Annex II/III, WA
Mallard	<i>Anas platyrhynchos</i>	-	Annex II & III, WA
Northern Lapwing	<i>Vanellus vanellus</i>	Red listed	Annex II (BD), WA
Red-breasted Merganser	<i>Mergus serrator</i>	-	Annex II, WA
Tufted Duck	<i>Aythya fuligula</i>	Amber listed	Annex II/III, WA

*Annex status (EU Habitats Directive), WA (Wildlife Acts 1976 & 2000 as amended), OS (OSPAR Convention).

¹² Information on Birds of Conservation Concern are available at birdwatchireland.ie.

¹³ Species protected under Annex II of the Habitats Directive (92/43/EEC), Birds Directive (2009/147/EEC), and Wildlife Acts (as amended).

6.3.5.2 Field Survey Results

A qualitative bird survey was undertaken on the 19th of June 2024. Birds were only observed in and around the marina area where gulls and jackdaw were the most common species where they foraged near the car park to the north of the marina. On the shore itself, a single oystercatcher and a pair of whooper swans were observed foraging at low tide. On the evening of the 18th of June, a single little egret was observed on the shore. The marina is likely the only area utilised for foraging birds. The culvert is underground, with immediate limited visibility on entry, with limited prey availability and prone to flooding; consequently, birds are not likely to occur within the culvert. No avian species are dependent on the habitats located within the proposed works area.

6.3.6 Other Taxonomical Group

6.3.6.1 Desk Study

Invertebrates and fish species are described independently below and information is included on the conservation status and legal protection of species, where available.

6.3.6.1.1 Invertebrates

An online search of the NBDC database for other taxonomical species of conservation interest holds eleven records for invertebrates. Of the eleven species identified, four are considered ‘Near Threatened’, two species are ‘Vulnerable’, one ‘Endangered’ whilst none were considered ‘Critically Endangered’. The status of the remaining two species was data deficient. Species and statuses are presented in **Table 9**. There were three Annex II species listed, marsh fritillary (*Euphydryas aurinia*), freshwater pearl mussel (*Margaritifera margaritifera*), and Kerry slug (*Geomalacus maculosus*). The latest record of Kerry slug was in 2022 and was identified in Derrycarhoon, Co. Cork, approximately 8km south of the proposed works. All other records of the species from V94 were also located close to this record for a total of three records in the hectad. No records of Kerry slug was recorded in Bantry or environs. Two records of freshwater pearl mussel were recorded in V94 with the latest being recorded in 2009. The exact location of the record was not available, though the Mealagh stream is unlikely to contain the species due to a lack of suitable habitat. Thirteen records of the marsh fritillary were noted in V94, the latest of which was taken in 2023. Similar to freshwater pearl mussel, the exact location could not be mapped, though the most recent record was recorded in Dromreagh townland, Co. Cork close to the head of Dunmanus Bay, located c. 10km south of Bantry Bay.

Table 9: NBDC records for invertebrate species identified within hectad V94.

Common Name	Species Name	Legal Protection	Conservation Status
Gatekeeper	<i>Pyronia tithonus</i>	N/A	NT
Marsh Fritillary	<i>Euphydryas aurinia</i>	Annex II	VU
Wall	<i>Lasiommata megera</i>	N/A	EN
Small heath	<i>Coenonympha pamphilus</i>	N/A	NT
Grayling	<i>Hipparchia semele</i>	N/A	NT
Scarce Blue-tailed Damselfly	<i>Ischnura pumilio</i>	N/A	VU
Wilke’s mining bee	<i>Andrena Taeniandrena wilkella</i>	N/A	NT
Northern white-tailed bumblebee	<i>Bombus (Bombus) magnus</i>	N/A	NT
Painted mining bee	<i>Andrena fucata</i>	N/A	NT

Common Name	Species Name	Legal Protection	Conservation Status
Kerry slug	<i>Geomaculus maculosus</i>	Annex II	NT
Freshwater pearl mussel	<i>Margaritifera margaritifera</i>	Annex II	NT

6.3.6.1.2 Fish Species

The NBDC database search holds a single record for European Eel (*Anguilla Anguilla*) in hectad V94, recorded in 2022 at the Gearhies on the southern shore of Bantry Bay, approximately 9km southwest of the mouth of the culvert. Other fish species recorded in V94 include: Butterfish (*Pholis gunnellus*), Common Goby (*Pomatoschistus microps*), Corkwing Wrasse (*Symphodus (Crenilabrus) melops*), Cornish clingfish (*Lepadogaster purpurea*), Stickleback (*Spinachia spinachia*), Five-bearded Rockling (*Ciliata mustela*), Montagu's Blenny (*Coryphoblennius galerita*), Red Band-fish (*Cepola macrophthalma*), Sand-eels (Ammodytidae), Shanny (*Lipophrys pholis*), Worm Pipefish (*Nerophis lumbriciformis*), Lesser spotted dogfish (*Scyliorhinus canicular*) and Nursehound (*Scyliorhinus stellaris*).

6.3.6.2 Field Survey Results

6.3.6.3 Intertidal survey

Soft sediments were characterised by errant polychaetes and bivalves with instances of crab occurring (**Table 10**). Species composition did not appear to change significantly between sites highlighting the uniformity across the area. Visual inspection of sediments indicated that all samples had a full redox depth, i.e., that oxygen had fully penetrated the sediment layer to dug depth. All samples had a strong odour of clay and organic matter, a similar odour to decaying leaf matter or petrichor, which possibly reflects the relatively low energy of the area and low flushing potential from wave action and tidal regime. Wrack seaweed species were located throughout the shore, with relatively higher proportions at sites away from the central channel of the culvert where ulva and red hornweed were more prominent (**Table 11**). The majority of seaweeds are limited to areas with outcropping of hard substrates where they can attach with holdfasts. Soft sediments fractions reflected a somewhat uniform grain size between sites, broadly muds and sands with a lesser or even proportion of gravel (**Table 12**). Sampling locations in relation to the existing culvert are shown in **Figure 5**.

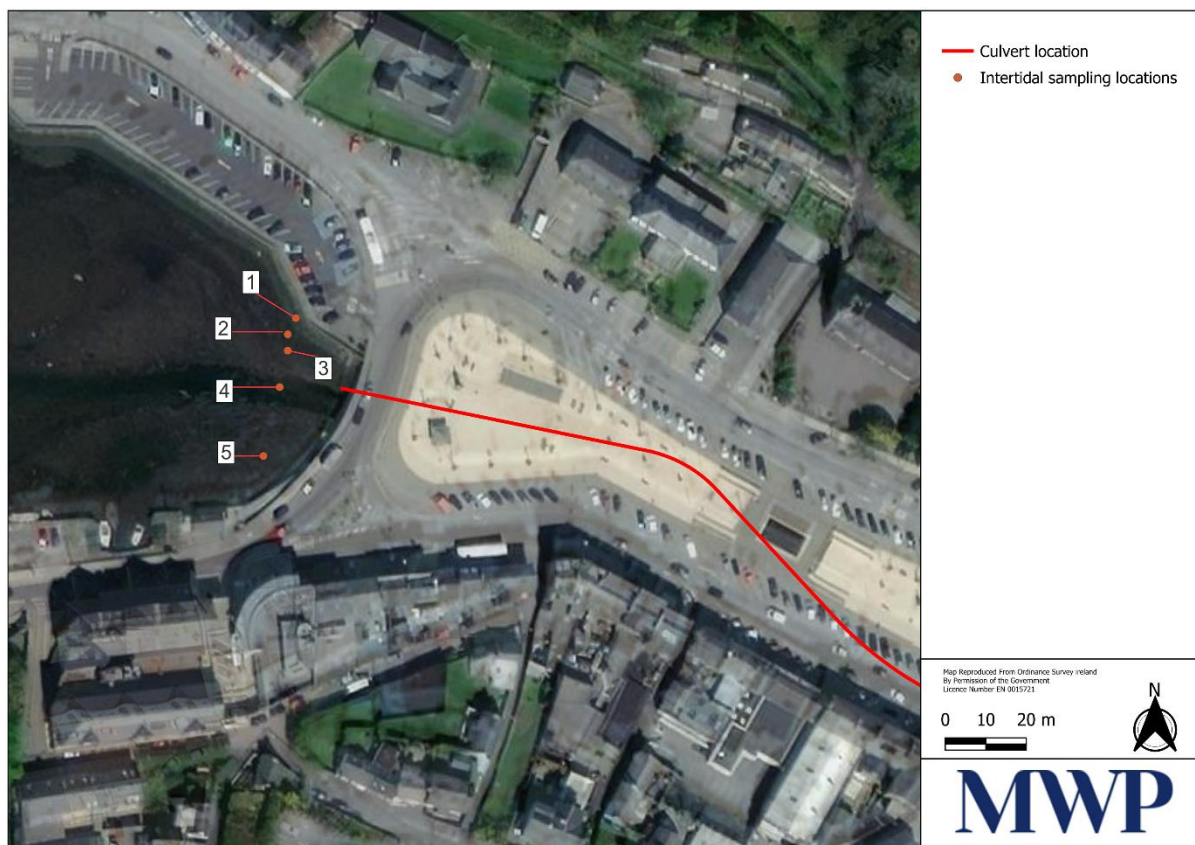


Figure 5: Intertidal survey locations in Bantry marina.

Table 10: Survey results for intertidal species recorded in soft sediments.

Survey Location	Colour	Smell	Texture	Species Name	No. of specimen recorded
1	Grey-brown	Clayey high mineral	Fine gravel sand	<ul style="list-style-type: none"> Phyllodocidae spp. <i>Spisula</i> sp. 	15 2
2	Grey-brown	Clayey high mineral	Fine gravel sand	<ul style="list-style-type: none"> Phyllodocidae spp. <i>Spisula</i> sp. 	16 1
3	Grey-brown	Clayey high mineral	Fine gravel sand	<ul style="list-style-type: none"> Phyllodocidae spp. 	28
4	Brown	Clayey organic	Clay	<ul style="list-style-type: none"> Phyllodocidae spp. <i>Carcinus</i> sp. <i>Palaemon</i> spp. 	8 1
5	Grey-brown	Clayey high mineral	Gravelly clay	<ul style="list-style-type: none"> Phyllodocidae spp. 	19

Table 11: Survey results for intertidal algal species

Survey Location	Seaweed species	Proportional algal cover (%)
1	Channelled wrack (<i>Pelvetia canaliculata</i>)	50
	Sea lettuce (<i>Ulva fenestrata</i>).	40
	Spiralled wrack (<i>Fucus spiralis</i>)	10
2	Red hornweed (<i>Ceramium virgatum</i>)	5
	Channelled wrack (<i>Pelvetia canaliculate</i>)	95
3	Red hornweed (<i>Ceramium virgatum</i>)	5
	Channelled wrack (<i>Pelvetia canaliculata</i>)	95
4	Sea lettuce (<i>Ulva fenestrata</i>)	40
	Channelled wrack (<i>Pelvetia canaliculata</i>)	30
	Ascophyllum nodosum	40
5	Sea lettuce (<i>Ulva fenestrata</i>)	40
	Channelled wrack (<i>Pelvetia canaliculata</i>)	30
	Egg wrack (<i>Ascophyllum nodosum</i>)	40

Table 12: Survey results of proportional cover (%) of various sediments recorded within quadrats

Substrate Type	Site 1	Site 2	Site 3	Site 4	Site 5
Bedrock				5	
Boulders					
Cobble			5		
Gravel	35	35	15	15	35
Shell					5
Sand	20	20	10	10	25
Mud	40	40	70	70	35

6.3.6.3.1 Fish Habitat Survey

No lamprey were recorded during sampling efforts upstream of the culvert.

6.3.7 Non-native/Invasive Flora and Fauna Results

Results from the NBDC online database for Non-native/Invasive flora and Non-native/Invasive fauna are described independently below.

6.3.7.1 Desk Study

The NBDC online records for non-native/invasive species previously recorded in hectad V94 are listed in **Table 13**. Faunal species were limited to flatworms, estuarine crustaceans, a single marine bryozoan species, and a single species of sea squirt.

There was one record of a Third Schedule listed species occurring within V94 with a risk of High Impact, a hybrid species of *Fallopia japonica* and *Fallopia sachalinensis* regarded as *Fallopia x. bohémica*, however the single record of this occurring in V94 is approximately 20km to the southwest of the proposed works area.

Table 13: NBDC records for non-native/invasive flora and fauna species identified within hectad V94.

Species Common Name	Scientific name	Closest Species Record to the Proposed Development Site	Invasiveness Impact threat NBDC ¹⁴	Listed on Regulation S.I. 477 ¹⁵
Canadian Arrowhead	<i>Sagittaria rigida</i>	7km south of PDS	N/A	No
Fallopia japonica x sachalinensis = F. x bohémica	<i>Fallopia x bohémica</i>	20km southwest of PDS	High	Third Schedule Listed
Dead Man's Fingers	<i>Codium fragile</i>	N/A	N/A	No
Harvey's Siphon Weed	<i>Polysiphonia harveyi</i>	9.1km northwest of PDS	N/A	No
Southern Sea Lettuce	<i>Ulva australis</i>	10.2km southwest of PDS	N/A	No
Landhopper	<i>Arcitalitrus dorrieni</i>	5.2km southwest of PDS	Medium	No
Modest barnacle	<i>Elminius modestus</i>	950m north of PDS	Medium	No
Australian flatworm	<i>Austroplao sanguinea</i>	5.2km southwest of PDS	Medium	No
Kontikia flatworm species	<i>Kontikia andersoni</i>	5.2km southwest of PDS	Medium	No
Kontikia flatworm species	<i>Kontikia ventrolineata</i>	5.2km southwest of PDS	Medium	No
Bryozoan	<i>Tricellaria inopinata</i>	10.2km southwest of PDS	N/A	No

¹⁴ National Biodiversity Data Centre – Species Profile available at <https://maps.biodiversityireland.ie/Map>.

¹⁵ Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended).

Species Common Name	Scientific name	Closest Species Record to the Proposed Development Site	Invasiveness Impact threat NBDC ¹⁴	Listed on Regulation S.I. 477 ¹⁵
Lister’s didemnid	<i>Diplosoma listerianum</i>	10.2km southwest of PDS	N/A	No

6.3.7.2 Field Survey Results

No invasive plant or faunal species were identified during surveying undertaken on February 9th and June 19th, 2024.

7. Identification and Evaluation of Habitats, Flora and Fauna as Important Ecological Features (IEFs)

The habitats and associated flora, fauna and other ecological features or resources identified in **Section 6.2** and **Section 6.3** will now be evaluated based on their local, national and international conservation importance using the evaluation criteria described in **Section 4.1**.

Following these evaluations, an assessment will then be made as to which of these habitats and/or species are considered to be IEFs that may be impacted upon by the project i.e., which habitat and/or species has the potential to be significantly impacted during the construction or operational phase of the proposed works.

7.1 Habitats

The following table (**Table 14**) describes and evaluates the significance of unmitigated impacts to habitats identified as IEF's during the repair works to be undertaken as part of the proposed works to Bantry Mill Culvert, in Bantry, Co. Cork. The table presents an evaluation of the ecological value/importance of the habitats identified within the receiving environment of the proposed development, and rationale for inclusion, or exclusion, as an IEF.

Table 14: Evaluation of habitats within the proposed development site.

Habitat type	Ecological value relative to the works site (NRA, 2009)	Important Ecological Feature (Y/N)	Rationale
Buildings and artificial surfaces (BL3)	Local Importance (lower value)	No	Artificial manmade habitat. Existing roads and built-up areas low biodiversity value.
Depositing/lowland river (FW2)	Local Importance (lower value)	No	Modified river channel with a direct hydrological connection to the proposed development site. However, habitat is located outside and upstream of the works and consequently there is no likelihood of impact occurring to habitat located upstream. Habitat has potential to support limited fish species.
Muddy Sand Shores (LS3)	Local Importance (lower value)	No	Coastal habitat incorporating most of the sediments in the marina area. Grab samples undertaken revealed a community of bivalves and errant polychaetes with low richness. Habitat utilised at low tide for wading birds and gulls and is the only receiving habitat with connection to the project.

7.2 Fauna

The following table (**Table 15**) presents an evaluation of the ecological value/importance of the faunal species identified as occurring or having the potential to occur within the receiving environment of the proposed development and rationale for inclusion, or exclusion, as an IEF.

Table 15: Evaluation of faunal species in relation to the proposed works

Species	Ecological value relative to works site (NRA, 2009)	Important Ecological Feature (Y/N)	Rationale
Otter (<i>Lutra lutra</i>)	Local Importance (lower value)	No	Stream upstream of proposed works area is likely too small and poor regarding prey availability to support otter. Works area is limited to underground culvert which does not support otter as a habitat. No evidence of otter within or adjacent to site during surveying. Underground, urban location of works in culvert unlikely to affect otter.
Marine mammals	Local importance (higher value)	Yes	Marine mammals, particularly pinnipeds (seals), are far ranging in search of prey species. Those that occur in Glengarriff Harbour may occur in the inner Bantry marina area. No marine mammals were identified in the marina area during surveying.
Amphibians & reptiles	Local Importance (lower value)	No	No potential spawning/breeding habitat for amphibians in areas close to the culvert. No evidence of these species recorded within the site. Works unlikely to affect amphibians and reptiles.
Birds	Local Importance (higher value)	Yes	A pair of Whooper swans and a single oystercatcher were noted foraging on muddy sandy shore of the marina at low tide, close to the exit of the culvert. No potential for nesting on the shore due to urban location and tidal regime.
Bats	Local Importance (lower value)	No	No habitat present within the works area for bat species. The culvert itself is prone to flooding and is therefore unsuitable for bats roosting.
Marine Invertebrates	Local Importance (lower value)	No	Faunal assemblages limited to species of errant Phyllostocidae, <i>Spisula</i> spp., and crabs. Species are common of relatively low energy habitats such as that in the marina despite its highly modified nature; species are adapted to conditions of modified environment.
Fish species	Local Importance (lower value)	No	No habitat for fish located within the culvert. The culvert is completely covered thus inhibiting primary production for its entire length and therefore no potential for fish to occur. Species at exit of culvert include those which are resilient such as goby and

Species	Ecological value relative to works site (NRA, 2009)	Important Ecological Feature (Y/N)	Rationale
			stickleback. These species are unlikely to be affected by the works to the culvert.

8. Do-nothing Scenario

The proposed development site comprises an existing culvert already in use.

If the proposed development does not progress, it is likely that the current land-use practices will continue at the site; the existing culvert network will be maintained and surrounding urban land use will continue.

9. Potential Impacts of the Project

This section will identify the ecological impacts of the construction and operational phases of the proposed development on the local natural environment.

Potential likely direct, indirect or secondary ecological impacts arising from the proposed development (either alone or in combination with other plans or projects) are identified in this section.

9.1 Construction Phase

The construction phase effects associated with the proposed development will/may comprise the following:

Table 16: Potential construction phase effects associated with the proposed works

Construction Phase Effect	Source
Habitat loss/alteration	Any works associated with construction will be limited to within the habitat designated as 'Buildings and artificial surfaces' (BL3). As this habitat contains no areas of ecological value, there is no risk of habitat loss or alteration. Repairs/works undertaken within the proposed works area will not alter downstream habitats as coastal areas are tidal influenced.
Water quality effects	Sediment/pollutant laden run-off may arise from exposed areas during groundworks and excavations, from material storage areas or from construction vehicles/plant.
Species disturbance/displacement	Increased human presence will be limited to urban streetscape with no ecological value. Works area is limited to groundworks on existing culvert which will not directly disturb or displace any species or habitats. Noise/vibration/lighting associated with construction works and human activity will also be limited to the culvert works area.

9.2 Operational Phase

As the operational phase of the proposed upgrade works are likely to be the same as current operational conditions there are no additional operational phase effects which may arise as a result of the proposed works to the culvert.

9.3 Decommissioning Phase

Effects of a decommissioning phase for this project would be like those of the construction phase (see **Section 9.1**); however, as the construction phase details construction and upgrade works on an already existing structure, i.e., the culvert, decommissioning of works of this nature are likely to solely limited to excavations and removal of wastes. Mitigations for the decommissioning phase are considered in **Section 12.2**.

10. Assessment of Potentially Significant Effects

A significant ecological effect is an effect that undermines biodiversity in general, while in broad terms it is the impact on the structure and function of designated sites, habitats or ecosystems. A significant effect is one that is of sufficient importance to require an assessment so that the decision maker is adequately informed of the environmental consequences of permitting a project (CIEEM, 2018).

10.1 Construction Phase

10.1.1 Potential Impacts to Faunal Species

The following table (**Table 17**) describes the potential construction phase effects on faunal IEFs at the proposed development site, and the significance of the impact.

Table 17: Potential impacts on faunal species identified as IEFs during the construction phase and the significance of the impact

IEF	Ecological value relative to study area (NRA, 2009)	Unmitigated Impacts	Significance of unmitigated impacts (EPA, 2022)
Marine mammals	Local importance (higher value)	<p>Marine mammals in the area are relatively limited to the population of harbour seals designated for the Glengarriff Harbour and Woodland SAC. Breeding, moulting and resting sites for this species are limited to sheltered areas to the west of the SAC and on islands in Glengarriff Harbour. Extensive fish spawning and nursery grounds are located west of Whiddy Island when compared to those present in waters on approach to the marina to the east of the island. Consequently, it is considered unlikely that marine mammals including harbour seal, are going to be significantly effected as a result of the proposed repair and upgrade works to the culvert in Bantry town.</p>	<p>Likely, temporary, not significant, negative effect</p>
Birds	Local importance (higher value)	<p>Birds foraging on the shoreline near the exit to the culvert may be displaced by increased noise during construction phase. Any construction will be limited to the terrestrial culvert end and will not extend onto the shoreline. Construction is anticipated to be carried out in a phased manner and therefore disturbance to birds on the shoreline from increased noise is likely to only occur for brief periods of time of the project’s construction phase. As the shoreline is located close to Bantry urban centre, birds here are likely well-adjusted to periods of increased noise exposure and due to the relatively expansive area for foraging on similar muddy sandy shores in the marina area during low tide, there is suitable foraging area located nearby.</p>	<p>Likely, temporary, not significant, negative effect</p>

10.1.2 Potential Impacts on Water Quality

With regard to the proposal and in considering the conclusion of the Screening for Appropriate Assessment report, there is no potential for direct impacts on the water quality of European sites. Due to being designated for long-ranging species, i.e. harbour seal, the Glengarriff Harbour and Woodland SAC was considered within the zone of influence of the project. Harbour seals may be influenced by changes in siltation loads and pollutants however considering the intervening distance across Bantry Bay, the location of fish spawning and nursery grounds towards the mouth of the greater bay area, and the works being undertaken within the dry of the river due to over-pumping of water at each segment of works there was no consideration for potential significant impacts to occur.

Construction works in general can pose a risk to the aquatic environment via several mechanisms. Excavation works, ground movement and disturbance, storage and stockpiling of materials can result in sediment erosion and run-off which can lead to siltation of the aquatic environment. Use of plant and machinery poses a risk of accidental ingress of fuel, oils, lubricants etc, to the aquatic environment, as does on-site storage of these and other such substances. Use of concrete and other cementitious materials, generation of washout and use of chemicals also poses a risk to water quality. In general, such materials can enter the aquatic environment via direct discharges to drainage features, overland flow and/or leaching to groundwater in the event of a spillage/leakage. Use of temporary on-site welfare facilities will result in the generation of effluent/wastewater.

With regard to potential indirect water quality impacts via siltation, it is considered that the proposed construction works will generate little localised run-off as the works site will be segmented and phased along the length of the proposed culvert length. Water will continue to flow regularly as water upstream of segment will be over-pumped to the downstream end of that construction section and thus water flowing out will not be at risk from construction sedimentation runoff or other impacts from construction phase.

As no element of the project relies on percolation to ground or soakaways, and considering the low direct impact to surface waters, there is reduced risk to groundwaters as a result of the proposed works to the culvert. The majority of the culvert is located in an area designated for low groundwater vulnerability with low subsoil permeability. The proposed works are not located in a groundwater drinking water protection area. Consequently, there is no likelihood of potential impacts to groundwater to occur as a result of the proposed culvert works.

The proposed works have low potential to indirectly affect water quality within the environs of the works due to construction phase effects. All works will be undertaken in segments on the proposed culvert length and as water will be over-pumped upstream of segment to downstream of segment, the works will be undertaken in the dry of the river, therefore effectively no hydrological connection is present for impacts to occur.

It is considered that the construction phase of the proposed project has **Likely, Temporary, Not Significant, Negative Effects** on water quality at the local level.

10.2 Operational Phase

10.2.1 Potential Impacts to Faunal Species

The following table (**Table 18**) describes the potential operational phase effects on faunal IEFs at the proposed development site, and the significance of the impact

Table 18: Potential impacts on faunal species identified as IEFs during the operational phase and the significance of the impact

IEF	Ecological value relative to study area (NRA, 2009)	Unmitigated Impacts	Significance of unmitigated impacts (EPA, 2022)
Marine mammals	Local importance (higher value)	<p>As the works constitute at most an effective upgrade to the culvert, which is already in operation, the operational phase effects are considered to be that which currently occur.</p> <p>Consequently, no operational phase effects are considered likely to occur as a result of the proposed works.</p>	Likely, long-term, imperceptible, neutral effect
Birds	Local importance (higher value)	<p>As the works constitute an effective upgrade to the culvert, which is already in operation, the operational phase effects are considered to be that which currently occur.</p> <p>The proposed operational phase of the proposed works will not change from the present operations of the culvert and consequently, there are no operational phase effects which will likely occur as a result of the works.</p>	Likely, long-term, imperceptible, neutral effect

10.2.2 Potential Impacts on Water Quality

Following construction, the cessation of on-site traffic and excavation works will result in no risk of sediment runoff.

It is not envisaged that there will be any direct or indirect effects to the water quality of the area arising from the operational phase of the proposed works. There is potential for groundwork associated with the end of construction phase to cause localised **likely, temporary, not significant, negative effects** to water quality owing to entrainment of suspended solids into surface waters when segments of construction are completed and the what-once-was area in the dry is reintroduce to the aquatic environment. However, as the culvert represents a built structure there is reduced risk of sediment loss once water is reintroduced to areas in the dry as the works area consists of solid built structure. The resulting operational phase effect is **likely, long-term, imperceptible, neutral** effect.

11. Cumulative Impacts

A cumulative effect arises from incremental changes caused by other past, present or reasonably foreseeable future actions together with the proposed development. According to EPA (2022), cumulative effects can be described as ‘the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects’.

When in-combination impacts are assessed, it is necessary to identify the types of impacts that may ensue from the project under consideration and from other sources in the existing environment that cumulatively are likely to affect aspects of the structure and function of the relevant Natura 2000 sites (EC, 2001).

The EC (2001) guidelines on the provision of Article 6 of the Habitats’ Directive state that the phrase ‘in combination with other plans or projects’ in Article 3(3) of the Habitats Directive refers to the cumulative effects due to plans or projects ‘that are currently under consideration together with the effects of any existing or proposed projects or plans.’ Relevant plans and projects have been identified in **Section 11.2**.

11.1 Plans

With regards to the potential for in-combination effects, the Cork County Development Plan (year to year) was considered. The areas pertaining to the culvert location are zoned as ‘Town Centres/ Neighbourhood Centres’.

11.2 Permitted and Proposed Developments in the Locality

A search of Cork County Council’s online planning enquiry system for granted or on-going planning applications near the proposed development site was undertaken in July 2024, details of results are in the **Table 19**).

Table 19: List of granted and/or on-going planning applications near the proposed development

Application No	Applicant	Location	Proposed Development	Decision	Status	Decision Date/Due Date
21205	DMCA Consultants Ltd.	Vickery’s Inn Complex, New Street Townlots,	Construction of single storey office building and all associated site works	Conditional	Finalised	20/5/2021

Application No	Applicant	Location	Proposed Development	Decision	Status	Decision Date/Due Date
		Bantry, Co. Cork				
24213	Eugene Daly	Vickery's Inn Complex, New Street, Bantry, Co. Cork	Demolition and reconstruction of existing unstable laneway boundary wall, construction of building to be used as a mixed market/food emporium and all associated site works	*	*	26/6/2024

11.3 EPA Licenced Facilities

A review of the EPA mapping tool determined that there are no IPPC, IPC or IEL¹⁶ facilities within the immediate vicinity of the subject site. The Port of Cork is a waste licence holder regarding the Bantry Inner Harbour Development (Registered Licence No. W0290-01). The only other EPA licenced facility is the area is on Whiddy Island; Sunoco Bantry Bay Terminal Limited (Registered Licence P0419-01) located approximately 4km northwest of the nearest point to the proposed development.

11.4 Assessment of Cumulative Impacts

A cumulative impact arises from incremental changes caused by other past, present, or reasonably foreseeable actions together with the proposed development. However, in consideration of the proposed works location and when works are being done in the dry, it is considered unlikely that discharges to inner Bantry Bay could potentially interact synergistically with the proposed development to result in significant cumulative or in-combination effects.

The assessments completed in the preceding sections have concluded that no direct and indirect significant impacts are expected to ensue from the proposed development. The preceding sections concluded that the construction and operational phase of the proposed development will not result in significant direct or indirect habitat loss. The proposed works will not result in uncontrolled emissions, and no hazardous material/substances are expected to reach the receiving environment. Any potential cumulative impacts to water quality during construction are considered **temporary, likely, not significant, negative effects** and during operation are considered **long-term, likely, imperceptible, neutral effects** at most.

It is concluded therefore, bearing in mind the scope, scale, nature and size of the development that cumulative or in-combination impacts are unlikely to act significantly on ecological sensitivities.

¹⁶ Integrated Pollution Control (IPC) Licence (formerly IPPC Licence), and Industrial Emissions Licence (IEL)

12. Mitigation

12.1 Construction Environmental Management Plan (CEMP)

A Construction Environmental Management Plan (CEMP) will be developed by the appointed contractor prior to construction works commencing. This will outline construction practices and environmental management measures which will be implemented to ensure that best practice measures are implemented, with minimum impact on the surrounding environment. The CEMP will ensure that the proposed development will be carried out in accordance with any planning conditions applicable.

The CEMP will be submitted to Cork County Council (CoCoCo) for agreement and approval prior to the commencement of any construction activity.

The CEMP will take cognisance of the following Best Practice Guidance:

- CIRIA C692: Environmental Good Practice on Site, (Audus *et al.*, 2010)
- National Roads Authority (2010). *The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads*
- Transport Infrastructure Ireland (2020). *The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)*

12.2 Decommissioning Phase Mitigation Measures

The specific decommissioning activities will depend on the future use of the site, as determined by the project owner/operator at the time of closure. However, any future development plans for the site, during or after this period, will require a new planning permission application. If no planning permission is sought after the proposed works operation reaches the end of its lifespan, the works may be fully decommissioned. If the decommissioning of the culvert is required, the process will involve excavation of the culvert.

Potential impacts during the decommissioning phase will be similar to those of the construction phase, decommissioning will be of a similar scale, as excavations will be required.

Mitigation measures for the decommissioning phase will be similar to those of the construction phase.

- Ensure proper soil stabilization measures are employed during decommissioning to prevent erosion, sediment runoff, and adverse impacts on water quality.
- Best practices will be incorporated into the safe handling and storage of materials, including containment measures, bunding, drip trays installed as part of plant and machinery used to ensure no risks to water quality.
- Standards of good practice for noise and vibration will be followed to minimise noise and vibration impacts from activities and vehicles.
- Standards of good practice for air quality, as set out in the Institute of Air Quality Management (IAQM) 'Guidance on the Assessment of Dust from Demolition and Construction', or relevant guidance will be followed during decommissioning to minimise dust from activities and vehicles.

- A waste management plan will be developed to handle the disposal of materials and equipment associated with decommissioning. This will include proper handling, recycling, or disposal of hazardous materials, in accordance with relevant regulations and guidelines.
- Best practice measures will be followed for cleaning and decontaminating equipment and vehicles to prevent the accidental transfer of invasive species.
- Lighting, if required will be deployed in accordance with the following recommendations to prevent or reduce the impact on ecological receptors:
 - The use of lighting will be minimised to that required for safe site operations;
 - Lighting will utilise directional fittings to minimise outward light spill and glare (e.g. via the use of light hoods/cowls)
 - Lighting will be directed towards the interior of the site limits rather than towards the boundaries.

These measures can be tailored to the specific characteristics of the culvert works, taking into account the regulatory requirements.

13. Residual Effects

Residual effects are impacts that remain **once mitigation has been implemented** or impacts that cannot be mitigated against. **Table 20**, provides a summary of the predicted residual effects for the IEFs identified at the site.

Table 20: Summary of predicted residual effects on IEFs

Receptor	Construction phase effects (without mitigation)	Operational phase effects (without mitigation)	Mitigation Measures	Residual Effects (with mitigation)
Marine mammals	Disturbance effects are assessed as Likely, Temporary, Not significant, Negative effect	Likely, Permanent, Imperceptible, Neutral effect	CEMP	Potential construction phase disturbance effects are assessed as Likely, Temporary, Imperceptible, Negative effect Residual effect: Likely, Temporary, Imperceptible, Negative effect
Birds	Habitat alteration effects are assessed as Likely, temporary, not significant, negative effect	Likely, Permanent, Imperceptible, Neutral effect	CEMP	Potential construction phase potential habitat alteration effects assessed as Likely, Temporary, Imperceptible, Negative effect Residual effect: Likely, Temporary, Imperceptible, Negative effect
Water Quality	Likely, Temporary, Not significant, Negative Effects on water quality at the local level.	Likely, Permanent, Imperceptible, Neutral effect	CEMP	Potential water quality effects are assessed as Likely, Temporary, Imperceptible, Negative Effects at the local level. Residual effect: Likely, Temporary, Imperceptible, Negative Effects

14. Conclusion

A comprehensive ecological impact assessment has been carried out and the proposed site is considered to be relatively low value from an ecological perspective. The works area constitutes an existing culvert entirely built over, with no high value habitat and not being of special importance for high conservation, or legally protected, species or habitats. The potential impacts of the proposed development were considered and assessed to ensure that all effects on IEFs were adequately addressed, and no significant residual effects are likely to remain following best practice construction methodology and implementation of mitigations.

No significant effects or significant residual effects were identified during the construction or operational phases of the proposed works at the Mill culvert. The overall ecological impact of the proposed project (relative to the 'do-nothing' scenario) is considered to be a **likely, permanent, imperceptible, neutral** effect at a local level.

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