

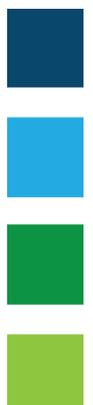


Kerry County Council

N70 Waterville to Ballybrack  
Road Improvement Scheme

Planning and Environmental Considerations  
Report

December 2025



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## 1.0 INTRODUCTION

This Planning and Environmental Considerations Report has been prepared for submission to An Bord Pleanála under Section 177AE of the Planning and Development Act, 2000 (as amended) to obtain development consent for road upgrade works (hereafter referred to as “the proposed development”) on the N70, in the townlands of Waterville, Ballybrack and Eightercua.

TOBIN Consulting Engineers have been appointed by Kerry County Council as lead consultants for this project.

### 1.1 SUMMARY OF THE PROPOSED DEVELOPMENT

The length of the proposed development is 1.373km with an overall site boundary area of 2.617 hectares (ha). The proposed development will comprise the following:

- Realignment and improvement of 1373m of existing carriageway
- Construction of a separate pedestrian and cycle lane facility, totalling 1253m in length
- Provision of a shared pedestrian and cycleway bridge, c. 32m in length

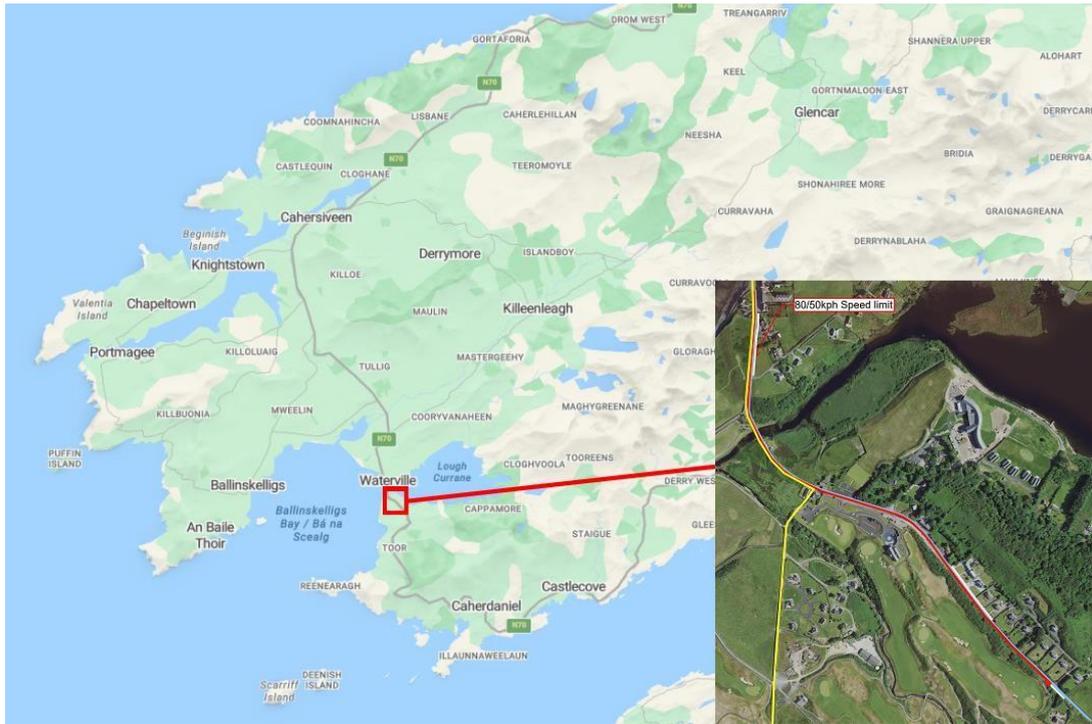
A full description of the proposed development is provided in section 2.0 of this report. Scheme drawings and photomontages with a visual representation of the proposals are provided in the appendices.

### 1.2 SITE LOCATION AND DESCRIPTION

The site is located on the N70 National Secondary Road commencing at the southern end of the promenade in Waterville town and extends south towards Caherdaniel. The proposed scheme provides for 1373m of realigned and strengthened National Secondary Road together with 1253m of shared cycleway/footway. The scheme also includes a proposed shared pedestrian and cycleway bridge over the Currane River along the western side of the existing bridge. The location of the proposed upgrade works within the wider geographical setting is shown in Figures 1-1 and 1-2 below.

The N70 Waterville to Ballybrack section of the route currently consists of a narrow, single carriageway cross-section without hard-shoulders and has both a poor horizontal and vertical alignment. Due to the narrow cross-section, it is unsafe for vulnerable road users. As a legacy route, it has a substandard horizontal and vertical alignment, which as a result has no defined geometric design. The existing forward sight visibility available along the N70 at this location varies significantly and can be as low as 40m. There are two junctions at this location, L-7539-0 and L-11590-0, where sightlines to the N70 are substandard. Recent improvements on the L-11590-0 junction have increased the sightline to the south but there remains visibility problems to the north.

This section of the N70 also coincides with approximately 520m of the Kerry Way walking trail between the promenade in Waterville and the L-11590-0 junction. It has many vulnerable road users, particularly during summer months. An automatic traffic counter located just north of the Currane River bridge recorded in July 2019 gave an annual average daily traffic figure of 2720 with 4.3% being heavy goods vehicles. The 2019 figure was used due to the impact of Covid 19 on traffic figures on the following years.



*Figure 1-1: Site Location Map*



*Figure 1-2: Site Layout Plan*

## 1.3 THE APPLICANT

Kerry County Council (Comhairle Contae Chiarraí) is a local government body responsible for the provision and administration of a wide range of services in County Kerry in the southwest of Ireland. The completion of the proposed development will allow Kerry County Council to provide improved road safety for all road users including cyclists and pedestrians.

## 1.4 NEED FOR THE PROPOSED DEVELOPMENT

The proposed development seeks to address several existing road safety issues and to provide improved infrastructure for pedestrian friendly mobility.

### 1.4.1 Safety

Specific issues associated with this stretch of road include:

- The existing N70 at this location is a legacy National Secondary Road with no defined geometric design. It is substandard in both horizontal and vertical alignment. The width varies between 4.9m and 5.4m which is also substandard.
- This narrow cross-section renders the route unsafe for vulnerable road users.
- The current forward visibility is as low as 40m in areas which is insufficient visibility for vehicles to stop safely in an emergency.
- The two junctions at the L-7539-0 and L-11590-0 have substandard visibility envelopes. There are currently no facilities for vulnerable road users.
- Part of this section of the N70 overlaps with the Kerry Way Walking Trail. The geometry of the road renders it unsafe for vulnerable road users.

The existing road has been identified by Kerry National Roads Office and TII as a location for improvement given the current substandard alignment, cross-section and pavement condition. The proposed development is identified under the Kerry County Council Service Delivery Plan 2019.

### 1.4.2 Green Travel

Located within the vicinity of several tourist attractions and on the Kerry Way Walking Route, the proposed development seeks to increase green travel options for residents and users of tourism facilities in the area.

The proposed development falls within Kerry County Council's mission statement, which states: To plan, design & construct national & non-national roads including safety elements & ongoing maintenance to provide a safe & efficient network to serve the needs of the County for industrial, agricultural, tourism & community development.

## 1.5 ENVIRONMENTAL IMPACT ASSESSMENT SCREENING

An Environmental Impact Assessment (EIA) Screening has been undertaken to assess the proposed development against criteria set out in Annex I, II, IIA and III of the EU Directive 2011/92/EU, as amended by Directive 2014/52/EU (EIA Directive).

The outcome of this review has determined that the EIA is not required for this sub-threshold development.

The EIA Screening is provided in support of this application to An Bord Pleanála.

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## 1.6 APPROPRIATE ASSESSMENT

An AA Screening Report has concluded that considering best scientific knowledge, in view of the conservation objectives for the relevant European sites and based on objective information, that the proposed development, either individually or in combination with other plans or projects, will have the potential for indirect effect on European sites.

Accordingly, a Natura Impact Statement (NIS) has been prepared, in accordance with relevant legislation, to provide information to enable the competent authority to perform its statutory function.

The AA Screening and NIS reports are submitted in support of this application to An Bord Pleanála.

## 2.0 DESCRIPTION OF THE EXISTING ENVIRONMENT AND PROPOSED DEVELOPMENT

### 2.1 DESCRIPTION OF THE EXISTING ENVIRONMENT

The proposed development is located south of the Town of Waterville on a section of the N70 National Secondary Road in County Kerry. The proposal starts at the end of Waterville Promenade and runs southbound for 150m in the 50kph zone of Waterville Village. The remaining 1223m is in the 80kph zone. The Kerry Way Walking Trail also runs from Waterville Promenade along the proposed scheme for 526m before heading south towards Baslicon.

At this location, the existing N70 is a legacy road with no defined geometric design. It is substandard in both horizontal and vertical alignment. The width varies between 4.9m and 5.4m which is also substandard. This narrow cross-section renders the route unsafe for vulnerable road users. The current forward visibility is as low as 40m in areas which is insufficient visibility for vehicles to stop safely in an emergency. The two junctions at the L-7539-0 and L-11590-0 have substandard visibility envelopes. The road currently does not provide for vulnerable road users.

The surrounding lands comprise of ribbon development and one-off rural housing to the east of the carriageway with tourist and hospitality facilities and services located to the west.

Lough Currane is located approximately 345m northeast of the existing carriageway, with the Atlantic coast situated 623m to the west. The Currane River runs between the two and the existing carriageway crosses this river via a traditional stone-built bridge.

### 2.2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development will begin at the southern end of the promenade in Waterville town and extend 1.373km south towards Caherdaniel.

The proposed development includes 1373m of realigned and improved carriageway with a separate pedestrian and cycle lane facility provided on one side. The proposed cycle lane facility will extend from the southern end of the promenade in Waterville town to the Benjamin Close housing development. The total distance of shared cycleway / footpath to be provided is 1253m. The proposed development will provide a new bridge for shared pedestrian and cycleway use over the Currane River.

In summary, the scheme will involve:

- Removal of approximately 320m of hedgerow located along the route realignment at the southern end and other associated earthworks;
- Removal and replacement of stone walls (See Figure 2-1 Stonewalls to be replaced);
- Excavation and/or fill of route realignment, although most of the works relate to levelling of existing surface;
- Construction of new independent, single span steel arch footbridge c.32m in length;
- Overlay of the existing carriageway involving excavation and overlay of existing N70 road bridge to tie in with the new scheme; and
- All associated drainage works and other ancillary works.



*Figure 2-1 Stonewalls to be replaced*

A description of the proposed upgrade works is provided hereunder and broken into sections as illustrated in Figure 2-2 Sections of the Route.



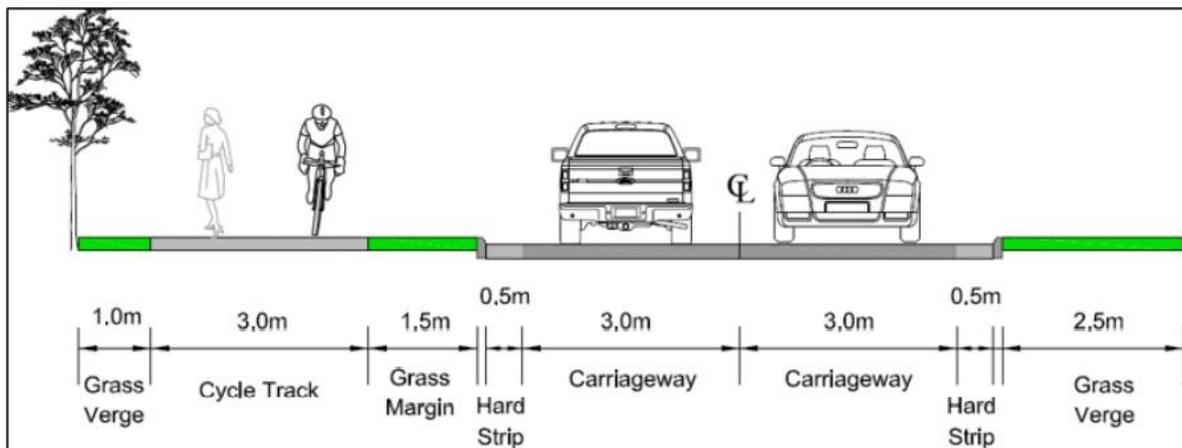
*Figure 2-2 Sections of the Route*

### 2.2.1 Section 1

This section of the scheme extends from the Townland of Eightercua in the South to the Currane River bridge (1020m approx.). It will include road alignment works and pavement improvement, as well as the provision of a two-way cycle and pedestrian facility, situated on one side of the road only. Figure 2-3 illustrates a cross section proposed as part of the upgrade works. The width of the proposed new road will be 6m with a 0.5m hard strip on each side.

The proposed upgrade works will also result in the removal of some existing hedgerows and stone walls along the road.

*Figure 2-3: Cross Section of Proposed Upgrade Works for Section 1 and 3*



### 2.2.2 Section 2

The second section of the scheme is at the Currane River bridge, an existing masonry bridge which spans over the Currane River. The Currane catchment drains to Lough Currane, from which the Currane river outflows. Upgrade works will include realignment works on the approach to the bridge itself. In addition, a new two-way cycle and pedestrian bridge will be provided west of the existing bridge. Works associated with the new cycle/pedestrian bridge will be undertaken from the riverbank, outside the Special Area of Conservation (SAC) boundary.

The bridge superstructure (steel deck including handrail posts) will be fabricated offsite and brought to the proposed development site. Foundations will be constructed on the banks of the river, and the bridge will be installed by crane which will be situated on the existing road. Sheet pile cofferdams will be installed around the two bridge abutments to facilitate excavation to the founding level. The sheet piles will be installed to an approximate depth of 2m below ground level. The area around the sides of the abutment footings will then be backfilled with a clean granular material to existing ground level. The sheet pile cofferdams will be removed using an excavator mounted vibrator. The sheet piles on the front face of the south abutment (along the edge of the river) shall be left in place and cut down to just below ground level.

Minor instream works will be undertaken along the northern bank of the Currane River to facilitate the proposed drainage system works. The instream works will be small-scale (c. 2m<sup>2</sup> in size).

A photomontage of the proposed pedestrian bridge is shown in Figure 2-4 below. Pavement repair and renewal is also required for this section of carriageway.

*Figure 2-4: Photomontage of the proposed pedestrian bridge which will be installed along the western boundary of the existing bridge*



### 2.2.3 Section 3

The final section of the proposed works is a 320m stretch of road heading towards Waterville town from the Currane River bridge. A 3m wide shared two-way cycle and pedestrian facility are proposed on the western side of the carriageway, with a footpath required on the eastern side to run from a private road junction back towards Waterville. Pavement repair and renewal is required along this section of carriageway as well as delineation and improved signage. Overlay and carriageway widening will also be provided along this section of carriageway. The widening works will require the construction of retaining walls from Ch 1100m to 1370m. The landscaping in this area will be designed in accordance with DN-GEO-03084 (The Treatment of Transition Zones to Towns and Villages on National Roads) at detailed design stage. The 50kph speed limit is located at Ch 1240m approximately. Between this chainage and the end of the scheme, the design guidance of the Design Manual for Urban Roads and Streets is applied. The design standards for the remainder of the scheme are TII Standards DN-GEO-03031 (May 2023), DN-GEO-03036 (May 2023) and DN-GEO-03060 Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions) (May 2023).

### 2.2.4 Proposed Drainage System

There is currently no formal drainage system in place to cater for road runoff along the section of the N70 road outside of the Waterville village extents. A new drainage system, in accordance with DN-DNG-03022, is therefore proposed and will include the following:

- A kerb and gully system will be used to collect surface water from the mainline and side road paved areas. The gullies will outfall to a combined filter drain running in the grass verge/margin adjacent to the kerb. The cycleway will fall towards the verge with water flowing over the edge to the grass verge and ultimately to the combined filter drain.
- Two outfall pipes are proposed within the drainage system: one (the northern outfall) will be located adjacent of the Currane River Bridge, and the second (the southern

outfall) will be located south of the existing pumping station. A description of the two outfalls is provided hereunder.

- Minor instream works will be undertaken along the northern bank of the Currane River to facilitate the proposed drainage system works. The instream works will be small-scale (ca. 2m<sup>2</sup> in size).

### Northern Outfall

One outfall pipe and headwall will be constructed to the northern bank of the Currane River adjacent to the eastern side (lakeside) of the existing bridge (as shown in Figure 2-5 below). This outfall will cater for surface water runoff from Chainage (Ch) 1060m to 1240m on the northern end of the scheme. This runoff will go through treatment via a grassed Channel / swale and petrol interceptor.

A section of the pipeline works (ca. 5m of the pipeline and the proposed headwall) will be located within the Killarney National Park, Macgillycuddy's Reeks and River Caragh River Catchment SAC. The pipeline and headwall will be constructed in an existing access track, which consists of gravel and amenity grassland and is currently being used to access a boat house from Waterville House (refer to Figure 2-6).



*Figure 2-5: Proposed Northern Outfall*



*Figure 2-6: Existing Access Track Through the SAC*

### Southern Outfall

A second outfall pipe is proposed south of an existing pumping station to accommodate road drainage from the south of the scheme. Currently runoff runs untreated off the road into the verge, eventually depositing at the lowest spot located adjacent to the existing pumping station.

To improve road drainage within this area, the new proposed drainage scheme will include a combined filter drain which will run on the southern side of the mainline from Ch 0 to Ch 785m where it crosses the road to Ch 812m via a carrier pipe. From Ch 812m to 978m a combined filter drain will convey the water to a petrol interceptor and wetland area. Drainage across the bridge will be provided by surface water Channels to CC-SCD-01109 Type 3 tight to the parapet wall with gullies conveying to the outfall manhole at CH 978m.

A petrol interceptor will be buried into the embankment adjacent to the manhole. The outlet of the interceptor will be piped to a head wall supporting the embankment. The existing ground will be shaped slightly to ensure water from the headwall travels slowly through the wetland to the outlet stream. The minor excavation required for this is shown in Figure 2-7 below.



*Figure 2-7: Southern Outfall*

### *2.2.5 Proposed Construction Phase Activities*

Subject to statutory approval, the proposed improvement works are expected to commence in 2025, for a duration of 12 months.

Normal work hours during the construction phase are expected to be Monday to Friday 08:00 to 18:00 hours. During certain stages of the construction phase there is potential that some work will have to be carried out outside of normal working hours. However, this will be kept to a minimum.

The installation of the Pedestrian / Cycle Bridge across the Currane River will be undertaken at night. Traffic during this period will be diverted along minor roads. It is anticipated that this work will be completed in two nights. Diversions will be well advertised in advance and disruption will be kept to a minimum. The only viable diversion is around the Ring of Kerry, and this has been used on a similar scheme in Sneem.

### *2.2.6 Operational Phase*

During the operational phase the proposed development site will continue to function as a road. The new pedestrian/cycle facilities will result in the attraction of pedestrians and cyclists utilising the road.

## 3.0 POLICY, PLANNING AND LEGISLATIVE CONTEXT

This Chapter provides a description of the plans and policies in support of the proposed development.

### 3.1 NATIONAL POLICY CONTEXT

#### 3.1.1 *Project Ireland 2040*

The National Planning Framework and the National Development Plan together make up Project Ireland 2040.

The National Planning Framework is a framework to guide Ireland's development and investment in the coming years. It is the Government's high-level strategic plan to shape Ireland's development out until the year 2040. It contains a set of national objectives and key principles from which more detailed and refined plans will follow. The NPF sets out key goals and objectives for the State, and central to this is sustainability with more environmentally friendly development. In particular, the NPF lists the following national planning objectives:

- NPO22: Facilitate the development of a National Greenways, Blueways & Peatways Strategy which prioritises projects achieving maximum impact & connectivity at national & regional level.
- NPO27: Ensure the integration of safe & convenient alternatives to the car into the design of our communities, by prioritising walking & cycling accessibility to both existing & proposed developments & integrating physical activity facilities for all ages.
- NPO64: Improve air quality & help prevent people being exposed to unacceptable levels of pollution in our urban & rural areas through integrated land use & spatial planning that supports public transport, walking & cycling as more favourable modes of transport to the private car, the promotion of energy efficient buildings & homes, heating systems with zero local emissions, green infrastructure planning & innovative design solutions.
- NPO65: Promote the proactive management of noise where it is likely to have a significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.

The revised National Development Plan (NDP) 2021 – 2030 is aligned with the delivery of the objectives of the National Planning Framework. It sets out the significant level of investment, almost €165 billion, which will underpin the successful implementation of the National Planning Framework and drive it forward over the next 10 years. The proposed development supports the following National Strategic Outcomes:

- NSO 3 Strengthened Rural Economies and Communities
- NSO 4 Sustainability Mobility
- NSO 7 This objective includes encouraging a significant modal shift through greater levels of investment and further development of meaningful alternatives to private car use.
- NSO 8 Transition to a Low Carbon and Climate Resilient Society

The NDP seeks to promote sustainable mobility, by linking people and places in a sustainable way. Government policy on Sustainable Mobility seeks to facilitate "Safe and Green Mobility" with a focus on people and the integration of green transport options. Under the revised NDP, significant new investments are planned to increase sustainable mobility through "Active Travel" by facilitating an increase in cycling and walking.

The NDP outlines several key rural initiatives to revitalise rural areas and to enhance economic growth. As part of the above plan, the Rural Recreation Infrastructure Scheme supports the development and necessary maintenance, enhancement or promotion of recreational infrastructure, which covers a broad spectrum and range of walking trails, including greenways and blue ways.

Investment in Activity Based Tourism is recognised as a priority over the lifespan of the NDP, which will provide measures to support further regional investment in existing experience brands, including the Wild Atlantic Way.

### *3.1.2 National Investment Framework for Transport in Ireland (Dec 2021)*

The Department of Transport has prepared the National Investment Framework for Transport in Ireland (NIFTI), which is the Department of Transport's high-level strategic framework to support the consideration and prioritisation of future investment in land transport. It represents the Department's contribution to Project Ireland 2040, Government's long-term, overarching strategy to make Ireland a better country for all and to build a more sustainable future.

NIFTI sets out the following investments priorities relevant to this project:

Investment Priority: Decarbonisation – “Decarbonisation and protection of our natural environment will mean investing in sustainable modes so that transport users have safe, accessible, reliable and efficient alternatives to the private car.”

Investment Priority: Protection and Renewal – “Protecting and renewing the existing land transport network is a key priority for transport investment.” “Necessary improvements to ensure safety or increase accessibility are considered a form of asset protection and renewal.”

Investment Priority: Enhanced Regional and Rural Connectivity: - “The types of measures that might be supported under this Investment Priority are diverse and will depend on specific transport needs and local contexts but could include the introduction of a regional bus service in an area poorly served by public transport or the realignment of a road to improve safety, journey speeds and reliability.”

### *3.1.3 Climate Action Plan 2023*

The second update to Ireland's Climate Action Plan 2019 was launched in December 2022 and sets out a roadmap for the implementation of carbon budgets and sectoral emissions ceilings introduced in 2022. Chapter 15 of the document deals with Transport. The Plan takes a three-prong approach to the delivery of its targets;

- Avoid – Reduce or avoid the need for travel
- Shift – Shift to more environmentally friendly modes
- Improve – Improve the energy efficiency of vehicle technology

The relevant actions to the N70 Waterville to Ballybrack Road Improvement Scheme fall under the 'Shift' approach and includes the delivery of the Active Travel Infrastructure Programme. The Programme for Government includes a commitment of €360 million per year to cycling and pedestrian projects. The relevant actions under this heading include:

- Advance roll-out of 1,000km of walking/cycling infrastructure
- Advance roll-out of National Cycle and Greenway Networks
- Leverage of Protection and Renewal road infrastructure programme to enhance safety of sustainable mobility users

The proposed development is creating over 1.3km of new walking/cycling infrastructure providing safe connection for residents and tourists from Waterville Village to amenities and homes in the area as well as connecting to 'The Kerry Way' which is an established tourist walking route.

The development has been designed to be climate resilient with a comprehensive SUDS strategy that incorporates swales and enhancement of existing wetlands. It is considered that the project is consistent with the actions and measures outlined in the Climate Action Plan 2023 (CAP 2023).

### *3.1.4 National Sustainable Mobility Policy (April 2022)*

This document sets out a strategic framework to 2030 for active travel and public transport to support Ireland's carbon emissions targets. The Policy forms part of Ireland's climate action agenda with a number of complementary actions in the Climate Action Plan.

The policy focuses on 3 key principles and is supported by 10 goals. Of those the most relevant to this project are:

- Improve mobility safety
- Expand availability of sustainable mobility in regional and rural areas
- Encourage people to Choose sustainable mobility over the private car
- Design Infrastructure according to Universal Design Principles and the Hierarchy of Road Users model

### *3.1.5 Road Safety Strategy 2021-2030*

The Road Safety Strategy seeks to achieve a long-term goal of zero road deaths or serious injuries by 2050. The strategy is underpinned by the EU Road Safety Policy Framework (2021-2030) and the UN's Second Decade of Action for Road Safety (2021-2030).

Seven Safe System priority intervention areas have been identified including safe and healthy modes of travel to promote and protect road users engaging in public transport or active travel. It involves the promotion of safer public transport modes and the promotion and provision of safe road environments for otherwise healthy active modes. This includes walking and cycling where the risks of death and serious injury are higher than for protected, in-vehicle road users.

## **3.2 REGIONAL POLICY CONTEXT**

### *3.2.1 Regional Spatial and Economic Strategy (RSES), Southern Region*

The RSES is a link between the National Planning Framework, City & County Development Plans, and Local Economic & Community Plans. Each assembly is centrally involved in the formulation of policies geared towards achieving a greater dispersal of economic growth and development throughout the region. The proposed development is in the Southern Region.

The Southern Regional Assembly RSES sets out a vision for the Southern Region to<sup>1</sup>:

- *'Nurture all our places to realise their full potential;*

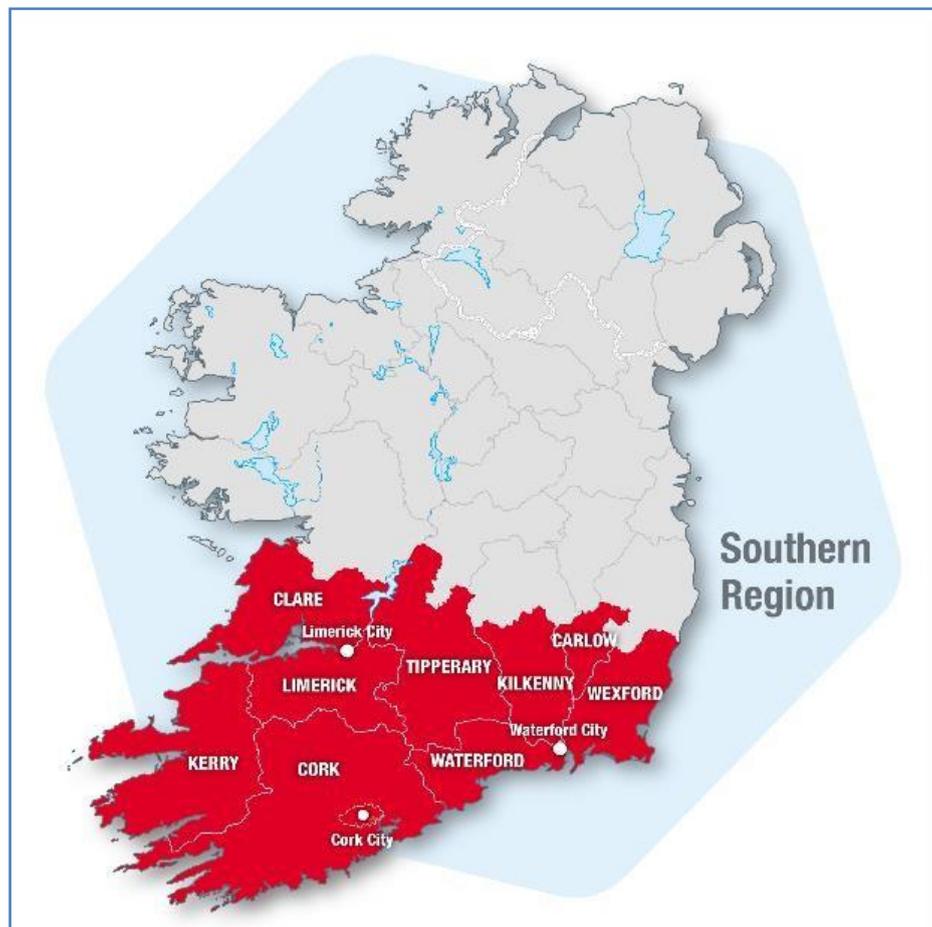
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<sup>1</sup>[https://www.southernassembly.ie/uploads/general-files/Regional\\_Spatial\\_Economic\\_Strategy\\_for\\_the\\_Southern\\_Region\\_LOW\\_RES.pdf](https://www.southernassembly.ie/uploads/general-files/Regional_Spatial_Economic_Strategy_for_the_Southern_Region_LOW_RES.pdf)

- *Protect, and enhance our environment;*
- *Successfully combat climate Change;*
- *Achieve economic prosperity and improved quality of life for all our citizens;*
- *Accommodate expanded growth and development in suitable locations;*
- *Make the Southern Region one of Europe's most creative, innovative, greenest, and liveable regions.*

The Southern RSES came into effect on 31<sup>st</sup> January 2020 and seeks to achieve balanced regional development and full implementation of Project Ireland 2040 – the National Planning Framework. The Region is made up of nine counties, Cork, Clare, Kerry, Limerick, Tipperary, Waterford Carlow, Kilkenny, and Wexford, illustrated in Figure 3-1 below, which in turn are administered by 10 local authorities. The region is further divided into three sub-regional areas, called Strategic Planning Areas (SPAs) - the Mid-West, Southeast and South-West and Kilkenny belong in the Southeast Area.

*Figure 3-1: RSES Southern Region Spatial Area*



Policies in the RSES relevant to the proposed development are outlined as follows:

- RPO 53b: Promote activity tourism subject to appropriate site selection and environmental assessment processes.
- RPO 53d: Sustainably develop walking and cycling trails opening greater accessibility to the marine and countryside environment by sustainable modes and promote the sustainable designation and delivery of Greenway and Blueway Corridors.

- RPO 53e: Facilitate appropriate tourism development and in particular a National Greenways, Blueways and Peatways Strategy, prioritising sustainable projects that achieve maximum impact and connectivity at national and regional level.
- RPO 160 Smart and Sustainable Mobility: It is an objective to deliver on NSO: Sustainable Mobility subject to the required appraisal, planning and environmental assessment processes.
- RPO 166c: It is an objective to maintain the efficiency and safety of the existing national primary and secondary roads network by targeted transport demand management and infrastructure improvements.
- RPO 201: It is an objective to support investment in development of walking and cycling facilities, greenway and blueway corridors within the Region between our Region's settlement and potential for sustainable linkages to create interregional greenways.

### 3.3 LOCAL POLICY CONTEXT

#### 3.3.1 *Kerry County Development Plan 2022-2028*

The following policies are considered relevant to the proposed development:

- KCDP 4-11: Facilitate and support initiatives to strengthen and improve the physical environment of the towns and villages with enhanced streetscapes, appropriate shopfront design and provision of improved street lighting, public footpaths, and street furniture.
- KCDP 4-15: Promote the guidance principles set out in the 'Urban Design Manual – A Best Practice Guide' (2009), and in the 'Design Manual for Urban Roads and Streets' (2019) and promote a more pedestrian friendly environment through the provision of traffic calming measures and improved pedestrian infrastructure.
- KCDP 4-17: Facilitate the development of sustainable compact settlements with the "10-minute" town concepts, whereby, a range of community facilities and services are accessible in short walking and cycle timeframes from homes, with walkways and link routes to Greenways or are accessible by high quality public transport services connecting people to larger scaled settlements delivering these services.
- KCDP 4-18: To prioritise walking routes and to deliver a high level of priority and permeability for walking, cycling and public transport modes, in accordance with the principles of movement, place and permeability as laid out in the Design Manual for Urban Roads and Streets 2019, to ensure the creation of accessible, permeable links to places of work, retail, services, educational and community facilities.
- KCDP 6-1: Develop and support vibrant sustainable communities in Kerry where people can live, work, and enjoy access to a wide range of community, health, educational facilities, and amenities, suitable to all ages and needs, in both urban and rural areas, thereby supporting an enhanced quality of life for all people.
- KCDP 10-13: Facilitate the sustainable development of the Wild Atlantic Way touring route by:
  - Facilitating the sustainable development of viewing points and other facilities at appropriate locations along the Wild Atlantic Way
  - Facilitating road improvement works, the provision of lay-bys/passing spaces and parking spaces at appropriate locations.
  - Addressing traffic and visitor management issues, with specific focus on integration of

public transport timetabling to facilitate improved visitor dispersal, having regard to environmental sensitivities and designations in the area.

- KCDP 10-36: Promote and facilitate opportunities to create an integrated pedestrian and cycle network linking key tourist destinations in the County and to the national network subject to environmental, heritage and normal planning constraints.
- KCDP 14-1: Deliver sustainable transport infrastructure investments as identified for the road network, public/rural transport, and walking/cycling infrastructure to facilitate and realise the 10-minute town concept.
- KCDP 14-2: Facilitate and support the sustainable establishment of a network of greenways as outlined in the KCC Greenway Strategy in Map 14.1 and Table 14.2 within the County and the adjoining counties, further to full environmental assessment.
- KCDP 14-3: Support and promote the sustainable development of walking, cycling, public transport and other sustainable forms of transport, as an alternative to the private car, by facilitating and promoting the sustainable development of necessary infrastructure at appropriate locations and by promoting initiatives contained within “Smarter Travel, A Sustainable Transport Future 2009-2020” and the “National Cycle Policy Framework” and any future national sustainable mobility policy.
- KCDP 14-8: Incorporate 10-Minute Town concepts in Local Area Plans and Local Transport Plans.
- KCDP 14-10: Promote a shift away from the private car to greater use of active travel (walking and cycling) and public transport.
- KCDP 14-11: Continue to work with the relevant transport providers, agencies and stakeholders to facilitate the integration of active travel (walking, cycling) with public transport.
- KCDP 14-15: Promote the sustainable development of the public footpath network, the walking and cycling routes and associated infrastructure in the County, including where possible the retrofitting of cycle and pedestrian routes into the existing urban road network and in the design of new roads.
- KCDP 14-20: Enhance and improve regional connectivity through upgraded transport infrastructure and effective public transport services.
- KCDP 14-21: Improve access for all vulnerable road users and people with disabilities to all modes of transport with provision for universal design thereby increasing and improving transport facilities for all users.
- KCDP 14-22: Protect and sustainably develop the County’s principal transportation assets including ports, Kerry Airport, and strategic road and rail corridors.
- KCDP 14-25: Seek to protect and safeguard the significant investment made in strategic economic infrastructure, in particular the network of roads, the existing rail line to Tralee and major water and wastewater projects, through the promotion of appropriate development and settlement patterns and the integration of land use and transportation activities.

- KCDP 14-27: Provide or facilitate the sustainable provision of all road infrastructure projects set out in Table 14.3 with priority given to infrastructure serving the Key Towns.
- KCDP 14-35: Sustainably strengthen and improve the road network including links, by-passes and relief roads with priority given to those serving the Key Towns and Regional/District Towns and interconnection between such settlements.
- KCDP 14-36: Provide a safe road system throughout the County through Road Safety Schemes and to encourage the promotion of road safety in the County.
- KCDP 14-37: Facilitate the sustainable upgrade and improvement of major tourist routes within the County (as shown on Map 14.3) including realignments, the provision of lay-bys, viewing areas, picnic areas and the improvement of finger-posting and access ways to points of interest, at appropriate locations and in a sustainable manner along such tourist routes.

Note that maps and tables referenced in the above policies are contained in the Kerry County Development Plan.

### *3.3.2 Kenmare Municipal District Local Area Plan (2024-2030)*

Part of the proposed development will pass into the town of Waterville. Policies and objectives relating to development within Waterville town are set out in the Kenmare Municipal District Local Area Plan (2024-2030). Those most relevant to the proposed development are as follows:

- KENMD – 1: Provide an improved quality of life for all citizens of the Plan area by promoting the area’s economic potential, protecting its natural and built environment and safeguarding its cultural heritage.
- KENMD – 74: Facilitate the provision of an appropriate and sustainable range of social and physical infrastructure, facilities and services, including retail, commercial and enterprise development to serve the inhabitants of these towns and their rural hinterlands as a priority.
- KENMD-WE-1: Promote the strengthening of Waterville as an employment and service centre commensurate with its function as a district town and as an attractive residential location, service centre and tourist town.
- KENMD-WE-2: Improve the urban definition of the boundaries of the settlement and to promote the development of attractive approach routes into the town.
- KENMD-WE-5: Facilitate and promote streetscape and civic area improvements throughout the town to attain an attractive urban environment, while protecting features of architectural & cultural importance.
- KENMD-WE-6: Facilitate and promote sustainable development which will provide an all-year service to the public within the town centre.
- KENMD-WE-7: Facilitate the sustainable provision of sporting, cultural & amenity facilities in the town as a means of boosting the tourism potential of the town.
- KENMD-WE-9: Facilitate and promote the sustainable development of Waterville as a golfing destination.
- KENMD-WE-11: Provide for the sustainable development and improvement of pedestrian and cycling infrastructure in the town as required.
- KENMD-WE-13: Facilitate the alleviation of traffic congestion and the restructuring of parking spaces in the town centre. Provide for easy and safe pedestrian movement throughout the town centre.
- KENMD-WE-14: Facilitate and support the extension of the existing seafront walkway

southwards along the N70 to existing facilities and services to provide an amenity walkway (subject to environmental assessment).

- KENMD-WE-15: Support the N70 Waterville to Ballybrack Road Improvement Scheme, subject to environmental assessments.

### 3.3.3 Kerry Local Economic and Community Plan (2025-2030)

- Community High-Level Goal no. 5
  - Objective 1: Support urban and rural towns and villages as vibrant hubs for commercial, community, and social activity.
  - Objective 4: Cultivate a sense of belonging, unity, and inclusiveness within communities.
- Community High-Level Goal no. 6
  - Objective 1: Support healthy and sustainable places, workplaces, and communities.
  - Objective 2: Promote healthy communities and mental well-being across the lifecycle through a range of play, recreation, and creative initiatives.
  - Objective 3: Encourage a culture of active participation, supporting access to sport, physical activity, and outdoor recreation.
- Community High-Level Goal no. 7
  - Objective 1: Support intergenerational community spaces and facilities.
  - Objective 2: Support the revitalisation of communities through the development of initiatives that promote social inclusion and safe communities.

### 3.3.4 Landscape Designation

The proposed development site has been identified in the Kerry County Development Plan 2022-2028 as a “visually sensitive area.”

The design seeks to minimise the impact of the project on this designation by maintaining the location and level of the existing road and minimising impacts on existing boundaries where possible.

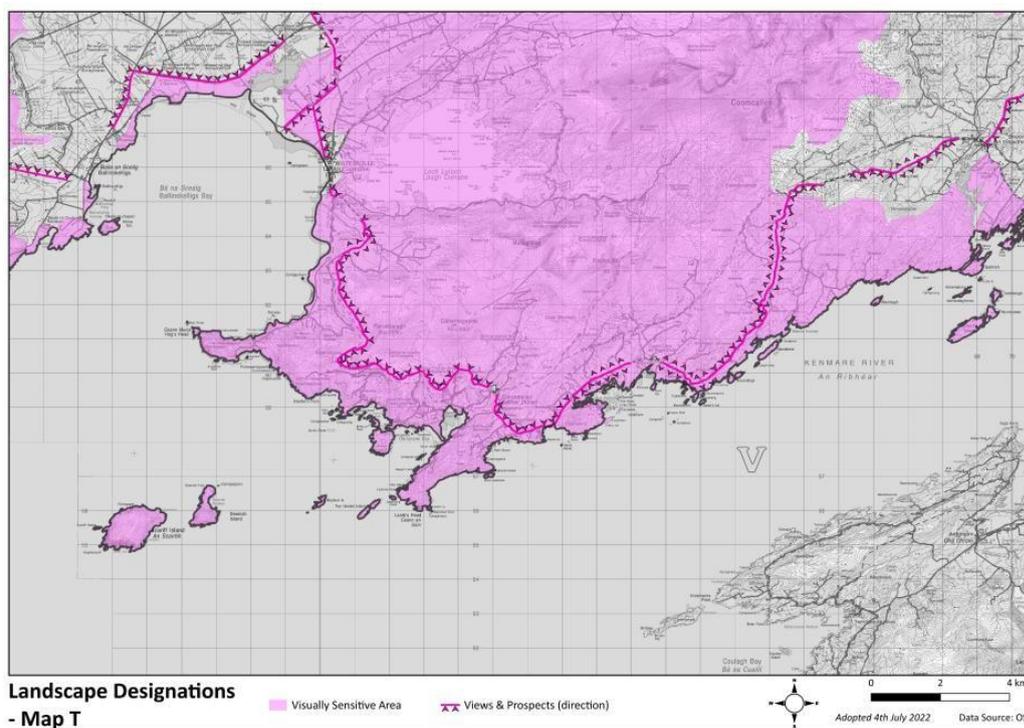


Figure 3-2: Landscape Designation Map - Kerry County Development Plan 2022-2028

### *3.3.5 Planning History of Application Site and Environs*

The Kerry County Council planning databases was searched to determine if any nearby plans or projects were likely to result in potentially significant cumulative impacts.

There are no significant or largescale projects planned or approved within the last 5 years within the immediate vicinity of the proposal. Recent planning approvals and planned developments pertain to dwelling extensions and alterations. The majority of planning applications flanking both sides of the N70 carriageway pertain to Hogs Head development of tourist related amenities and facilities. Within Waterville town, approvals relate to external alterations and change of use of premises to café uses. Details of these applications are as follows:

#### *3.3.5.1 Hogs Head Golf Club (Planning Ref.: 16455)*

A&M Hogs Head Golf Club Ltd. recently completed the development of a golf club and carpark at Waterville directly adjacent to the N70 road. The existing club house consists of a two-story structure built into the existing ground profile. The development was subject to Appropriate Assessment (AA) (Malachy Walsh and Partners, 2016). The screening for AA report identified five European sites within 15km of the proposed club house; Ballinskelligs Bay and Inny estuary SAC, Killarney National Park, Macgillycuddy's Reek and Caragh River Catchment SAC, Iveragh Peninsula SPA, Kenmare River SAC and Deenish Island and Scariff Island SPA. The screening assessment concluded that the five European sites are not likely to be impacted by the proposed development and there is no potential for likely significant effects on the European sites. There is therefore no potential for the existing recent development of the club house to result in in-combination effects with the proposed road improvement works on any European sites.

#### *3.3.5.2 Waterville Lake Hotel (Planning Ref.: 16787 & 17481)*

A&M Hogs Head Golf Club Ltd. recently completed the redevelopment of the Waterville Lake Hotel which included the demolition of a three story 100-bedroom hotel, swimming pool building and ancillary structures. The construction of a smaller hotel and commercial cottages was constructed in its place. The development is located adjacent to Lough Currane and approximately 370m east of the N70 road. The development was subject to Appropriate Assessment (Malachy Walsh and Partners, 2017). The AA Screening report concluded that the development would have significant effects on the qualifying interests of the Killarney National Park, Macgillycuddy's Reek and Caragh River Catchment SAC due to habitat alterations, disturbance and water quality impacts. The NIS provided further detail on the potential impacts and prescribes mitigation measures during the construction and operational phases of the development that would eliminate the risk of adverse effects on the integrity of the European site. There is no potential for any in combination effects with the development under appraisal in this report.

#### *3.3.5.3 Minor Residential Developments*

There are several small-scale residential developments / conversions proposed in proximity to the proposed development site. These include planning references 2561084, 22325, 21490, 19474, 19814, 18992, 18660 and 161014. Proposed works associated with the residential developments include extensions, conversions and small-scale demolition. The small residential developments however have no connectivity any nearby European sites. Considering the small scale and temporary nature of the proposed residential developments, coupled with the lack of connectivity, there is no potential for the in-combination of effects.

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### 3.4 PLANNING CONCLUSION

The proposed development seeks to provide improved road safety to an existing substandard legacy route, whilst simultaneously providing sustainable travel options for locals and users of nearby tourist attractions, such as the Kerry Way Walking trail.

It is a national policy objective to promote sustainable mobility, by linking people and places in a sustainable way, providing that the environmental impacts of individual proposals are acceptable.

The RSES for the Southern Regions is aligned with this national policy objective and in addition, seeks to maintain existing national primary and secondary roads. Finally, the proposal will allow Kerry County Council to prioritise the provision of sustainable cycling and walking travel modes.

Overall, the proposed development will contribute positively to the realisation of national, regional and local planning policy objectives and in accordance with the proper planning and sustainable development of the area.

The proposed development also gives effect to and facilitates the implementation of the Kerry County Development Plan 2022-2028 and Local Area Plan.

## 4.0 BIODIVERSITY

### 4.1 INTRODUCTION

This Chapter has been prepared to examine the potential ecological impacts on flora and fauna both within and surrounding the proposed development site. Existing site conditions are presented, potential impacts are assessed, and mitigation measures are recommended where appropriate.

### 4.2 METHODOLOGY

#### 4.2.1 *Legislation and Policy*

Legislation and policy relevant to the ecological assessment and referenced herein include:

- Wildlife Act, 1976 and Wildlife (Amendment) Act (2000) including all amendments. In this document, the legislation is referred to collectively as the Wildlife Acts;
- European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011, as amended, hereafter referred to as the Birds and Habitats Regulations);
- EC Birds Directive 79/409/EEC;
- EC Habitats Directive 92/43/EEC;
- Convention on the conservation of European wildlife and natural habitats (Bern Convention): Entry into Force in Ireland 01/08/1982;
- (EIA) Regulations, including all amendments 1989-2011;
- Fisheries (Consolidation) Act 1959 to 2017;
- Flora (Protection) Order, 2015;
- Bird species of medium and high conservation concern listed in the publication Birds of Conservation Concern in Ireland (BoCCI) 2020-2026;
- Planning and Development Act (2000) including all amendments;
- Planning and Development (Amendment) Act 2010; and
- Kerry County Development Plan 2022-2028

#### 4.2.2 *National Biodiversity Plan, 2017-2021.*

#### 4.2.3 *Study Area and Zone of Influence*

The study area comprises all lands located within the Zone of Influence (Zol) of the proposed development site. The current guidance on ecological assessments (CIEEM, 2018)<sup>2</sup> states that:

“The ‘*zone of influence*’ for a project is the area over which ecological features may be affected by biophysical Changes because of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries” and that “The zone of influence will vary for different ecological features depending on their sensitivity to an environmental Change.”

The Zol is therefore defined through a desk-based assessment regarding the sensitivity of habitats and species likely to be present/previously recorded in the locality of the proposed development site, areas with connectivity (physical, hydrological or ecological) to the proposed development site boundary and potential impacts which may arise. How the Zol was established is summarised hereunder:

<sup>2</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal.

- Based on the desk-based assessment, the main habitats located within the proposed development site and surrounding lands comprise built structures and artificial surfaces, wet grassland, woodland, treelines and a lowland depositing river. Given the location of the proposed development site, and having regard to the habitats likely to be present (determined through the desktop assessment) the following key protected species are likely to be present within the environs of the proposed development: badger (*Meles meles*), otter (*Lutra lutra*), bats (Chiroptera spp.) and common farmland bird species;
- The outer extent of the survey area for protected mammal species was therefore defined with regard to the TII Guidelines: '*Guidelines for the Treatment of Badgers during the Construction of National Road Schemes*' (TII, 2005a)<sup>3</sup> and '*Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes*' (TII, 2006)<sup>4</sup>, which both state that noise impacts from construction works can impact breeding badger setts/otter holts within 150m of construction works. Other protected mammal species likely to be present in the locality will have a smaller Zol, as impacts are predominantly associated with habitat damage and will therefore be captured within the 150m survey buffer. The survey area for bats relates to their commuting/foraging routes and location of roost sites, the potential for which is determined through field assessment. An assessment of potential roost sites within the footprint of the works was undertaken.
- The extent of the survey area for protected bird species was established through potential impacts to birds from the proposed development. The main impacts to birds include habitat loss, fragmentation of habitat and disturbance. The survey area for birds was therefore defined as the proposed development site boundary to account for habitat loss and several hundred meters from the site boundary to account for displacement and/or disturbance. Cutts *et al.* (2013) notes that different types of disturbance stimuli are characterised by different avifaunal reactions, however as a general rule of thumb, a distance of 300m can be used to represent the maximum likely disturbance distance for waterfowl. However, disturbance to species will be considered individually.
- The proposed development crosses over the Currane River (EPA\_Code: 21W01) at the Currane River bridge. Currane River flows into Ballinskelligs Bay (IE\_SW\_200\_0000) approximately 360m downstream of the Currane River bridge. The Zol of potential impacts on surface water quality in the receiving environment will be defined by the current biological condition of the accepting waterbody and its capacity to accept and assimilate sediment and other pollutants. Considering the sources for impacts on European sites, for the definition of the Zol for impacts associated with water pollution, hydrological connectivity will not be considered effective past the first water body of depositional nature is reached (e.g., lake water body; transitional water body). The hydrological pathway for impacts from the proposed development will therefore include all surface water bodies from the proposed development location until Ballinskelligs Bay.

#### 4.2.4 Desktop Study

The ecological desktop study completed for the proposed development comprised the following elements:

<sup>3</sup> TII (2005a). Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes. National Roads Authority, Dublin

<sup>4</sup> TII (2006). Guidelines for the Treatment of Otters prior to the Construction of National Roads Schemes. National Roads Authority, Dublin

- Review of rare and protected fauna including those obtained from the National Parks and Wildlife Service (NPWS) website<sup>6</sup>, those available in NPWS reports and on the National Biodiversity Data Centre (NBDC) website<sup>7</sup>;
- Review of Ordnance Survey maps and aerial photography to determine broad habitats that occur within the study area;
- Identification of European Sites with links to the proposed development; and
- Review of any other relevant ecological reports and literature.

#### 4.2.5 Field Studies

Multi-disciplinary ecological surveys of the proposed development site were undertaken by qualified and experienced Kerry County Council Ecologist on the 11th of September 2024. These ecological surveys supplemented the surveys undertaken by TOBIN ecologists on the 9th of June 2021 and on the 24th-26th of January 2022. The data collected was robust and allowed TOBIN to draw accurate, definitive and coherent conclusions on the possible impacts of the proposed development.

A habitat assessment was undertaken in accordance with Smith (2011)<sup>8</sup>. Habitats were classified according to Fossitt (2000)<sup>9</sup> with reference made to the '*Interpretation Manual of European Union Habitats*' (EC, 2013)<sup>10</sup> as appropriate.

The proposed development site was also searched for evidence of any invasive plant species, including invasive plant species listed in Part 1 of the Third Schedule of S.I No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011. Species protected under Flora (Protection) Order, 2015 (S.I. No. 356/2015) or listed under the Irish Red Data List of Irish Plants were also searched for.

A terrestrial mammal survey was carried out in line with guidance outlined in the TII (2008)<sup>11</sup> *Guidance: Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* and in '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*' (NRA, 2008a). A targeted otter survey was undertaken along sections of the Currane River. Due to land access restrictions, the otter surveys could not be undertaken along the northern bank, upstream of the Currane River bridge, or any section of the river located downstream of the Currane River bridge. These sections of the river were instead surveyed from the Currane River bridge using binoculars.

Observations of ornithological activity within the study area were recorded with regards to the Countryside Bird Survey guidelines - CBS Manual, *Guidelines for Countryside Bird Survey Participants* (CBS, 2012)<sup>12</sup>.

A daytime bat roost assessment of the Currane River bridge was carried out in accordance with the TII's *Best practice guidance for the Conservation of Bats in the Planning of National Road*

<sup>6</sup> National Parks and Wildlife Service Website: [www.npws.ie](http://www.npws.ie)

<sup>7</sup> National Biodiversity Data Centre Mapping Website: <https://maps.biodiversityireland.ie/Map>.

<sup>8</sup> Smith, G.F., O'Donoghue, P., O'Hora, K., Delaney, E. (2011). *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

<sup>9</sup> Fossitt, J.A. (2000). *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

<sup>10</sup> European Commission (2013). *Interpretation Manual of European Union Habitats*. Eur 28. April 2013.

<sup>11</sup> National Road Authority (TII) (2008). *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Scheme*.

<sup>12</sup> Countryside Bird Survey (CBS) (2012). *CBS Manual, Guidelines for Countryside Bird Survey Participants*. BirdWatch Ireland, National Parks and Wildlife Service of the Department of Arts, Heritage and the Gaeltacht.

*Schemes (2006)*<sup>13</sup> and *Collins' Bat surveys for Professional Ecologists: Good Practice Guidelines (2016)*<sup>14</sup>. A Bat survey comprising of a daytime visual assessment of suitable roosting and foraging habitat within and in the vicinity of the proposed works in accordance with 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)' (Collins, 2023) and within 'Bat Mitigation Guidelines for Ireland' (NPWS, 2022). Reference was also made to Bat Conservation Ireland guidelines; Bats and Appropriate Assessment Guidelines (Bat Conservation Ireland, 2012). Features surveyed included the Currane River Bridge, with a particular focus on lesser horseshoe bats (*Rhinolophus hipposideros*) as it is listed under the Annex II of the EU Habitats Directive.

Targeted Kerry slug (*Geomalacus maculosus*) survey was undertaken within areas of suitable habitat within the proposed development site following guidance within the TII's *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (2008)*<sup>11</sup>. The survey included a visual daytime assessment of habitat within the proposed development was conducted in advance, to identify all suitable Kerry slug habitats. The suitable habitat was then surveyed at night, with hand searches for Kerry slug being carried out in within the mixed broadleaved woodland located on the western boundary of the road. The hand searching involved examining mosses and lichens on tree trunks, crevices in the bark (to a height of approximately 2m) and in rocks, for a duration of 45 minutes at different transects.

Targeted marsh fritillary (*Euphydryas aurinia*) surveys were also undertaken within the proposed development site following methodologies outlined in the TII (2008)<sup>11</sup> guidance.

A robust desktop assessment of the Currane River was carried out and reference to previous aquatic surveys undertaken in the watercourse were referred to inform the assessment. In addition, an aquatic habitat assessment in relation to fish and aquatic ecological interests were carried out from the banks of the river using the methodology set out in the Environment Agency's *River Habitat Survey in Britain and Ireland Field Survey Guidance Manual (EA, 2003)*<sup>15</sup>.

#### 4.2.6 Baseline Evaluation of Ecological Receptors

Ecological resources/receptors are evaluated following TII Guidelines (2009)<sup>16</sup>, which are consistent with the approach recommended in the CIEEM guidelines *for Ecological Impact Assessment in the UK and Ireland*(2018)<sup>2</sup>.

### 4.3 RECEIVING ENVIRONMENT

A description of the receiving environment is provided hereunder. Information collected during the desktop assessment and during the field surveys were used to inform this assessment.

### 4.4 OUTPUT OF DESKTOP ASSESSMENT

#### 4.4.1 Designated Conservation Status – Sites of International Importance

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network. The Natura 2000 network comprises sites of the highest biodiversity importance for rare and threatened habitats and species across

13 National Roads Authority (TII) (2006). Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes.

14 Collins, J. (Editor) (2016) Bat Surveys for Professional Ecologist: Good Practice Guidelines (3rd edition). Bat Conservation Trust, London.

15 Environmental Agency (2003). River Habitat Survey in Britain and Ireland. Field Survey Guidance Manual.

<sup>16</sup> TII (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes. Rev 2.

the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SAC) and Special Protection Areas (SPA). SACs are selected for the conservation of Annex I habitats (including priority types, which occurrence is considered threatened) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats.

The proposed development site is located directly adjacent to two European sites; the Killarney National Park, Macgillicuddy's Reeks and Caragh River Catchment SAC (Site Code: 000365) and the Ballinskelligs Bay and Inny Estuary SAC (Site Code 000335) at the Currane River bridge (Section 2 of the proposed scheme).

The Killarney National Park, Macgillicuddy's Reeks and Caragh River Catchment SAC is a very large site, which encompasses the mountains, rivers and lakes of the Iveragh Peninsula, and the Paps Mountains which stretch eastward from Killarney towards Millstreet (NPWS, 2013<sup>17</sup>). The SAC is designated for fourteen Annex I habitats and twelve Annex II species. The Ballinskelligs Bay and Inny Estuary SAC, which is located immediately west of the Currane River bridge, comprises the marine waters of Ballinskelligs Bay and is designated for two marine Annex I habitats and one Annex II species (NPWS, 2013<sup>18</sup>).

#### *4.4.2 Designated Conservation Status – Sites of National Importance*

Natural Heritage Areas (NHA) are the basic wildlife designation in Ireland. These areas are considered nationally important for the habitats present, or which hold species of plants and animals whose habitats needs protection. Under the Wildlife Acts, NHAs are legally protected from damage from the date they are formally proposed for designation<sup>19</sup>. Proposed Natural Heritage Areas (pNHA) were published on a non-statutory basis in 1995 and have not since been statutorily designated.

There are no NHAs located in proximity, or which have a source-pathway-receptor link to the proposed development site.

The closest pNHAs to the proposed development site are the Killarney National Park, Macgillicuddy's Reeks and Caragh River Catchment pNHA (Site Code: 000365) and the Ballinskelligs and Inny Estuary pNHA (Site Code: 000335), which are both located directly adjacent to the proposed development site.

Source-pathway-receptor links exist between the proposed development and the two pNHAs. No links to any other pNHAs were identified.

#### Other National Sites

Other sites designated for natural conservation within the Zol or within 15km of the proposed development site are discussed hereunder:

- There are no National Parks located within 15km of the proposed development site.
- Cumberagh Nature Reserves is located approximately 9km north-east of the proposed development site. There is no source-pathway-receptor link between the reserve and the proposed development.

<sup>17</sup> NPWS (2013a). Killarney National Park, Macgillicuddy's Reeks and Caragh River Catchment SAC (Site Code 000365) – Site Synopsis. Rev 13.Doc.

<sup>18</sup> NPWS (2013b). Ballinskelligs Bay and Inny Estuary SAC (Site Code 000335) – Site Synopsis. Rev 13.Doc.

<sup>19</sup> <https://www.npws.ie/protected-sites> [accessed January 2022]

- There are no RAMSAR sites or wildfowl sanctuaries located within 15km of the proposed development.

#### 4.4.3 Record of Protected Species and Habitats

A search of the NBDC database was carried out for protected flora and fauna, and species listed under the Third Schedule of the Birds and Natural Habitats Regulations (2011) within the 2km Irish Grid square V56C, which encompasses the proposed development site (Table 4-1).

Table 4-1: Protected Species

Grid Square	Name	Protected Status	Source NBDC
V56C	Birds		
	Barn Swallow ( <i>Hirundo rustica</i> )	Wildlife Acts; Birds of Conservation Concern <sup>20</sup> - Amber List	Bird Atlas 2007 - 2011
	Black-headed Gull ( <i>Larus ridibundus</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Common Grasshopper Warbler ( <i>Locustella naevia</i> )	Wildlife Acts; Birds of Conservation Concern - Green List	Bird Atlas 2007 - 2011
	Common Linnet ( <i>Carduelis cannabina</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Common Pheasant ( <i>Phasianus colchicus</i> )	Wildlife Acts; EU Birds Directive: Annex II, Annex III	Bird Atlas 2007 - 2011
	Common Redshank ( <i>Tringa totanus</i> )	Wildlife Acts; Birds of Conservation Concern - Red List	Bird Atlas 2007 - 2011
	Common Shelduck ( <i>Tadorna tadorna</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Birds of Ireland
	Common Snipe ( <i>Gallinago gallinago</i> )	Wildlife Acts; EU Birds Directive: Annex II, Annex III; Birds of Conservation Concern - Red List	Bird Atlas 2007 - 2011
	Common Starling ( <i>Sturnus vulgaris</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Birds of Ireland
	Common Wood Pigeon ( <i>Columba palumbus</i> )	Wildlife Acts; EU Birds Directive: Annex II, Annex III	Bird Atlas 2007 - 2011
	Eurasian Curlew ( <i>Numenius arquata</i> )	Wildlife Acts; EU Birds Directive: Annex II; Birds of Conservation Concern - Red List	Bird Atlas 2007 - 2011
	Eurasian Oystercatcher ( <i>Haematopus ostralegus</i> )	Wildlife Acts; Birds of Conservation Concern - Red List	Bird Atlas 2007 - 2011
	European Shag ( <i>Phalacrocorax aristotelis</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Great Black-backed Gull ( <i>Larus marinus</i> )	Wildlife Acts; Birds of Conservation Concern - Green List	Bird Atlas 2007 - 2011
	Great Cormorant ( <i>Phalacrocorax carbo</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Great Northern Diver ( <i>Gavia immer</i> )	Wildlife Acts; EU Birds Directive: Annex I; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Herring Gull ( <i>Larus argentatus</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
House Sparrow ( <i>Passer domesticus</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011	
Little Grebe ( <i>Tachybaptus ruficollis</i> )	Wildlife Acts; Birds of Conservation Concern - Green List	Bird Atlas 2007 - 2011	

<sup>20</sup> Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 – 2026". Irish Birds 9: 523–544

Grid Square	Name	Protected Status	Source NBDC
	Mallard ( <i>Anas platyrhynchos</i> )	Wildlife Acts; EU Birds Directive: Annex II, Annex III; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Merlin ( <i>Falco columbarius</i> )	Wildlife Acts; EU Birds Directive: Annex I; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Mew Gull ( <i>Larus canus</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Mute Swan ( <i>Cygnus olor</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Birds of Ireland
	Peregrine Falcon ( <i>Falco peregrinus</i> )	Wildlife Acts; EU Birds Directive: Annex I	Birds of Ireland
	Red-breasted Merganser ( <i>Mergus serrator</i> )	Wildlife Acts; EU Birds Directive: Annex II; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Rock Pigeon ( <i>Columba livia</i> )	Wildlife Acts; EU Birds Directive: Annex II	Bird Atlas 2007 - 2011
	Sand Martin ( <i>Riparia riparia</i> )	Wildlife Acts; Birds of Conservation Concern - Amber List	Bird Atlas 2007 - 2011
	Marine Mammal		
	Atlantic White-sided Dolphin ( <i>Lagenorhynchus acutus</i> )	EU Habitats Directive: Annex IV; Wildlife Acts	IWDG Cetacean Strandings Database
	Common Porpoise ( <i>Phocoena phocoena</i> )	EU Habitats Directive: Annex II, Annex IV; Wildlife Acts; OSPAR Convention	IWDG Cetacean Strandings Database
	Common Seal ( <i>Phoca vitulina</i> )	EU Habitats Directive: Annex II, Annex V; Wildlife Acts	Explore Your Shore
	Terrestrial Mammal		
	Irish Stoat ( <i>Mustela erminea</i> subsp. <i>hibernica</i> )	Wildlife Acts	Mammals of Ireland 2016-2025
	European Hedgehog ( <i>Erinaceus europaeus</i> )	Wildlife Acts	Mammals of Ireland 2016-2025
	Irish Hare ( <i>Lepus timidus</i> subsp. <i>hibernicus</i> )	Wildlife Acts	Mammals of Ireland 2016-2025
	Invasive Plant Species		
	Japanese knotweed ( <i>Fallopia japonica</i> )	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)	Irish Vascular Plant Data
	Rhododendron ( <i>Rhododendron ponticum</i> )	High Impact Invasive Species <sup>21</sup> ; Regulation S.I. 477 (Ireland)	Irish Vascular Plant Data

## 4.5 OUTPUT OF FIELD SURVEYS

### 4.5.1 Habitats and Flora

All habits recorded onsite during the field surveys were classified according to Fossitt (2000)<sup>9</sup>. All habitats are described below. An impact assessment of the habitats was undertaken in accordance with the TII guidelines (2009)<sup>16</sup> and described hereunder.

<sup>21</sup> Kelly, J., O'Flynn, C., and Maguire, C. 2013. Risk analysis and prioritisation for invasive and non-native species in Ireland and Northern Ireland. A report prepared for the Northern Ireland Environment Agency and National Parks and Wildlife Service as part of Invasive Species Ireland.

4.5.1.1 Buildings and Artificial and Surfaces (BL3), Stone Walls (BL1) and Exposed Gravel (ED1)

The proposed development is located along the N70 road, which is an existing road comprising a tarmacadam surface. The road is narrow with no roadside verges present. Stone walls, with varying heights, border both sides of the existing road.

There are several residential developments situated along the eastern border of the road. Houses are predominately set back from the road with fences / walls or landscaped hedges bordering the road. Hogs Head Golf Club and Waterville House are located immediately west of the road. Amenity grassland (GA2) and ornamental shrubs (WS3) were also recorded within the golf course and within residential gardens. An area of exposed gravel (ED1) occurs along the eastern boarder of the road.

All habitats were assessed as being of Local Importance (lower value) due to the low ecological value the habitats provide.

4.5.1.2 Hedgerows (WL1) and Treelines (WL2)

A number of hedgerows (WL1) and treelines (WL2) occur along the boundary of the road (refer to). The hedgerows predominantly comprised willow (*Salix* spp.), bramble (*Rubus fruticosus*), ivy (*Hedera hibernica*), elder (*Sambucus nigra*), common polypody (*Polypodium vulgare*), bracken (*Pteridium aquilinum*), periwinkle (*Vinca major*) and herb Robert (*Geranium robertianum*). A number of treelines comprising sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and willow were also recorded on the boundary of the road. The hedgerows and treelines are likely to provide suitable nesting habitat for breeding bird species.

Both the hedgerow and treeline habitats were assessed as being of Local Importance (higher value), as the habitats are likely to support some protected species.

*Photo: 1: Stone Wall (left) and Hedgerows (right)*



#### 4.5.1.3 Mixed Broadleaved Woodland (WD1) and Scrub (WS3)

Areas of mixed broadleaved woodland (WD1) occur in two areas along the western boundary of the road. The woodland comprises ash, alder (*Alnus glutinosa*), sycamore and willow and has a dense understory of bramble, bracken and ivy. In between areas of mixed broadleaved woodland, the habitat grades into scrub (WS1). The scrub comprises dense gorse (*Ulex europaeus*), bracken, bramble, willow with occasional ash, montbretia (*Crocossima x crocosmiiflora*) and silver birch (*Betula pendula*). Both the woodland and scrub habitat are likely to provide suitable nesting habitat for breeding bird species. No evidence of mammal activity was recorded within the habitats.

The invasive species Japanese knotweed (*Fallopia japonica*) was recorded scattered throughout both the woodland and scrub habitat. Further detail on the Japanese knotweed is outlined in the NIS.

Both the mixed broadleaf woodland and scrub habitat were assessed as being of Local Importance (higher value) as the habitats are likely to support some protected species.

#### 4.5.1.4 Wet Grassland (GS4) and Unimproved Agricultural Grassland (GA1)

Areas of wet grassland (GS4) occur on either side of the road in proximity to the Currane River. The wet grassland was dominated by soft rush (*Juncus effusus*), Yorkshire fog (*Holcus lanatus*), creeping bent (*Agrostis stolonifera*) and with occasional bracken, willow and gorse also present. The wet grassland habitat was assessed as being of Local Importance (higher value).

An area of improved agricultural grassland (GA1) was recorded on the eastern boundary of the road. The grassland comprised perennial ryegrass (*Lolium perenne*), Yorkshire fog, ribwort plantain (*Plantago lanceolata*) and common knapweed (*Centaurea nigra*). The grassland grades into wet grassland as the land slopes towards the Currane River. A number of mammal tracks, likely to be fox, were recorded throughout the grassland.

The improved agricultural grassland was assessed as being of Local Importance (lower value).

#### 4.5.1.5 Lowland / Depositing River (FW2)

The Currane River bridge traverses over the Currane River (FW2), outflowing from Lough Currane. The Currane River is a lowland depositing river which discharges into the sea approximately 230m downstream of the bridge. The river forms part of both the Killarney National Park, Macgillicuddy Reeks and Caragh SAC (000365), upstream of the bridge and the Ballinskelligs Bay and Inny Estuary SAC (000335), downstream of the bridge. The Currane River is an important salmonid watercourse and Atlantic salmon (*Salmo salar*) is a Qualifying Interest of the Killarney National Park, McGillicuddy Reeks and Caragh SAC.

Upstream of the bridge, the river is approximately 20m wide with the depth ranging between 30cm – 1.5m. The river forms a glide in this section with a slightly slower flow than the downstream reaches. The substrate of the river comprises boulders (50%), cobbles (30%), gravel (10%) and silt (10%). A large reed swamp (FS1) of common reed (*Phragmites australis*) is present along the southern banks of the river, upstream of the bridge. Water crowfoot (*Ranunculus penicillatus*), broad-leaved pondweed (*Potamogeton natans*) and water mosses, such as common water moss (*Fontinalis antipyretica*) were recorded in areas along the watercourse. Downstream of the bridge, the flow increases, and small swift rapids are present.

The Currane River was assessed as being of International Importance.

The Finglas River (Waterville) (EPA\_Code: 21F05) is located to the west of the N70 and flows into the Currane River downstream of the Currane River bridge. There is no hydrological connectivity between the proposed development and the Finglas River.

*Photo: 2: View of Currane River upstream of the bridge (Left), View of Currane River downstream of the bridge (Right)*



#### 4.5.1.6 Protected and Invasive Plant Species

No plant species listed under the Flora Protection Order (FPO), or habitats protected under the EU Habitat Directive were recorded within the footprint of the proposed development site during the surveys.

The invasive species Japanese knotweed was recorded in three locations within the scrub (WS1) and woodland (WD1) habitat, located adjacent to the road (Habitat Map below). One large patch of Japanese knotweed (JK2) was recorded at the southern section of the proposed development site, on the eastern boundary of the road (coordinates: 51.815471, -10.161984). The infestation includes over 80 stands of Japanese knotweed, ranging between 2-3m in height. The area of Japanese knotweed is located within the proposed development site and will be directly disturbed by the construction works.

A second large infestation (JK1) was recorded further north along the road (coordinates: 51.816227, -10.163250), with over 200 stands 4m in height present (refer to Photo: 3). Similarly, the patch of Japanese knotweed is located within the proposed development site and will be directly disturbed.

A third infestation of Japanese knotweed (JK3) was recorded along the eastern bank of the Finglas River (Waterville) (coordinates: 51.818727, -10.170685). The infestation is not located within the proposed development site boundary and will not be disturbed by the proposed works.

Giant rhubarb was observed growing in scrub on the southern side of the N70 (coordinates: 51.8183795, -10.166156).

An Invasive Species Management Plan has been prepared and included with this documentation. This will be further developed at the construction stage as part of the implementation of any Conditions/Restrictions and/or Mitigation Measures enshrined in such Approval by the Competent Authority as may be granted.

It was noted in the September 2024 surveys that a treatment program for the elimination of the Japanese Knotweed had begun on the N70, and this included the proposed development site.

*Photo: 3: Japanese knotweed located in scrub habitat adjacent to the road (left) Japanese knotweed located along the Finglas River (right)*



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## 4.5.2 Fauna

An assessment of protected fauna species within the survey area was undertaken and is discussed hereunder.

### 4.5.2.1 Otter

Otters and their breeding and resting places are protected under the Wildlife Acts and under the EU Habitat Directive.

An otter survey was undertaken along sections of the Currane River. As noted, due to landowner access restrictions, only the southern bank, upstream of the Currane River bridge could be surveyed on foot. The northern bank and the sections of river located downstream of the bridge were surveyed from the bridge using binoculars. An otter survey was also carried out along sections of the Finglas River (Waterville), located within 150m of the proposed development.

No evidence of otter activity, including otter holts/couches were recorded along the Currane or Finglas rivers.

A review of the NBDC dataset indicates that otter have previously been recorded along the coast, west of the proposed development site, along the southern reaches of the Finglas River, and on the Lough Currane. Despite no evidence of the species was recorded during the surveys undertaken by TOBIN, considering the previous records of the species and the suitability of the habitat, it is likely that otter commute and/or forage along the two rivers in proximity to the proposed development site, at least on occasion.

### 4.5.2.2 Other Protected Mammals (Non-Volant)

No evidence of badger was recorded within the study area during surveys. A review of the NBDC dataset indicates that there have been no records of badger within the area.

No evidence of any other protected mammal species was recorded during the field surveys. There is potential, however, that the proposed development site may support other small, protected mammal species such as hedgehog (*Erinaceus europaeus*), pygmy shrew (*Sorex minutus*), Irish stoat (*Mustela erminea hibernica*) and Irish hare (*Lepus timidus*). NBDC dataset indicates that these species have previously been recorded within the study area.

Evidence of fox (*Vulpes vulpes*), which included tracks and scat, was recorded within the proposed development site on a number of occasions. Despite fox not being currently protected under National law, there is an obligation to protect biodiversity within Ireland under the Convention on Biological Diversity.

### 4.5.2.3 Bats

All bat species and their roost sites are protected under the Wildlife Acts. There is additional protection for lesser horseshoe bat (*Rhinolophus hipposideros*), which is listed as an Annex II species under the EU Habitats Directive. The lesser horseshoe bat occurs in County Kerry and is a Qualifying Interest of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC.

The proposed development will include the installation of a single span pedestrian/cyclist bridge to the west of the existing Currane River bridge. The existing Currane River bridge is a three-

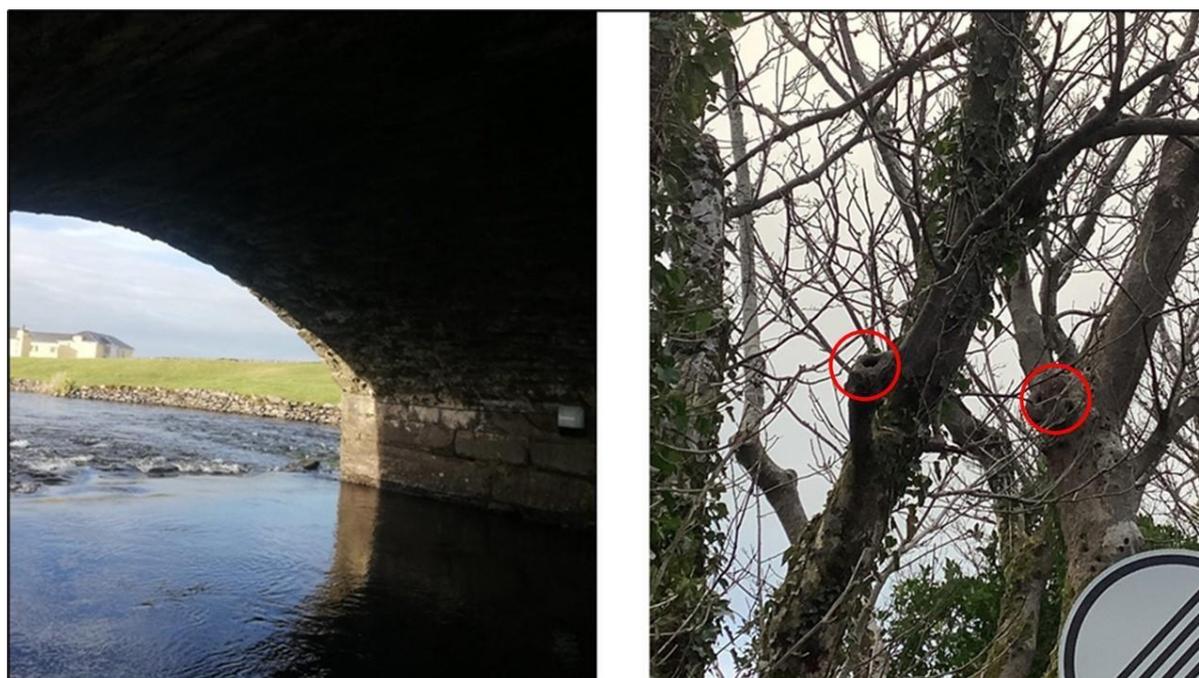
span masonry bridge which carries the N70 road over the Currane River (refer to Photo 4 below).

A bat roost assessment of the bridge was undertaken to identify the presence of any potential bat roost sites within the structures, as bridges can be important roost sites for a number of bat species.

The bridge arches and wingwalls were inspected and no cracks or crevices sufficiently sized to support bats were recorded. The arches of the bridge were covered in shotcrete, which has filled in all the crevices between the stones in the bridge. Small lights were also present at the base of each arch under the bridge, which is likely to be illuminating the base of the bridge. The bridge is located in an open exposed landscape adjacent to the coast. There are no linear features, such as hedgerows or treelines located in proximity to the bridge. The bridge was assessed as having 'Negligible' bat roost potential, as per Collins (2016)<sup>14</sup>.

A mature treeline of sycamore trees occurs behind a stone wall, along the eastern boundary of the proposed development site (coordinates: 51.818960, -10.167435), being connected to an area of woodland located to the north. Two trees within the treeline were assessed as having 'Moderate' bat roost potential due to the presence of a number of knot holes that could be used by bats (refer to Photo 4). No staining or smoothing around the knot holes, however, could be seen. Further investigations could not be carried out due to access restrictions. The two sycamore trees were assessed as having 'Moderate' bat roost potential as per Collins (2016)<sup>14</sup>.

*Photo 4: Currane River bridge (left) and Sycamore with knot holes (right)*



#### 4.5.2.4 Birds

All wild birds and their nests and eggs are protected under the Wildlife Acts. Several bird species are also protected under Annex I of the EU Birds Directive.

Observations of ornithological activity within the proposed development site were made during the ecological surveys with regard to the Countryside Bird Survey guidelines; *CBS Manual, Guidelines for Countryside Bird Survey Participants* (CBS, 2012)<sup>22</sup>.

Birds recorded within the roadside vegetation included robin (*Erithacus rubecula*), wren (*Troglodytes troglodytes*), goldfinch (*Carduelis carduelis*), pied wagtail (*Motacilla alba yarrellii*), blackbird (*Turdus merula*), wood pigeon (*Columba palumbus*) and magpie (*Pica pica*).

During the survey undertaken in January 2022, a small flock (n=15) of oystercatchers (*Haematopus ostralegus*) were recorded foraging on Waterville Beach, located approximately 400m north of the proposed development site.

The bird species recorded during the ornithological activity surveys are common species typically found within the Irish countryside. All bird species recorded, except for oystercatcher, are listed as having Green Conservation Status<sup>20</sup> (Low Conservation Concern). Oystercatchers are currently listed as having Red Conservation Status<sup>20</sup> (High Conservation Concern).

#### 4.5.2.5 Invertebrates

##### Kerry Slug

The Kerry slug is listed on Annex II and IV of the EU Habitats Directive 92/43/EC and is listed as a Qualifying Interest of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC. The Kerry slug has a limited distribution and is known to occur in Devonian Old Red Sandstone strata, in West Cork and County Kerry. The Kerry slug is generally known to occur in two broad habitat types, the first habitat is oak-dominated or mixed deciduous woodland with a mixture of oak and birch, the second habitat is unimproved oligotrophic open moor or blanket bog with sandstone outcrops and boulders (TII, 2008<sup>11</sup>).

Considering the proximity of the proposed development site to the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC, and to the presence of a small area of mixed broadleaved woodland, a targeted Kerry slug survey was undertaken within suitable habitat proposed to be removed to facilitate the proposed improvement works. A hand search survey for Kerry slug was carried out on 25<sup>th</sup> of January 2022 following guidance within the TII (2008)<sup>11</sup> guidelines.

No Kerry slugs were recorded during the survey.

The woodland, although holding mixed deciduous species, is immature in nature and shows signs of previous disturbance by construction works. There is also very little moss and lichen cover within the woodland, which suggests the area is likely to be too dry for Kerry slug. Habitat within the proposed development site was determined to be unsuitable for Kerry slug.

##### Marsh Fritillary

Marsh fritillary is listed on Annex II of the EU Habitats Directive 92/43/EC and is a Qualifying Interest of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC.

<sup>22</sup> Countryside Bird Survey (2012). *CBS Manual, Guidelines for Countryside Bird Survey Participants*.

During the field survey, undertaken on the 9<sup>th</sup> of June 2021, the proposed development site was searched for suitable habitat which could be utilised by marsh fritillary. Marsh fritillary can be found in wet grassland and, very locally, in fixed dunes, machair, fen and bog habitat<sup>23</sup>. The presence of marsh fritillary within these habitats is largely dependent on the presence of devil's bit scabious (*Succisa pratensis*) (the species main food source) and purple moor-grass (*Molinia caerulea*). The species also requires open areas where in spring larvae can receive sunlight close to ground level.

No devil's bit scabious or purple moor-grass was recorded within the habitats within the proposed development site.

All vegetation which is proposed to be removed to facilitate the proposed development was determined to be unsuitable for marsh fritillary.

#### 4.5.2.6 Aquatic Species

As noted, the Currane River forms part of the Killarney National Park, McGillycuddy Reeks and Caragh SAC. The SAC is designated for six fish species: Atlantic salmon (*Salmo salar*), brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), sea lamprey (*Petromyzon marinus*), freshwater pearl mussel (*Margaritifera margaritifera*) and Killarney shad (*Alosa fallax killarnensis*). The Currane River downstream of the Currane River bridge (known as Butlers Pool) is one of the most well-known private salmonid fisheries in the country<sup>24</sup>. The section of river by the Currane River bridge is located at the seaward entrance of the entire catchment and is, therefore, an important migration route for anadromous fish species, including salmon and lamprey. Inland Fisheries Ireland (IFI) operates a fish counter at Waterville, downstream of the bridge in the grounds of Waterville House. Counter data for Waterville in 2018 (IFI, 2019), 2020 (IFI, 2021), 2021(IFI, 2022) and 2022(IFI, 2023) is outlined in the 4-2 below. Unfortunately, due to technical difficulties at this site there was no data collected for the period January to December 2023 (IFI, 2024).

Table 4-2: Counter Data for Waterville

Fish Species	Numbers recorded in 2018	Numbers recorded in 2020	Numbers recorded in 2021	Numbers recorded in 2022
Spring salmon	196	89	345	382
Grilse	431	662	719	260
Late summer salmon	42	231	183	195
Sea trout ( <i>Salmo trutta trutta</i> )	1,216	2,426	3,500	1,280

An aquatic survey of the Currane River was undertaken in 2017 by Lauren Williams<sup>27</sup>. The survey included a snorkelling survey of the Currane River, upstream and downstream of the Currane River bridge. High value salmonid habitat was recorded throughout the watercourse. The report concluded that the stretch of river is an important salmonid nursery and is a critical migration route for anadromous species moving in and out of the catchment.

<sup>23</sup> <https://www.npws.ie/research-projects/animal-species/invertebrates/marsh-fritillary-euphydryas-aurinia#:~:text=Colonies%20can%20occur%20in%20a.is%20an%20essential%20habitat%20component.> [Accessed January 2022]

[Accessed January 2022]

<sup>24</sup> <https://fishinginireland.info/salmon/southwest/watervillieriver/> [Accessed: January 2022]

<sup>25</sup> Inland Fisheries Ireland (IFI) (2018) Inland Fisheries Ireland Summary Fish Counter Report. IFI/2019/1-4462.

<sup>26</sup> IFI (2020). IFI Consolidated Fish Counter Summary Report. IFI/2021/1/-4540.

<sup>27</sup> Williams, L (2017) Waterville N70 Road Improvement Scheme Aquatic Ecological Impact Assessment. (Unpublished Report).

No surveys have been undertaken for lamprey species within the Currane River to date. As Lamprey species are known to occur in the upper reaches of the catchment (NPWS, 2017)<sup>28</sup>, it can, therefore, be assumed that the Currane River, in proximity to the Currane River bridge, is an important migration route for lamprey as they migrate upstream to spawn.

The freshwater pearl mussel is a Qualifying Interest of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and is known to occur in the Cumberagh-Currane catchment located upstream of Lough Currane (NPWS, 2017)<sup>28</sup>. The population is estimated to be approximately 100,000 individuals and occurs in the lower reaches of both the Cumberagh and the Capall River (NS2, 2009)<sup>29</sup>.

During the snorkelling survey undertaken by Lauren Williams<sup>27</sup>, no freshwater pearl mussel was recorded. The river was considered to be sub-optimal to unsuitable for the protected mollusc.

The Killarney shad is confined to Lough Leane, which is not hydrologically connected with the proposed development site.

## 4.6 POTENTIAL IMPACTS

### 4.6.1 Impact Assessment Criteria

The following sections present the assessment of impacts on biodiversity within the Zol of the proposed development. Impacts are presented in relation to both the construction and operational phases of the proposed development.

### 4.6.2 Potential Impacts during Construction Phase

#### 4.6.2.1 Designated Sites

TOBIN prepared an Appropriate Assessment (AA) Screening report, which assessed the potential for the proposed development to give rise to likely significant effects on European sites(s), either alone or in-combination with other plans and projects. Source-pathway-receptor links were identified between the proposed development and the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC due to the potential for water quality effects on the aquatic Qualifying Interests. No source-pathway-receptors link was identified between the proposed development site and the Ballinskelligs Bay and Inny Estuary SAC, due to the location and Characteristics of the Qualifying Interests.

A Natura Impact Statement (NIS) was therefore prepared for the proposed development to inform the Appropriate Assessment process, for the purpose of Article 6 of the EU Habitats Directive. The NIS concluded that, with the implementation of the detailed mitigation measures, potentially adverse effects will be avoided or reduced. Consequently, it is determined that there will be no significant adverse effects on the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC because of the proposed development, alone or in-combination with any other plans or projects.

The Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment pNHA and the Ballinskelligs and Inny Estuary pNHA occur adjacent to the proposed development at the

<sup>28</sup> NPWS (2017) Conservation Objectives: Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

<sup>29</sup> NS 2 Freshwater Pearl Mussel Sub-Basin Management (2009). Report on Morphological Monitoring and Catchment Walkover Risk Assessments in the Currane catchment.

Currane River bridge. The two pNHAs occur within the same site boundary as the European Sites. With the implementation of mitigation measures outlined in the NIS, no impacts to the pNHAs are anticipated.

#### 4.6.2.2 Habitat and Flora

The proposed development will result in the clearance and loss of habitat. Habitat to be removed includes areas of mixed broadleaf woodland (ca. 2,950m<sup>2</sup>), scrub (2,850m<sup>2</sup>), wet grassland (ca. 2,420 m<sup>2</sup>), agricultural grassland (ca. 720m<sup>2</sup>), amenity grassland (ca. 1,720m<sup>2</sup>) and approximately 320m of hedgerow.

The woodland, scrub, hedgerow and wet grassland were assessed as being of Local Importance (higher value) and, therefore, loss of these habitats will have a local impact only. The area of habitat which will be permanently lost is relatively small, considering the availability of similar habitat within the wider environment. The permanent loss of habitat will result in a permanent, slight effect on the receiving environment, at a local geographic scale. All other habitats required to be removed were assessed as being of Local Importance (lower value) and, therefore, loss of the habitat is not considered significant.

The proposed construction works will include the installation of a pedestrian / cycle bridge adjacent to the existing Currane River bridge which will include foundation works and land take on the banks of the river. The bridge works will be set back outside the SAC site boundary.

Minor works associated with the drainage system, which will include the installation of an overflow pipe and headwall will be constructed within a small section of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC. Most of the proposed outfall pipeline will be confined to outside the SAC boundary, however approximately 5m of the pipeline and the proposed headwall will be located within the SAC site boundary. Habitat which will be disturbed within the SAC site boundary will include gravel, amenity grassland and an existing stone wall (refer to Figure 4-1). Following completion of the construction works all disturbed land will be fully reinstated.

There is potential, for the construction works associated with the proposed development to result in the runoff of sediment and/or construction pollution which could deposit within the Currane River degrading water quality which would result in indirect effects on aquatic habitats and plant species. Aquatic habitat degradation because of effects on surface water quality have the potential to affect the conservation status of aquatic habitat present within the European sites and therefore has the potential to result in significant negative effects at international scale. This is considered and assessed in detail in the NIS.

Japanese knotweed was recorded within the proposed development site and will be directly disturbed by the proposed development construction phase. Japanese knotweed is listed under the Third Schedule of the European Communities Regulations 2011 (S.I. No. 477 of 2011), and it is an offence to disperse, or promote the dispersion, of these plant species without a licence. The spread of Japanese knotweed can result in the crowding out or shading of native plant species, which, if spread onto riverbanks, can also result in the erosion and compromise bank stability. Due to the proximity of the construction works to the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and Ballinskelligs Bay and Inny Estuary SAC, there is also potential for the invasive species to be translocated into the European sites if not appropriately managed. The spread or translocation of invasive species would result in significant negative effects on the receiving environment from local to international scale.

*Figure 4-1: Existing Access Track through the SAC*



#### 4.6.2.3 *Fauna*

Impacts to protected fauna are outlined hereunder.

##### Otter

No otter holts were recorded during the field surveys. However, it is likely that otter commute and forage, at least on occasion, along the Currane River in proximity to the proposed development site. There is also potential, due to the suitability of the habitat, for new holts to be established in the interim of the survey and commencement of the construction phase of the proposed development. Construction works can result in disturbance impacts to breeding otter to a distance of up to 150m for developments of this nature (TII, 2006).

In the absence of mitigation, the release of sediment and construction pollution into the Currane River has the potential to result in indirect impacts on otter due to the degradation of water quality resulting in impacts on its feeding resources. This is considered and assessed in detail in the NIS.

##### Bats

No active bat roosts were confirmed within the proposed development site. The Currane River bridge was assessed as having 'Negligible' bat roost potential. The two mature sycamore trees were assessed as having 'Moderate' bat roost potential. Although no bat roosts were confirmed during the surveys, there is potential for bats to use the site opportunistically.

It is likely that temporary construction lighting will be required during the construction phase of the proposed development. The construction lighting has the potential to result in the illumination of the surrounding linear features which may displace commuting/foraging bats from the habitat. Lighting can also disturb bats feeding behaviours (Bat Conservation Ireland, 2010)<sup>30</sup>.

<sup>30</sup> Bat Conservation Ireland (2010). Guidance Notes for: Planners, engineers, architects, and developers.

## Other Mammal Species

There is potential that the proposed development site may support other small, protected mammal species such as hedgehog, pygmy shrew, Irish stoat or Irish hare. The construction phase of the proposed development may result in disturbance and loss of suitable foraging habitat. However, considering the availability of alternative suitable habitat within the wider environment, and the mobile nature of these species, it is not considered likely the potential for negative impacts to be significant.

## Birds

The areas of woodland, scrub and wet grassland within the construction phase of the proposed development, which are proposed to be removed, are likely to provide suitable nesting habitat for breeding bird species. If the removal of the vegetation occurs within the breeding bird nesting season (1<sup>st</sup> March – 31<sup>st</sup> August, inclusive), there is potential that nests and eggs will be lost.

Construction related noise and the physical presence of machinery and construction personnel is likely to result in the disturbance of breeding and wintering birds from habitats located in the vicinity of the proposed development site. Given the short-term duration of the construction phase of the proposed development (i.e., approximately seven months), disturbance to breeding bird's species will be short term. In addition, there is suitable, alternative habitat within the surrounding lands. Similarly, there are no designated sites for the protection of birds, such as SPAs, RAMSAR sites or Wildfowl Sanctuaries, located in proximity to the proposed development site.

## Aquatic Species

The section of the Currane River at the Currane River bridge is an important salmonid nurse and is an important migration route for anadromous species migrating through the catchment.

There is potential for indirect effects on aquatic species due to a degradation of water quality from the runoff of construction pollution and sediment from the construction works area. Sedimentation can degrade suitable spawning habitats by infiltrating clean gravel beds (Hendry *et al.* 2003)<sup>31</sup>. A reduction of suitable spawning beds within the watercourse has the potential to reduce the carrying capacity for the aquatic species, such as Atlantic salmon, lamprey species and other fish species within the watercourse. The obstruction of upstream migration may restrict salmon and lamprey from reaching important spawning sites. In addition, the release of concrete into a watercourse has the potential to alter pH levels of the water body and is highly toxic to aquatic life. This is considered and assessed in detail in the NIS.

### 4.6.3 Potential Impacts During Operational Phase

During the operation phase of the proposed development, increased human presence on the road is anticipated. However, the proposed development's improvements are planned to attract cyclists, due to the installation of the cycle path, whereas the motor vehicle traffic is not anticipated to change from the pre-construction levels. Therefore, motor vehicle noise will be of similar magnitude and intensity as pre-construction, which is not likely to cause any added stress to local fauna.

<sup>31</sup> Hendry K & Cragg-Hine D (2003). Ecology of the Atlantic Salmon. Conserving Natura 2000 Rivers Ecology Series No. 7. English Nature, Peterborough.

During the operational phase there is potential for accidental hydrocarbon emissions, which could cause contamination if they enter surface waterbodies.

## 4.7 MITIGATION MEASURES

### 4.7.1 *Construction Phase Mitigation*

Mitigation measures which will be implemented during the construction phase are detailed hereunder.

#### 4.7.1.1 *Ecological Clerk of works and Construction Environmental Management Plan*

A suitably qualified Ecological Clerk of Works (ECoW) will be appointed by the Contractor. The ECoW will be present for the duration of the construction phase programme and will ensure that all mitigation measures outlined within this report are implemented during the proposed construction works as part of the implementation of any Conditions/Restrictions and/or Mitigation Measures enshrined in such Approval by the Competent Authority as may be granted.

A Construction Environmental Management Plan (CEMP) will be prepared and will be implemented during the construction phase of the development as part of the implementation of any Conditions/Restrictions and/or Mitigation Measures enshrined in such Approval by the Competent Authority as may be granted. All mitigation measures outlined within the NIS will be incorporated within the CEMP. A preliminary CEMP accompanies the application to An Bord Pleanála.

#### 4.7.1.2 *Bridge Installation Mitigation Measures*

The proposed pedestrian / cycle bridge will be constructed to the west (coastal side) of the Currane River bridge.

Prior to the construction works commencing, silt fences will be installed, by hand, along both banks of the Currane River.

Once the silt fences are installed, 1-1.5 tonne sandbags, wrapped in heavy gauge polythene will be positioned along both banks of the Currane River, creating a barrier around the construction works, as shown in Figure 4-2 below. The sandbags will be lifted into place using a mechanical excavator.

Sheet pile cofferdams will be installed around the two bridge abutments to ensure there is no runoff from the works area (refer to Figure 4-2). The sheet piles will be carefully pushed into the ground using an excavator or by using an excavator mounted vibrator. Impact driving of sheet piles will not be permitted. In-situ concrete will be poured into the formwork within the sheet pile excavation to form the abutment base slab.

Run-off settlement areas will be set up on both banks within the sandbag cofferdam (refer to Figure 4-2). This will consist of a mobile settlement tank with a pump to discharge to a vegetated grassed area (>50m from the river) to act as natural filter. No direct discharge to the river will be permitted at any time during the works. Silt fencing will be placed below where the water is discharged to the grassed area. Any sediment collected by settlement tanks/silt fencing will be transported off site by a licensed waste operator for appropriate disposal.



#### 4.7.1.3 Management of Outfall and Headwall Works

Two stormwater outfall pipes will be installed as part of the proposed improvement works. One outfall pipe and headwall will be constructed to the north bank of the Currane River adjacent to the existing bridge and the second will include an outfall pipe located south of the existing pumping station discharging into a wetland.

The construction works associated with the installation of the headwall and outfall pipe on the northern bank of the Currane River will be undertaken in the dry and isolated from the river using small sandbags. Although the works area will be predominantly located on the bank of the river, a small area may extend into the river. The works area may therefore require the removal of any water ingress which will be over pumped to a grassy area located a minimum of 50m from the river.

Prior to the removal of any water, the isolated area will be inspected by the ECoW for the presence of fish and lamprey which will be translocated downstream if found. In addition, all excavated material from this area will be checked for the presence of lamprey.

Once a dry works area has been established minor excavation works will be undertaken either by hand or with a single tracked excavator. No machinery will be allowed into the watercourse. A pre-cast headwall will be used and brought to site and lifted into place. No onsite batching of concrete will be undertaken. Once the headwall has been installed the sandbag cofferdam will be removed.

All works associated with the installation of the headwall on the northern bank of the Currane River will be undertaken during the period July-September, outside the salmon spawning season. In addition, IFI will be consulted prior to works commencing and a detailed method statement outlining the proposed works and timing of works will be agreed.

The southern outfall pipe will be constructed on land. Silt fences will be installed around the perimeter of the excavation works.

#### 4.7.1.4 Mitigation Measures to ensure the protection of the Currane River

To avoid the release of construction pollution/contaminates and silt into the Currane River, the following procedures will be implemented:

- An emergency plan for the construction phase of the proposed development to deal with accidental spillages will be drawn up, which all site personnel must adhere to and receive training in.
- All machinery will be regularly maintained and checked for leaks. Any refuelling of construction machinery/vehicles will not be undertaken within 50m of any surface water feature. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations to contain any accidental spillages that may occur. No refuelling will be carried out within 50m of the Currane River.
- Excavation works will not be carried out during or following heavy rainfall (i.e., if there is a yellow weather warning in place or 5mm in a 1-hour period) this will be monitored by the appointed Contractor and ECoW by consulting Met Eireann forecast rainfall radar data. Excavations will be covered during high rainfall to avoid the creation of surface water with high concentrations of suspended solids that would require dewatering.

- All silt fences will be positioned to allow an appropriate working area but will not be placed within areas prone to flood. A permeable fabric (Hy-Tex Terraston Premium silt fence, or similar) will be used for the silt fences. The silt fencing will be erected as per the manufacturer's guidelines and will be installed under the ECoW supervision and will be maintained until all ground disturbance has ceased and vegetation re-established. Once installed, the silt fence will be inspected regularly during construction and more frequently during heavy rainfall events.
- The concrete works associated with the foundations of the bridge will be scheduled during dry weather only. Any waste concrete will be taken off-site to a licenced waste facility.
- No on-site batching will be permitted at the proposed development area. All concrete will be transported to the site by truck.
- Wash-down of concrete contaminated equipment will not take place within the proposed development site. All washdown of vehicles/equipment will be undertaken off-site, in a designated area, separated by at least 50m of any surface water feature. All concrete waste will be managed in accordance with waste legislation.
- No water will be abstracted from the Currane River. Any water requirements will be obtained from the existing water network.
- On completion of the construction phase of the proposed development, all apparatus, plant, tools, offices, sheds, surplus materials, rubbish and temporary erections or works of any kind will be removed from the site.
- The construction compound and welfare facility will be located at an existing setback area adjacent to the Hogs Head Golf Course at Ch 640m approximately. The location of the compound is set back from any watercourse.
- The temporary welfare facilities will not have any discharge to ground or surface waters and will be located a minimum of 50m from the Currane River. All wastewater will be collected in a large tank and will be emptied as required by a licenced waste collector according to the manufacturer's guidelines.

#### 4.7.1.5 Pre-construction Otter Surveys

A pre-construction otter survey will be undertaken by an appropriately experienced ecologist along the Currane River prior to the commencement of any works. This will be carried out to identify any changes in otter activity or the establishment of any new holts. The pre-construction survey shall be conducted no more than 10–12 months in advance of the construction works, as per the TII (2008b) guidelines. If any new otter holts are identified within the ZOI of the proposed development, a derogation license will be sought from NPWS.

#### 4.7.1.6 Disturbance /Displacement Mitigation Measures

No otter holts or resting/breeding sites of any protected species were recorded within the proposed development site. There is potential, however, for the disturbance (noise emissions and visual disturbance) of designated QIs (e.g., otter), which may forage or commute within the area, at least on occasion.

To reduce noise and visual disturbance, construction noise will be kept to a minimum in accordance with British Standard BS 5228 1:2009 '*Code of Practice for Noise and Vibration Control on Construction and Open Sites -Part 1: Noise*'. Noise levels will be monitored using standard noise meters.

The night-time work associated with the installation of the pedestrian / cycle bridge will extend over two nights. Considering the temporary nature of these works, which will be undertaken adjacent to a road with existing elevated noise levels, the disturbance is likely to be negligible.

To reduce disturbance, all temporary lighting associated with the construction works will be placed strategically by the Contractor following consultation with the appointed ECoW. This will ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay. No lighting will be directed towards the Currane River.

No impact driving of piles will be permitted. Sheet piles shall be installed using an excavator mounted vibrator.

## *4.7.2 Management of Habitats*

### *4.7.2.1 Removal of Vegetation*

The proposed construction works area will be clearly demarcated to ensure no works or vegetation removal occurs outside the designated works area. Minor construction works (e.g., the installation of the outfall pipe and headwall on the northern bank of the Currane River) will be undertaken within the SAC site boundary. Following the completion of the works the disturbed lands will be fully reinstated. No machinery will be allowed within the watercourse.

Breeding bird habitats (e.g., hedgerows, treelines, scrub and wet grassland) will not be removed, cleared or trimmed between the 1st of March and 31st August, to avoid impacts on nesting birds, which are protected under the Irish Wildlife Acts. In the event however that the construction programme does not allow this time restriction to be observed, then these areas will be inspected by a qualified ecologist for the presence of breeding birds prior to commencement of construction works. Where any nests are found, the appointed ECoW will provide recommendations as to whether a licence is required for vegetation removal and will detail the process for obtaining such derogation licence from the NPWS.

#### *4.7.2.1.1 Management of invasive Species*

Japanese knotweed was recorded in two locations within the proposed development site boundary and at one location outside the proposed development site.

An Invasive Species Management Plan (ISMP) has been prepared and is included in Appendix E. The ISMP Plan has been prepared in line with Transport Infrastructure Ireland (TII) guidelines for invasive species (TII, 2020a) and (TII, 2010).

The ISMP Plan includes control measures and will guarantee the complete eradication of the invasive species. No construction works will commence until there is no presence of Japanese knotweed within the works areas. The works area will include a 7m buffer from the Planning Application site boundary to account for the horizontal distance which Japanese knotweed roots can extend (TII, 2020a).

In addition, the appointed Contractor will ensure general biosecurity measures are implemented throughout the construction phase of the proposed development to ensure the introduction and translocation of new invasive species is prevented. The following mitigation measures are prescribed to control the translocation or spread of invasive species and/or pathogens:

- All machinery and equipment used during the construction works on arrival to and when leaving the proposed development site, will be thoroughly cleaned and then dried using a high-pressured steam cleaning, with water >65 °C, in addition to the removal of all vegetation material. Disinfectant, such as a Virkon® Aquatic solution, will be used. The

appointed Contractor will establish and clearly delineate a bunded cleaning/washing area which will be located within the construction compound.

- No removed material or run-off will be allowed to enter any water bodies (e.g., drainage ditches).
- A strict biosecurity demarcation area will be installed by the ECoW within zones where invasive species exist.
- Evidence that all machinery and equipment has been cleaned will be required to be on file for review by the statutory authorities and the appointed ECoW.

### *4.7.3 Operation Phase Mitigation*

#### *4.7.3.1 Road and Drainage Maintenance*

Maintenance of the road drainage system will be periodically monitored by Kerry County Council to ensure the system is operating sufficiently. Any maintenance vehicles utilised during the operational phase will be regularly maintained and checked to ensure damages leakages are corrected. Any erosion to the road surfaces will also be monitored and managed where required.

#### *4.7.3.2 Residual Impacts*

The Construction Phase has been appraised as having the potential for impact on biodiversity. With the implementation of mitigation measures set out in this report, in the draft CEMP and in the NIS, a negligible impact on biodiversity is predicted for the construction and operational phases of the proposed development. The only residual impact from the proposed development, upon the implementation of the mitigation measures, is the loss of a small area of habitat which will have a residual effect at a local geographic scale only.

### *4.7.4 CONCLUSION*

There will be a permanent loss of habitat which will result in a residual effect at a local scale only.

## 5.0 SOILS AND GEOLOGY

### 5.1 INTRODUCTION

This Chapter includes an assessment of any potential impact on the geological environment (soils, subsoils and bedrock), as a result of the proposed development at this location.

### 5.2 METHODOLOGY

The assessment of soils and geology consisted of:

- A desk study of soils, subsoils and bedrock; and
- Interpretation of all data and reporting.

Guidelines used in the preparation of the report included the EPA document 'Guidelines on Information to be obtained in Environmental Impact Statements' (2002) and the Institute of Geologists of Ireland (IGI) publication 'Guidelines for the preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013).

Information held by the Geological Survey Ireland (GSI) and EPA was accessed to provide the geological setting of the site. Datasets used to provide the setting of the site included the GSI Bedrock Geology Map Viewer and the EPA/Teagasc Soil Information System Map Viewers.

Mitigation measures are proposed, where required, to ensure that any proposed activities at the site will not adversely impact upon the geological environment outside of the site boundary.

### 5.3 RECEIVING ENVIRONMENT

#### 5.3.1 Topography

In terms of topography the section of the N70 that runs from Waterville to Ballybrack is low-lying and relatively flat. Most of the road section lies between elevations of 6m and 22m above mean sea level (MSL). The lowest elevations are experienced at the Currane River bridge, whilst the highest elevations are found at the southernmost part of the site in Ballybrack. The road itself lies on a thin section of land less than 1km wide where the Currane River flows out of Lough Currane, under the N70 Currane River bridge and into Ballinskelligs Bay. The road, as a result, is very close to the sea.

#### 5.3.2 Soils

Reference to the GSI Map Viewer and the Teagasc Soil Information System Map Viewer for this area indicates that the N70 stretch from Waterville to Ballybrack passes over four different soil types, which are listed below.

- Made Ground (Made)
- Marine Estuarine Sediments/Tidal Marsh (MarSed)
- Deep Well Drained Mainly Acidic Mineral Soils (AminDW)
- Poorly Drained Mainly Acidic Mineral Soils (AminPD)

The most northerly section of the road improvement scheme is in Waterville promenade. This is where the made ground is found. As the road heads southwards towards Ballybrack it passes into the well-drained mineral soils before meeting the marine estuarine sediments/tidal marsh at the Currane River bridge, where the Currane River flows out of Lough Currane and into

Ballinskelligs Bay. The soils at Ballybrack which is the southernmost extent of the site are poorly drained mineral soils that are mainly acidic.

### *5.3.3 Subsoils*

The subsoil underlying most of the site, is described by the GSI Quaternary sediments Map Viewer as 'till derived from Devonian Sandstones (TDSs)' which corresponds to the underlying bedrock geology. At the Currane River crossing the subsoil is made up of estuarine silts and clays (Mesc).

### *5.3.4 Bedrock Geology*

Reference to the GSI Bedrock Map Viewer indicates that the N70 from Waterville to Ballybrack is underlain by the St. Finans Sandstone Formation. This rock formation consists of Upper Devonian fine-grained green/grey sandstone and siltstone with some purple beds and rare occurrences of pebbly sandstones. Site investigations carried out by Priority drilling Ltd. in November 2017 found the depth to bedrock to be in-between 5m and 8m. Bedding in the area is generally dipping in the region of 30 degrees and strike orientation is northwest to southeast.

## 5.4 POTENTIAL IMPACTS

### *5.4.1 Potential Impacts during the Construction Phase*

Elements of the proposed upgrade works that may give rise to impacts which have been considered with regard to potential effects on the soils and geology are as follows:

- Release of sediment and pollutants which may be discharged into surface water, particularly during high rainfall events. Contaminated runoff and/or sediment may drain into the Currane River, which flows under the Currane River bridge;
- Movement of vehicles and machinery associated with improvement works and the potential for spillages of oils, fuels or other pollutants which could be transported to the surface water system during rainfall events;
- Transportation, laying of asphalt onsite and washing of concrete lorry chutes – risk for entry into surface water;
- Increased silt loading which may stunt aquatic plant growth, limit dissolved oxygen capacity and overall reduce the ecological quality of watercourses, with the most critical period associated with low flow conditions;
- Excavation activities may also result in the temporary generation of dust in the locality of the works area;

Excavation of soils, subsoils and bedrock material during the localised earthworks as described above could potentially increase the risk of soil erosion and surface water runoff containing elevated suspended solids. If silt laden runoff enters the local surface water network, it will negatively impact on water quality and result in the permanent loss of soil and subsoil on site.

There is also the potential of leakage and spillage of fuels on-site from vehicles during construction works. These are considered and assessed in the NIS.

### *5.4.2 Potential Impacts during the Operational Phase*

There will be no significant impacts on soils, subsoils or bedrock during the operational phase of the proposed road development. However, due to the nature of the development there will be machinery periodically on site for road maintenance. This could lead to accidental hydrocarbon emissions, which could cause contamination if they enter the soil and bedrock environment. During road maintenance, there may be a need for excavation of soils, subsoils and bedrock

which could have the same potential impacts of similar activities carried out during the construction phase described in 5.4.1 above.

## 5.5 MITIGATION MEASURES

### 5.5.1 Construction Phase

Mitigation measures to be taken during the construction phase of the road improvement scheme are detailed below and are included in the Natura Impact Statement.

The construction compound and welfare facility will be located at Ch 640m approximately. The location of the compound is set back from any watercourse.

The temporary welfare facilities will not have any discharge to ground or surface waters and will be located a minimum of 50m from the Currane River. All wastewater will be collected in a large tank and will be emptied as required by a licenced waste collector according to the manufacturer's guidelines.

All oils and solvents used during the construction phase of the development will be stored within specially constructed dedicated bunded areas. This will minimise any impact on the underlying sub-surface strata.

Refuelling of construction vehicles and the addition of hydraulic oils to vehicles, will take place in a designated area of the site, away from surface water features. Spill kits and hydrocarbon adsorbent packs will be stored in this area of the site and operators will be fully trained in the use of this equipment. All machinery will be regularly maintained and checked for leaks. Any refuelling of construction machinery/vehicles will not be undertaken within 50m of any surface water feature. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations to contain any accidental spillages that may occur. No refuelling will be carried out within 50m of the Currane River.

In addition to the proposed road upgrade works, a new combined filter drain system will be put in place to provide for the cycleway/footpath. This combined filter drain will run on the western side of the mainline from Ch 0 to Ch 785m where it crosses the road to Ch 812m via a carrier pipe. From Ch 812 to 978m a combined filter drain will convey the water to a petrol interceptor and wetland area. Drainage across the bridge will be provided by surface water channels to CC-SCD-01109 Type 3 tight to the parapet wall with gullies conveying to the outfall manhole at Ch 978m. A combined filter drain will run in the verge on the western side of the road from Ch 1215m back to 1162m before crossing the road in a carrier pipe to Ch 1135m where its outfalls to a swale. The swale runs from Ch 1135 to 1088m into a petrol interceptor before being discharged to the river.

The proposed drainage system will include a petrol interceptor and use grassed channels and wetlands before discharging into the Currane River.

All construction waste will be sorted and store in on-site skips, prior to removal by a licenced waste management contractor.

Works associated with the new pedestrian / cycle bridge will be undertaken from the riverbank, outside the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchments SAC boundary.

Minor instream works will be undertaken along the northern bank of the Currane River to facilitate the proposed drainage system works. The instream works will be small-scale (ca. 2m<sup>2</sup> in size). Foundations will be constructed on the banks of the river, and the bridge will be installed by crane.

Best practice on-site erosion control measures will be incorporated into the construction phase of the proposed development to reduce the potential for sediment and suspended solids in runoff to surface water in this area. Measures will include the following:

- Reduce availability of sediment for erosion - the single most effective method of reducing the volume of sediment created by construction is the immediate capping of all roads with high quality, hard wearing crushed washed aggregate such as limestone laid to a transverse grade. Once water drains transverse across a road constructed from hard wearing aggregate, as opposed to longitudinally on low class aggregate, the level of suspended solids is reduced by an order of magnitude;
- Working near a watercourse – Prior to the construction works commencing, silt fences will be installed, by hand, along both banks of the Currane River. Once the silt fences are installed, 1-1.5 tonne sandbags, wrapped in heavy gauge polythene will be positioned along both banks of the Currane River, creating a barrier around the construction works. The sandbags will be lifted into place using a mechanical excavator;
- Sheet pile cofferdams will be installed around the two bridge abutments to ensure there is no runoff from the works area. The sheet piles will be carefully pushed into the ground using an excavator or excavator mounted vibrator. Impact driving of sheet piles will not be permitted. In-situ concrete will be poured into the formwork within the sheet pile excavation to form the abutment base slab;
- Run-off settlement areas will be set up on both banks within the sandbag cofferdam. This will consist of a mobile settlement tank with a pump to discharge to a vegetated grassed area (>50m from the river) to act as natural filter. No direct discharge to the river will be permitted at any time during the works. Silt fencing will be placed below where the water is discharged to the grassed area. Any sediment collected by settlement tanks/silt fencing will be transported off site by a licensed waste operator for appropriate disposal; and,
- Excavation works will not be carried out during or following heavy rainfall (i.e., if there is a yellow weather warning in place or 5mm in a 1-hour period) this will be monitored by the appointed Contractor and ECoW by consulting Met Eireann forecast rainfall radar data. Excavations will be covered during high rainfall to avoid the creation of surface water with high concentrations of suspended solids that would require dewatering.

To mitigate against long-term stress due to stockpiling of soils and subsoils at the site, the following measures will be applied:

- All excavated material will be removed to suitable stockpile areas. The volume of material to be managed is minor;
- Stockpiling will be limited to areas where the ground is stable and well drained;
- Spoil disposal areas will be located where the risk of soil erosion and water quality deterioration is minimal and must also have an adequate buffer from aquatic zones;
- Where spoil disposal areas are bunded, the bunds will extend to a level above the top of the spoil; and
- Any water discharge from the stockpiles will be monitored. Runoff water will be prevented from flowing directly into nearby watercourses.

The combined application of these measures will ensure that inputs to, and subsequent contamination of, the soil/geological environment do not occur during normal and/or emergency conditions.

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### 5.5.2 Operational Phase

Regarding the operational phase of the proposed road improvement scheme, no significant impacts on the local geological environment are predicted with the above mitigation measures being adhered to. The predicted impact on soils and geology is considered to be short term, localised and imperceptible.

Any vehicles utilised during the operational phase will be regularly maintained and checked to ensure any damages or leakages are corrected.

There will be no geotechnical impact on bedrock during the operational phase of the proposed development and therefore no mitigation measures are proposed.

## 5.6 RESIDUAL IMPACT

The nature of the proposed road development dictates that the greatest potential impact for the soil, subsoil and bedrock environment will be in the construction phase.

With the implementation of mitigation measures set out in this report and the Natura Impact Statement, a negligible impact on the soil, subsoil and bedrock environment is predicted for the construction phase of the proposed development.

Regarding the operational phase of the development, a negligible impact on the local soil, subsoil and bedrock environment is predicted.

## 5.7 CONCLUSION

The construction of the road improvement scheme would result in the disturbance of soil, subsoil and bedrock on site. However, the area impacted by the proposed development will be localised and with the implementation of the mitigation measures during the construction phase the impact on the soils and geology will be negligible during both the construction and operational phases as part of the implementation of any Conditions/Restrictions and/or Mitigation Measures enshrined in such Approval by the Competent Authority as may be granted.

Figure 5-1: Soils Map

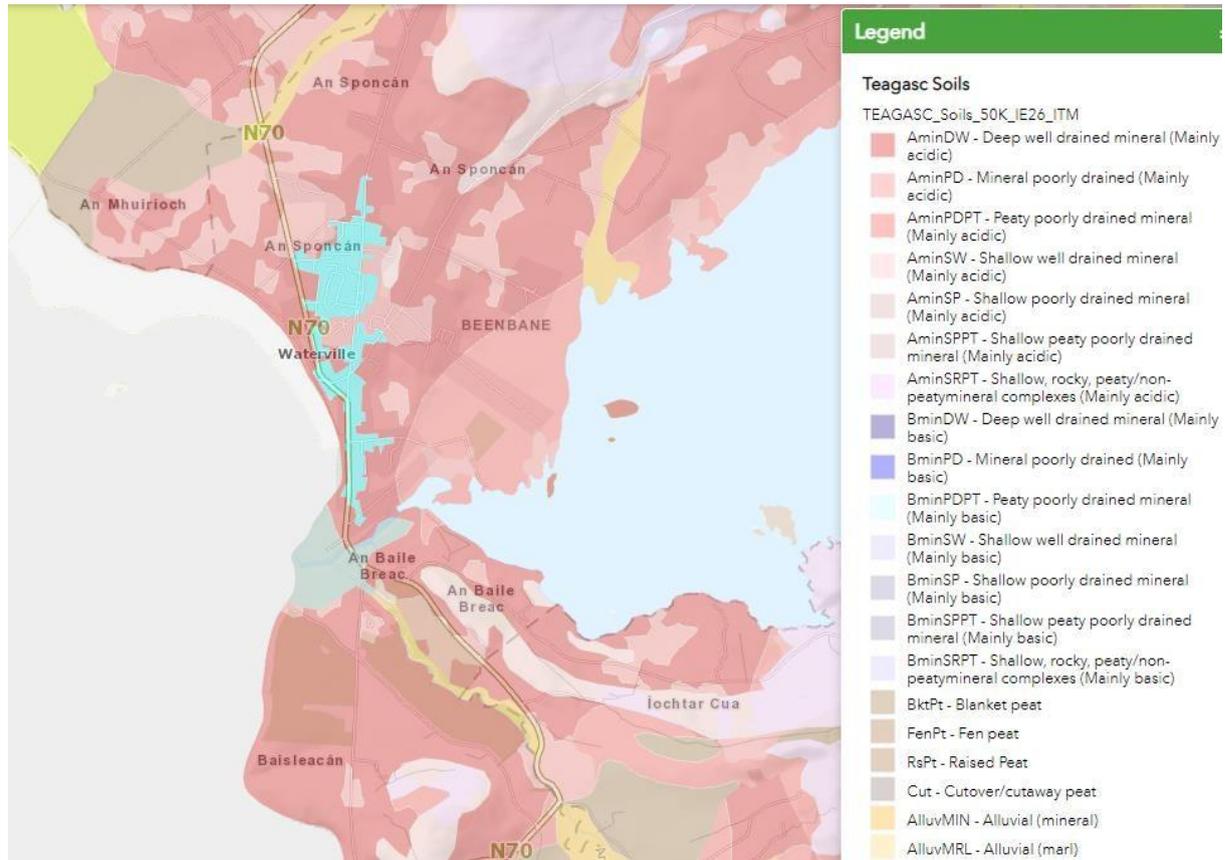


Figure 5-2: Subsoils Map

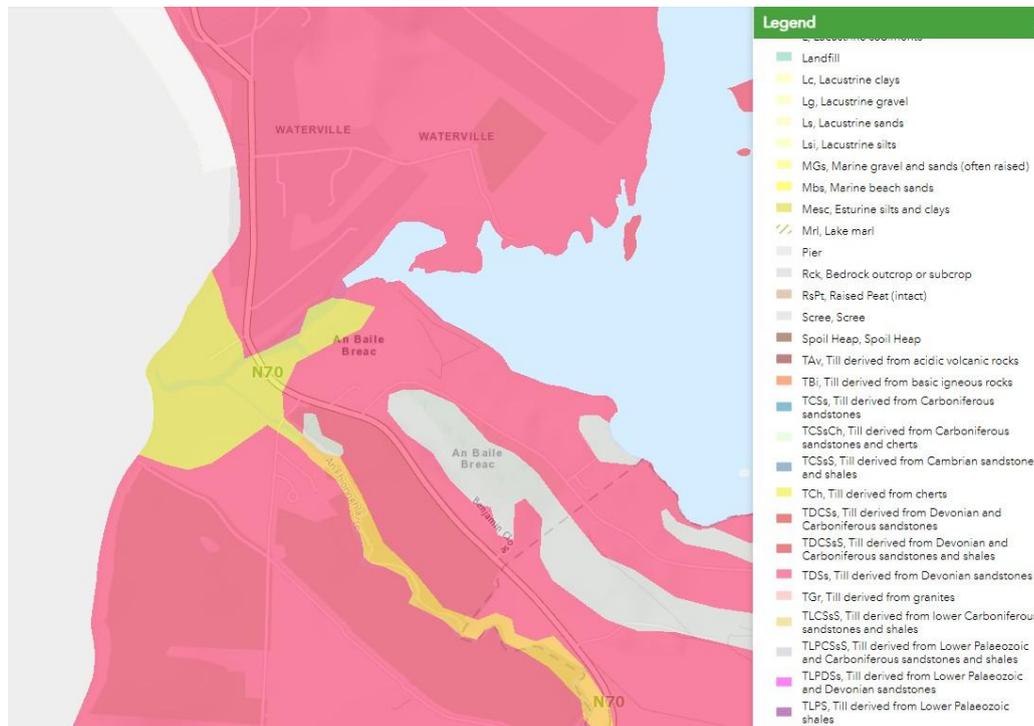
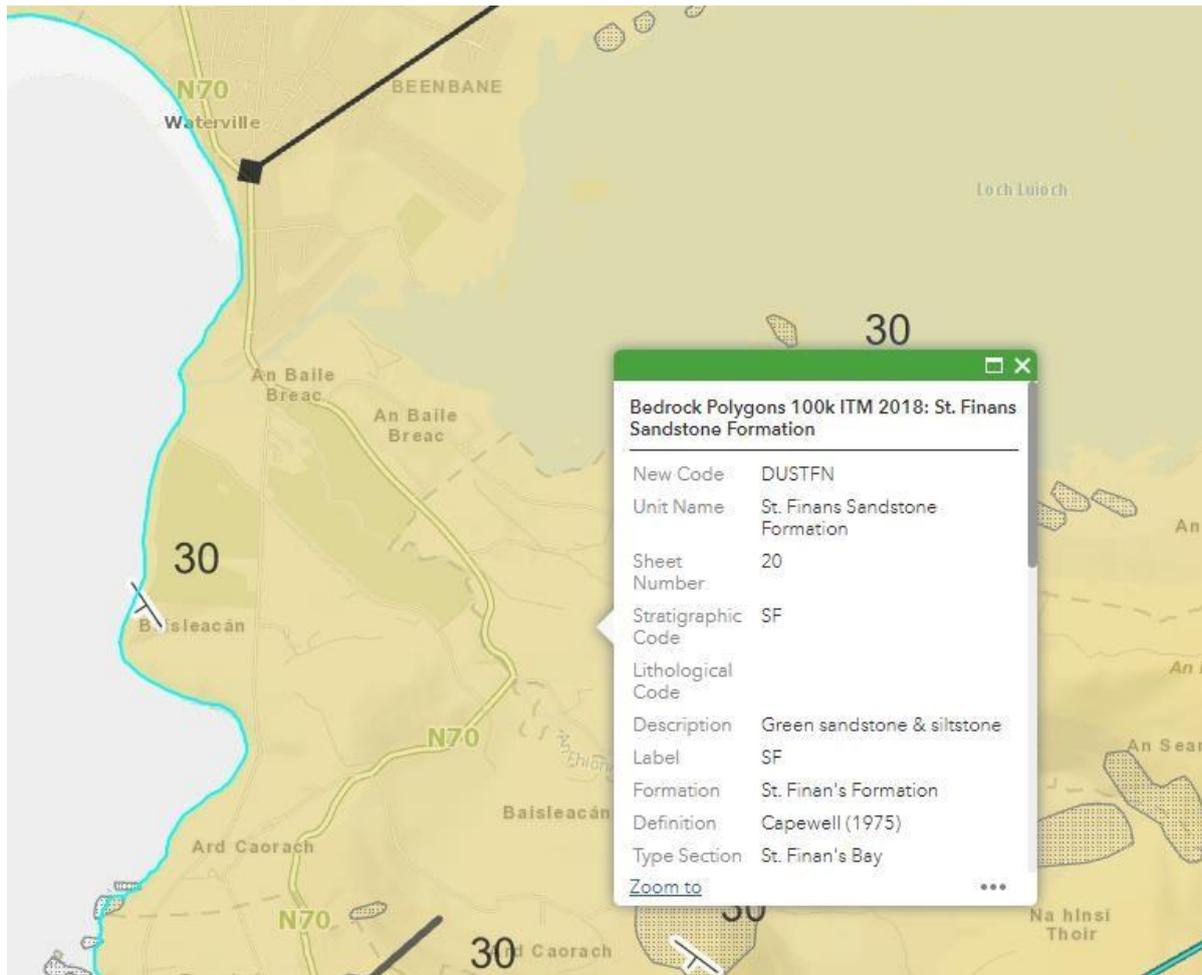


Figure 5-3: Bedrock Geology Map



## 6.0 WATER

### 6.1 INTRODUCTION

This Chapter describes the existing water environment and presents an assessment of the potential for impacts arising from the works related to the N70 Waterville to Ballybrack Road Improvement Scheme on the surrounding water (including surface water and groundwater) environment.

### 6.2 METHODOLOGY

The following documents and information sources were utilised to complete this Chapter:

- Surface Water;
  - EPA Water Environment Maps ([www.catChments.ie](http://www.catChments.ie));
  - EPA Environmental Data Maps ([www.epa.ie](http://www.epa.ie));
  - Water Framework Directive;
  - 2018-2021 River Basin Management Plan; and
  - OPW Flood Risk Mapping.
- Groundwater;
  - GSI Hydrogeological Data ([www.gsi.ie](http://www.gsi.ie)); and
  - Water Framework Directive.

### 6.3 RECEIVING ENVIRONMENT

The site is located on the N70 National Secondary Road commencing at the southern end of the promenade in Waterville town and extends towards Eightercua. This stretch of road lies on a thin section of land less than 1km wide where the Currane River flows out of Lough Currane, under the N70 Currane River bridge and into Ballinskelligs Bay. The road as a result is close to the sea. The receiving environment is described below under the following headings;

- Surface Water;
  - Surface Water Features; and
  - Surface Water Quality;
- Groundwater;
  - Aquifer Potential and Characteristics
  - Groundwater Vulnerability
  - Groundwater Quality
  - EPA/GSI Source Protection Zones
  - GSI Groundwater Wells
  - Karst Features

#### *6.3.1 Surface Water Receiving Environment*

The purpose of this section is to describe the surface water (hydrological) setting of the study area.

##### Regional Surface Water Features

The site lies within the Dunmanus-Bantry-Kenmare WFD Catchment 21. This catchment includes the area drained by all streams entering tidal water in Dunmanus, Bantry and Kenmare Bays between Mizen Head and Glanearagh Head, Co. Kerry, draining a total area of 1,898km<sup>2</sup>. The largest urban centre in the catchment is Bantry. The other main urban centre in this

catchment is Kenmare. The total population of the catchment is approximately 24,280 with a population density of 13 people per km<sup>2</sup>.

More specifically the site is located within the Finglas River [Waterville]\_SC\_010 WFD Sub-Catchment and the Finglas (Waterville)\_010 WFD River Sub-Basin. The main surface water features that correspond to the sites' water regions are listed below;

- Lough Currane
- Currane River
- Finglas River

The Currane River flows out of Lough Currane before it crosses under the N70 Currane River bridge that is included in this road improvement development scheme. The Currane River enters the sea c. 300m to the west of the N70 road where works are proposed. The source of the Currane River is in the mountains to the east of Lough Currane.

The Finglas River flows almost parallel with the stretch of road between the Currane River bridge and Ballybrack. It then joins up with the Currane River c. 110m southwest of the bridge before they flow into Ballinskelligs Bay some 200m downstream. The source of the Finglas River is in the mountains to the southeast.

#### Surface Water Quality

The EPA assesses the water quality of rivers and streams using a biological assessment method and assigns biological river quality (biotic index) ratings from Q5-Q1 to watercourse sections. Q5 denotes a watercourse with good water quality and high community diversity, whereas Q1 denotes very low community diversity and a bad water quality.

Neither the Finglas River nor the Currane River have monitoring stations for Q values, however the Cummeragh River and Isknagahinny Lough have recorded high Q values of 4-5 as recent as 2020. These rivers flow into Lough Currane from which the Currane River flows. Ballinskelligs Bay has a Coastal Water Quality status of being 'unpolluted'. Given the fact that the Currane River and the Finglas River flow into Ballinskelligs Bay, and this waterbody is unpolluted, it is safe to say that the Currane River and the Finglas River waters are of a decent quality.

According to the WFD Lake and River Waterbody Status 2013-2018, Lough Currane had a 'Good' status along with many of the rivers feeding into it. The Finglas and Currane Rivers are not mapped regarding WFD status but given that the different waterbodies that they are hydrologically linked to are in 'Good' status it is safe to assume that they also are of a good quality. Lough Currane, however, is deemed to be 'At risk' according to the WFD Waterbody Risk, and the Finglas and Currane Rivers are set to be reviewed.

### *6.3.2 Groundwater Receiving Environment*

The purpose of this section is to describe the groundwater (hydrogeological) setting of the study area.

#### Aquifer Potential and Characteristics

The aquifer potential of a bedrock unit is determined by the groundwater productivity. The productivity is determined based on hydraulic Characteristics compiled from borehole data throughout the county.

Reference to the GSI National aquifer Map for the site area indicates that the underlying bedrock unit (St. Finans Sandstone Formation) is classified as a 'Locally Important Bedrock Aquifer that is moderately productive only in local zones.'

#### Groundwater Vulnerability

Groundwater vulnerability is dictated by the nature and thickness of the material overlying the uppermost groundwater 'target'. This means that vulnerability relates to the thickness of the unsaturated zone in the sand/gravel aquifer, and the permeability and thickness of the subsoil in areas where the sand/gravel aquifer is absent. Groundwater at the site was found to vary between 0.4m and 2m by ground investigations carried out by Priority in November 2017. A detailed description of the vulnerability categories can be found in the Groundwater Protection Schemes document (DELG/EPA/GSI, 1999<sup>32</sup>) and in the draft GSI Guidelines for Assessment and Mapping of Groundwater Vulnerability to Contamination (Fitzsimons et al, 2003<sup>33</sup>).

There is a range of groundwater vulnerability classifications along the N70 between Waterville and Eightercua. The northern section of the site has moderate vulnerability. There is low groundwater vulnerability at the Currane River bridge. As the site progresses southwards towards Eightercua, the roadworks will pass into areas of high and extreme groundwater vulnerability.

#### Groundwater Recharge

According to the GSI Web Viewer groundwater recharge is typically quite good. The hydrogeological setting is generally till overlain by well-drained soil, which gives rise to precap recharges of over 800mm/yr. The recharge coefficient in the areas around the site is in the region of 60% and the effective rainfall is almost 1400mm.

#### Groundwater Quality and Risk

The WFD Ground Waterbody Status 2013-2018 characterises the overall groundwater quality based on Chemical and quantitative factors. In the case of Beara Sneem (the area in which the proposed road development works are set to take place), the overall groundwater status is 'Good'. The Chemical and quantitative statuses of the groundwater are also 'Good'.

#### EPA/GSI Source Protection Zones

As reported by the EPA and the GSI, groundwater sources, particularly public, group scheme and industrial supplies, are of critical importance in many regions. Consequently, the objective of Source Protection Zones is to provide protection by placing tighter controls on activities within all or part of the zone of contribution (ZOC) of the source. According to the GSI Source protection Zone Map, there are no EPA/GSI Source Protection Zones near the site.

#### GSI Groundwater Wells

The closest groundwater well recorded on the GSI Database is c. 4.5km away from the site and is located just north of Lough Currane. This well has a poor yield of 21.8m<sup>3</sup>/day and is used for agricultural and domestic use.

#### Karst Features

Reference to the GSI Karst Features Map indicates that no karst features have been identified within the study area.

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<sup>32</sup> DoELG, EPA and GSI, 1999. Groundwater Protection Schemes. Department of Environment and Local Government, Environmental Protection Agency and Geological Survey of Ireland, Dublin, Ireland.

<sup>33</sup> Fitzsimons, V., Daly, D. and Deakin, J., 2003. GSI Guidelines for Assessment and Mapping of Groundwater Vulnerability to Contamination. The Geological Survey of Ireland, Dublin, Ireland.

## 6.4 POTENTIAL IMPACTS

### *6.4.1 Potential Impacts during the Construction Phase*

Elements of the proposed upgrade works that may give rise to impacts which have been considered within regards to potential effects on the soils and geology are as follows:

- Release of sediment and pollutants which may be discharged into surface water, particularly during high rainfall events. Contaminated runoff and/or sediment may drain into the Currane River, which flows under the Currane River bridge;
- Movement of vehicles and machinery associated with improvement works and the potential for spillages of oils, fuels or other pollutants which could be transported to the surface water system during rainfall events;
- Transportation, laying of asphalt onsite and washing of concrete lorry chutes – risk for entry into surface water;
- Increased silt loading which may stunt aquatic plant growth, limit dissolved oxygen capacity and overall reduce the ecological quality of watercourses, with the most critical period associated with low flow conditions;
- Excavation activities may also result in the temporary generation of dust in the locality of the works area. This could work its way into nearby surface waterbodies;
- The excavation, placement, grading and backfilling of soils may potentially impact on the surrounding surface water environment and the underlying groundwater environment. Surface water run-off from the construction areas may contain elevated suspended solids runoff associated with soil excavation. This run-off may discharge to surface water bodies, affecting water quality.
- The use of concrete to form some structural elements of the proposed infrastructure has the potential to generate high alkalinity surface water run-off, which may discharge to adjacent watercourses, affecting the water quality.
- The use of plant and vehicles on all aspects of the proposed construction works brings with it the potential for hydrocarbon loss to the ground during refuelling operations. The released hydrocarbons would then have the potential to percolate to the underlying groundwater or to contaminate the surface water runoff and surface water body into which the run-off discharges.
- Improper waste disposal and sanitary waste disposal from temporary sanitary facilities during the construction stage may result in contaminated discharge to surface water bodies or to the underlying groundwater body, affecting water quality.

### *6.4.2 Potential Impacts during the Operational Phase*

There will be no significant impacts on surface and groundwater during the operational phase of the proposed road development. However, due to the nature of the development there will be machinery periodically on site for road maintenance. As a result, there is still a possibility of leakages and spills that may enter the hydro network. The surrounding surface water environment and the underlying groundwater environment may be impacted by surface water run-off from the construction areas as there could potentially be elevated suspended solids runoff associated with road work excavations. This run-off may discharge to surface water bodies, affecting water quality.

During road maintenance, there may be a need for similar activities that took place in the construction phase which could have the same potential impacts of the activities carried out during the construction phase described in 6.4.1 above.

## 6.5 MITIGATION MEASURES

### 6.5.1 Construction Phase

Mitigation measures to be taken during the construction phase of the road improvement scheme are detailed below and are included in the Preliminary Construction Environmental Management Plan (CEMP) and in the NIS as part of the implementation of any Conditions/Restrictions and/or Mitigation Measures enshrined in such Approval by the Competent Authority as may be granted.

During the construction stage, best practice construction methods as set out in CIRIA c741 'Environmental good practice on site guide' will be implemented in order to prevent water pollution. This will include proper site management during construction, to ensure that all necessary measures are taken to prevent run-off/pollutants from entering any watercourse in the vicinity.

The construction compound and welfare facility will be located at an existing setback area adjacent to the Hogs Head Golf Course at Ch 640m approximately. The location of the compound is set back from any watercourse.

The temporary welfare facilities will not have any discharge to ground or surface waters and will be located a minimum of 50m from the Currane River. All wastewater will be collected in a large tank and will be emptied as required by a licenced waste collector according to the manufacturer's guidelines.

All oils and solvents used during the construction phase of the development will be stored within specially constructed dedicated bunded areas. This will minimise any impact on the underlying sub-surface strata.

Refuelling of construction vehicles and the addition of hydraulic oils to vehicles, will take place in a designated area of the site, away from surface water features. Spill kits and hydrocarbon adsorbent packs will be stored in this area of the site and operators will be fully trained in the use of this equipment. All machinery will be regularly maintained and checked for leaks. Any refuelling of construction machinery/vehicles will not be undertaken within 50m of any surface water feature. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations to contain any accidental spillages that may occur. No refuelling will be carried out within 50m of the Currane River.

In addition to the proposed road upgrade works, a new combined filter drain system will be put in place to provide for the cycleway/footpath. This combined filter drain will run on the western side of the mainline from Ch 0 to Ch 785m where it crosses the road to Ch 812m via a carrier pipe. From Ch 812 to 978m a combined filter drain will convey the water to a petrol interceptor and wetland area. Drainage across the bridge will be provided by surface water channels to CC-SCD-01109 Type 3 tight to the parapet wall with gullies conveying to the outfall manhole at Ch 978m. A combined filter drain will run in the verge on the western side of the road from Ch 1215m back to 1162m before crossing the road in a carrier pipe to Ch 1135m where its outfalls to a swale. The swale runs from Ch 1135 to 1088m into a petrol interceptor before being discharged to the river.

The proposed drainage system will include a petrol interceptor and a swale before discharging via an outfall pipe into the Currane River.

All construction waste will be sorted and stored in on-site skips, prior to removal by a licenced waste management contractor.

Works associated with the new pedestrian/ cycle bridge will be undertaken from the riverbank, outside the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchments SAC boundary. Minor instream works will be undertaken along the northern bank of the Currane River to facilitate the proposed drainage system works. The instream works will be small-scale (ca. 2m<sup>2</sup> in size). Foundations will be constructed on the banks of the river, and the bridge will be installed by crane.

As with the above mitigation measures, the following standard practice pollution control measures will also be incorporated into the preliminary CEMP for the project, which the contractor will be obliged to follow to remove any risk of a pollution incident:

- On completion of the works, all apparatus, plant, tools, offices, sheds, surplus materials, rubbish and temporary erections or works of any kind will be removed from the site;
- All works must follow the guidance set out in the Guidance document entitled: CIRIA guidance note Control of Water Pollution from Construction Sites (CIRIA, 2001);
- A 24-hour, seven-day week Emergency Response protocol will be drawn up and implemented. This must be implementable in the unlikely event of an accidental spillage of chemicals, hydrocarbons or release of sediment to the surface or ground water system;
- A buffer zone will be established to protect any surface water channels from disturbance from construction work. Where the construction works cross water features, particular care will be taken to ensure that disturbed material does not enter;
- Working near a watercourse – Prior to the construction works commencing, silt fences will be installed, by hand, along both banks of the Currane River. Once the silt fences are installed, 1-1.5 tonne sandbags, wrapped in heavy gauge polythene will be positioned along both banks of the Currane River, creating a barrier around the construction works. The sandbags will be lifted into place using a mechanical excavator;
- Sheet pile cofferdams will be installed around the two bridge abutments to ensure there is no runoff from the works area. Sheet piles shall be installed using an excavator mounted vibrator. Impact driving of sheet piles shall not be permitted.
- In-situ concrete will be poured into the formwork within the sheet pile excavation to form the abutment base slab;
- Run-off settlement areas will be set up on both banks within the sandbag cofferdam. This will consist of a mobile settlement tank with a pump to discharge to a vegetated grassed area (>50m from the river) to act as natural filter. No direct discharge to the river will be permitted at any time during the works. Silt fencing will be placed below where the water is discharged to the grassed area. Any sediment collected by settlement tanks/silt fencing will be transported off site by a licensed waste operator for appropriate disposal;
- Working near watercourses during intense rainfall event (>5mm /hour) will be avoided and work will cease entirely near watercourses when it is evident that there is a threat of pollution occurring;
- All excavated material will be removed to suitable stockpile areas. The volume of material to be managed is minor;
- Stockpiling will be limited to areas where the ground is stable and well drained;
- Spoil disposal areas will be located where the risk of soil erosion and water quality deterioration is minimal and must also have an adequate buffer from aquatic zones;
- Where spoil disposal areas are bunded, the bunds will extend to a level above the top of the spoil;

- Any water discharge from the stockpiles will be monitored. Runoff water will be prevented from flowing directly into nearby watercourses.
- Refuelling of machinery will be carried out on level, hard surfaced designated areas. If refuelling is required outside of these areas, fuel will be transported in a mobile double skinned tank, and a spill tray will be employed during re-fuelling operations;
- All machinery will be regularly maintained and checked for leaks. Services will not be undertaken within 50m of aquatic features. Servicing must be undertaken on level, hard surfaced designated areas;
- An adequate supply of spill kits and hydrocarbon adsorbent packs will be available at labelled stations throughout the sites with all vehicles on-site carrying spill kits. All relevant personnel will be fully trained in the use of the equipment. Any used spill kits will be disposed of appropriately off-site;
- All concrete will be mixed off-site and imported into the site. All concrete browsers will be washed down at a dedicated concrete washout on-site at least 50m from a drainage ditch or watercourse. Concrete washings will not be disposed of on-site to any surface or ground water feature. All washings will be removed off-site and treated at a licensed facility; and
- All equipment and machinery must be cleaned prior to entry as a bio security measure. This is to avoid transfer of invasive species on equipment and machinery which may have been used elsewhere to the receiving catchment. Reference will be made to IFI bio security protocol found at:  
<http://www.fisheriesireland.ie/Biosecurity/biosecurity.html>.

The combined application of these measures will ensure that inputs to, and subsequent contamination of, the water environment do not occur during normal and/or emergency conditions.

### *6.5.2 Operational Phase*

No significant impacts on the local water environment are predicted with the above mitigation measures being adhered to. The predicted impact on surface water and groundwater is short term, localised and imperceptible.

Any vehicles utilised during the operational phase will be regularly maintained and checked to ensure any damages or leakages are corrected.

## 6.6 RESIDUAL IMPACT

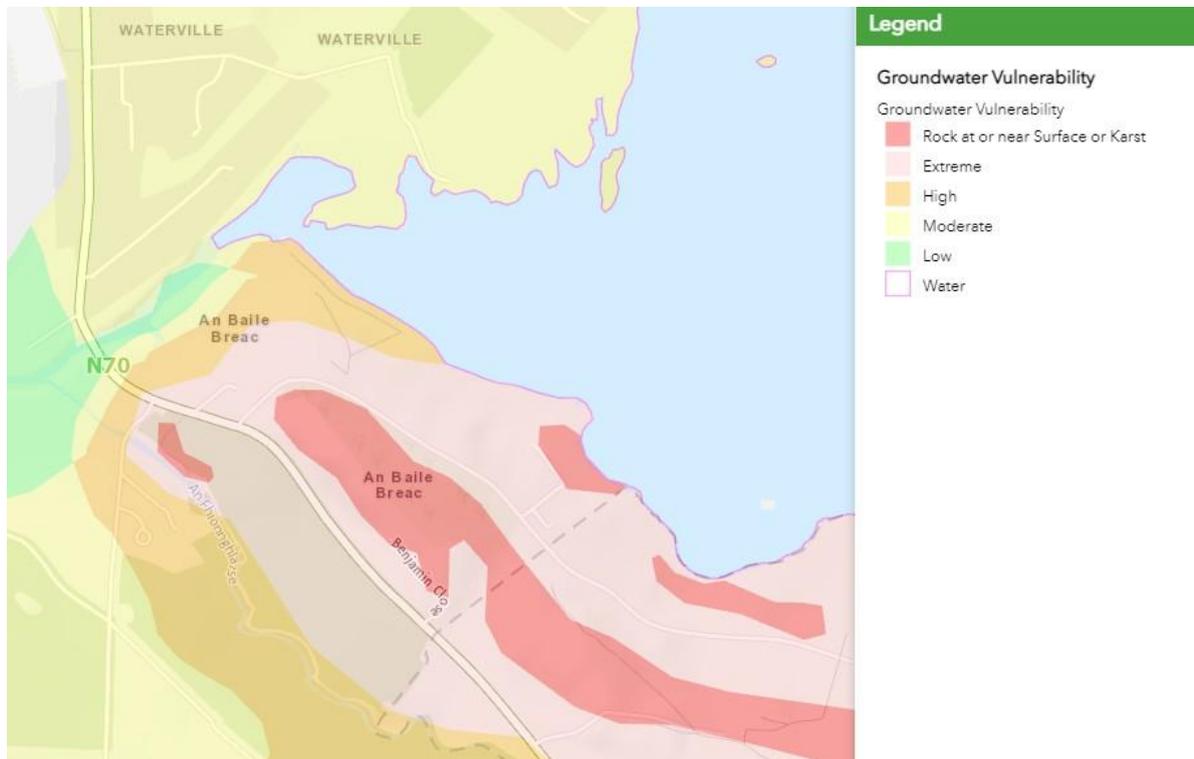
With the implementation of mitigation measures set out in this report, the NIS and the preliminary CEMP, a negligible impact on the hydrological and hydrogeological environment is predicted for the construction phase of the proposed development.

Regarding the operational phase of the development, a negligible impact on the surface water and groundwater environment is predicted.

## 6.7 CONCLUSION

The area impacted by the proposed development will be localised and with the implementation of the mitigation measures during the construction phase the impact on the water environment will be negligible during both the construction and operational phases and as part of the implementation of any Conditions/Restrictions and/or Mitigation Measures enshrined in such Approval by the Competent Authority as may be granted.

*Figure 6-1: Ground Water Vulnerability Map*



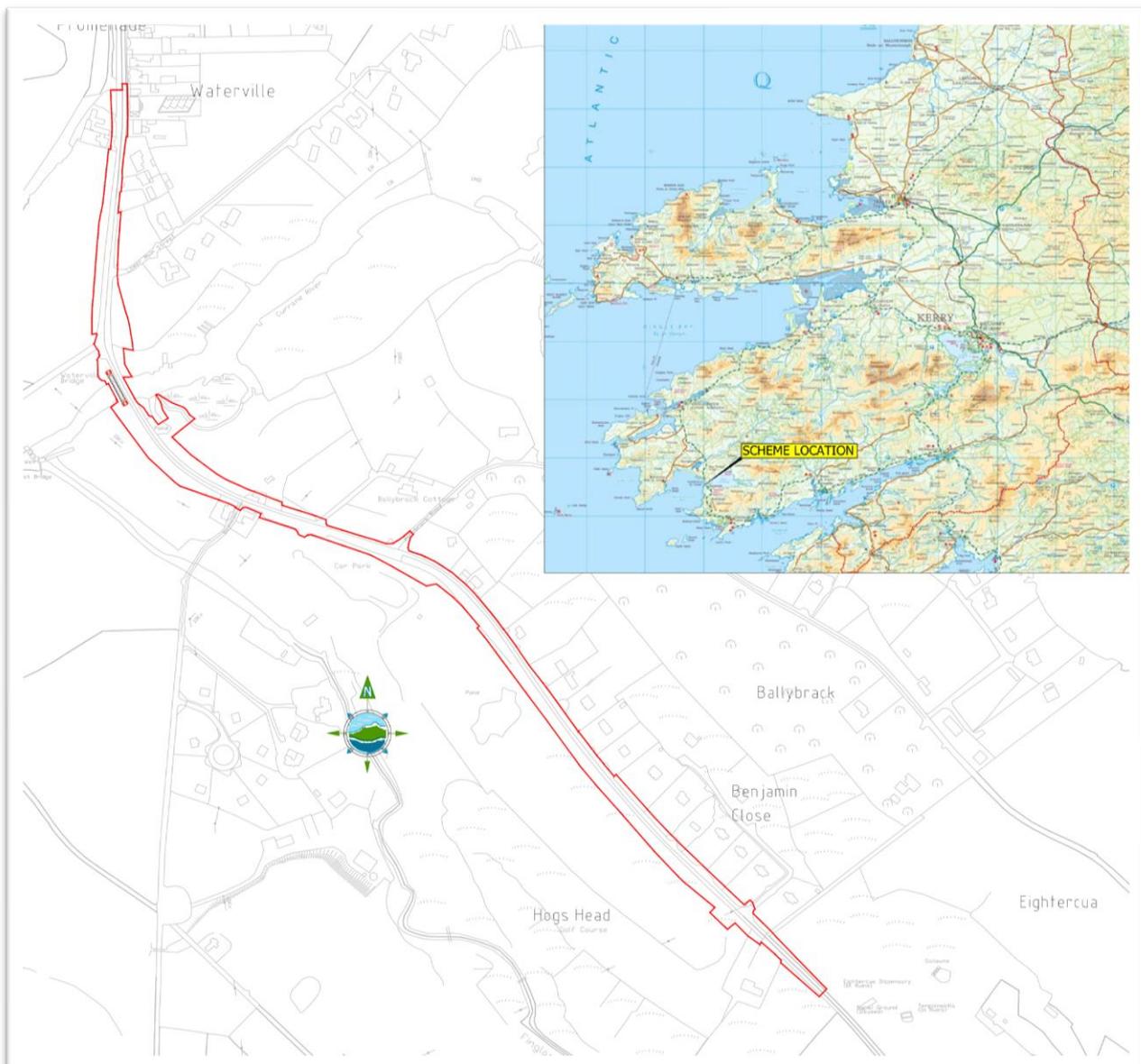
## 7.0 FLOOD RISK ASSESSMENT

### 7.1 INTRODUCTION

TOBIN Consulting Engineers carried out a Flood Risk Assessment (FRA) of the subject site along the coast of Co. Kerry.

The landscape surrounding the N70 Waterville is relatively flat with some mountainous ground north-east of Waterville. Existing elevations along the section of the N70 which is subject of this report lies at an altitude of 5.328mOD to 29.251mOD. The Currane River flows under the N70 at the Currane River bridge from Lough Currane, approximately 500m east of the N70.

*Figure 7-1: Site Location*



### 7.2 FLOOD RISK MANAGEMENT GUIDANCE

This Strategic Flood Risk Assessment was carried out in accordance with the following flood risk management guidance documents:

- The Planning System and Flood Risk Management Guidelines for Planning Authorities
- Flood Risk Management Climate Change Sectoral Adaptation Plan
- Kerry County Development Plan 2017-2023

### 7.3 THE PLANNING SYSTEM AND FLOOD RISK MANAGEMENT GUIDELINES

The Planning System and Flood Risk Management Guidelines for Planning Authorities (PSFRM Guidelines) were published in 2009 by the Office of Public Works (OPW) and Department of the Environment, Heritage and Local Government (DoEHLG). Their aim is to ensure that flood risk is considered in development proposals and the assessment of planning applications.

#### 7.3.1 Flood Zones and Vulnerability Classes

The PSFRM Guidelines discuss flood risk in terms of flood zones A, B, and C, which correspond to areas of high, medium, or low probability of flooding, respectively. The extents of each flood zone are based on the Annual Exceedance Probability (AEP) of various flood events.

The PSFRM Guidelines also categorise different types of development into three vulnerability classes based on their sensitivity to flooding. Table 7-1 shows a decision matrix that indicates which types of development are appropriate in each flood zone and when the Justification Test must be satisfied. The annual exceedance probabilities used to define each flood zone are also provided.

*Table 7-1: Decision Matrix for Determining the Appropriateness of a Development*

Flood Zone (Probability)	Annual Exceedance Probability (AEP)	Development Appropriateness		
		Highly Vulnerable	Less Vulnerable	Water Compatible
A (High)	<u>Fluvial &amp; Pluvial Flooding</u> More frequent than 1% AEP	Justification Test	Justification Test	Appropriate
	<u>Coastal Flooding</u> More frequent than 0.5% AEP			
B (Medium)	<u>Fluvial &amp; Pluvial Flooding</u> 0.1% to 1% AEP	Justification Test	Appropriate	Appropriate
	<u>Coastal Flooding</u> 0.1% to 0.5% AEP			
C (Low)	<u>Fluvial, Pluvial &amp; Coastal Flooding</u> Less frequent than 0.1% AEP	Appropriate	Appropriate	Appropriate

“Local transport infrastructure” developments (such as the works proposed as part of this scheme) are considered “Less vulnerable” in terms of their sensitivity to flood risk (i.e., Appropriate in Flood Zone B, where the risk of flooding is less than a 1% AEP).

Amenity open space, outdoor sports and recreation developments, such as the works proposed shared cycle/pedestrian path are categorized as “water compatible” and appropriate in any flood zone.

### 7.3.2 The Justification Test

Any proposed development being considered in an inappropriate flood zone must satisfy the criteria of the Justification Test outlined in Figure 7-2 (taken from the PSFRM Guidelines).

**Box 5.1 Justification Test for development management (to be submitted by the applicant)**

When considering proposals for development, which may be vulnerable to flooding, and that would generally be inappropriate as set out in Table 3.2, the following criteria must be satisfied:

1. The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
2. The proposal has been subject to an appropriate flood risk assessment that demonstrates:
  - (i) The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk;
  - (ii) The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible;
  - (iii) The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and
  - (iv) The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes.

The acceptability or otherwise of levels of residual risk should be made with consideration of the type and foreseen use of the development and the local development context.

*Figure 7-2: Criteria of the Justification Test*

### 7.3.3 The Flood Risk Management Climate Change Adaptation Plan

The Flood Risk Management Climate Change Sectoral Adaptation Plan was published in 2019 under the National Adaptation Framework and Climate Action Plan. This plan outlines the OPW's approach to climate Change adaptation in terms of flood risk management.

This approach is based on a current understanding of the potential impacts of climate Change on flooding and flood risk. Research has shown that climate Change is likely to worsen flooding through more extreme rainfall patterns, more severe river flows, and rising mean sea levels.

To account for these Changes, the Adaptation Plan presents two future flood risk scenarios to consider when assessing flood risk:

- Mid-Range Future Scenario (MRFS)
- High-End Future Scenario (HEFS)

Table 7-2 indicates the allowances that should be added to estimates of extreme rainfall depths, peak flood flows, and mean sea levels for the future scenarios.

*Table 7-2: Climate Change Adaptation Allowances for Future Flood Risk Scenarios*

Parameter	Mid-Range Future Scenario (MRFS)	High-End Future Scenario (HEFS)
Extreme Rainfall Depths	+ 20%	+ 30%
Peak River Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 0.5 m	+ 1 m

For the purpose of this flood risk assessment, we have assessed the proposed development against the Mid-Range Future Scenario as it represents a likely future scenario.

### 7.3.4 Kerry County Development Plan 2022 - 2028

The current Kerry County Development Plan includes a Strategic Flood Risk Assessment.

Flood Risk Management Policies and Objectives are provided in the relevant chapters of the Development Plan. The key policies for Flood Risk Management are:

- *Adopt a sequential approach to flood risk management in the making of subsidiary plans and local area plans and to guide flood vulnerable development away from undeveloped areas that have been identified as being at risk of flooding.*
- *Zone/designate land other than water-compatible development in areas with a high or moderate risk of flooding (Flood Zones A & B) only where it can be clearly demonstrated, on a solid evidence base, that the zoning or designation will facilitate the development of the land in a sustainable manner and in accordance with the Planning System and Flood Risk Management Guidelines (DoEHLG 2009).*
- *Adopt a strategic, integrated, sustainable and proactive approach to catchment management in the County to reduce and manage flood risk.*
- *Require the application of Sustainable Urban Drainage Systems (SuDS) in all new developments and proposals to extend existing developments.*
- *Avail of opportunities to enhance biodiversity and amenity and to ensure the protection of environmentally sensitive sites and habitats.*
- *Where applicable develop flood storage areas and/or other nature-based solutions to flood risk.*

## 7.4 INITIAL FLOOD RISK ASSESSMENT

### 7.4.1 Past Flood Events

The OPW's National Flood Information Portal<sup>1</sup> provides past flood event mapping with records of flooding reports, meeting minutes, photos, and/or hydrometric data. Figure 7-3 summarises recorded locations of recurring flood events noted in the vicinity of the subject site. There are no historical or recurring flood events reported along or on the N70 from Waterville to Eightercua.

*Figure 7-3: OPW Flood Map of Past Flood Events*



Meeting minutes from a meeting with the Cahersiveen Area Engineer on 24th February 2006 lists two locations within the vicinity of the site subject to recurring flooding, as follows:

- River Inny Bridge (Flood ID: 4673) – Flood waters overflow road at northwest side of bridge rendering road impassable for 2 to 3 hours at a time. Frequency is twice per year. Cause is rainfall/runoff and tide/winds. Bridge is in a flood plain. Possible solution is to raise road.
- Lough Currane (Flood ID: 4674) – Heavy rainfall/runoff causes lake to rise and inundate surrounding lands. Road is barely passable. Frequency is 4 to 5 times per annum. No houses affected. Not tidal related.

<sup>1</sup>floodinfo.ie

<sup>2</sup> [https://www.floodinfo.ie/map/pf\\_addinfo\\_report/4674/](https://www.floodinfo.ie/map/pf_addinfo_report/4674/)

### 7.4.2 OPW Preliminary Flood Risk Assessment (PFRA) Study

In 2009, the OPW produced a series of maps to assist in the development of a broad-scale FRA throughout Ireland. These maps were produced from several sources.

The OPW's National Preliminary Flood Risk Assessment (PFRA) Overview Report from March 2012 noted that *"the flood extents shown on these maps are based on broad-scale simple analysis and may not be accurate for a specific location"*<sup>3</sup>.

Limitations on potential sources of error associated with the PFRA maps include:

- Assumed Channel capacity (due to absence of Channel survey information)
- Absence of flood defences and other drainage improvements and Channel structures (bridges, weirs, culverts)
- Local errors in the national Digital Terrain Model (DTM)

Figure 7-4 provides an overview of the fluvial, coastal, pluvial, and groundwater indicative flood extents in the vicinity of the subject site.

Figure 7-4: Indicative Flood Mapping [extract from PFRA Map 332]



<sup>3</sup>The National Preliminary Flood Risk Assessment (PFRA) Overview Report, OPW (March 2012)

Figure 7-5 indicates the fluvial flood extents predicted by the OPW PFRA Study.

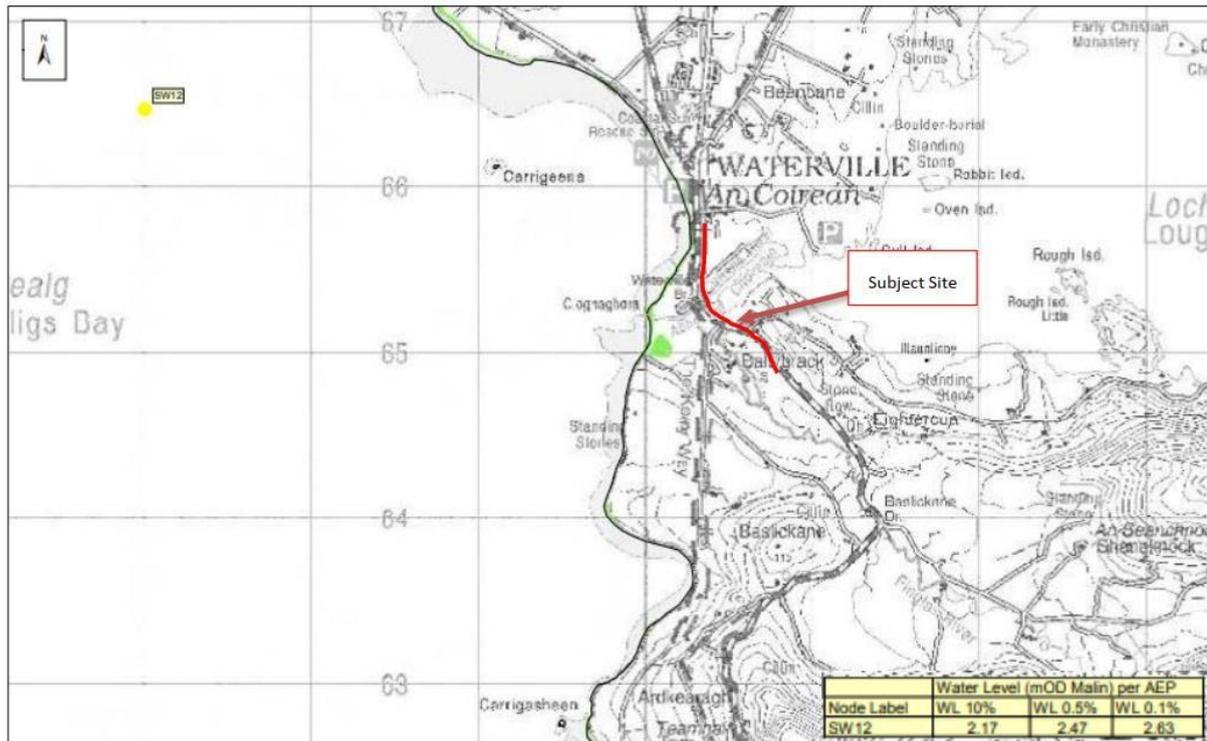


*Figure 7-5: Indicative Fluvial Flood Mapping as part of PFRA Study*

### *7.4.3 Irish Coastal Protection Strategy Study (ICPSS)*

As part of the Irish Coastal Protection Strategy Study (ICPSS), RPS performed detailed hydraulic modelling of tidal flooding along the Irish Coast. The study produced ‘predictive’ flood maps which provide predicted coastal flood extents for a future scenario ‘design’ flood event.

The flood extent mapping is presented in Figure 7-7 and Figure 7-8. The flood extent mapping produced as part of the ICPSS indicates that the subject site is outside the predicted coastal flood extents. The Currane River flows through the subject site area and is indicated as tidally influenced in the ICPSS flood extent mapping.

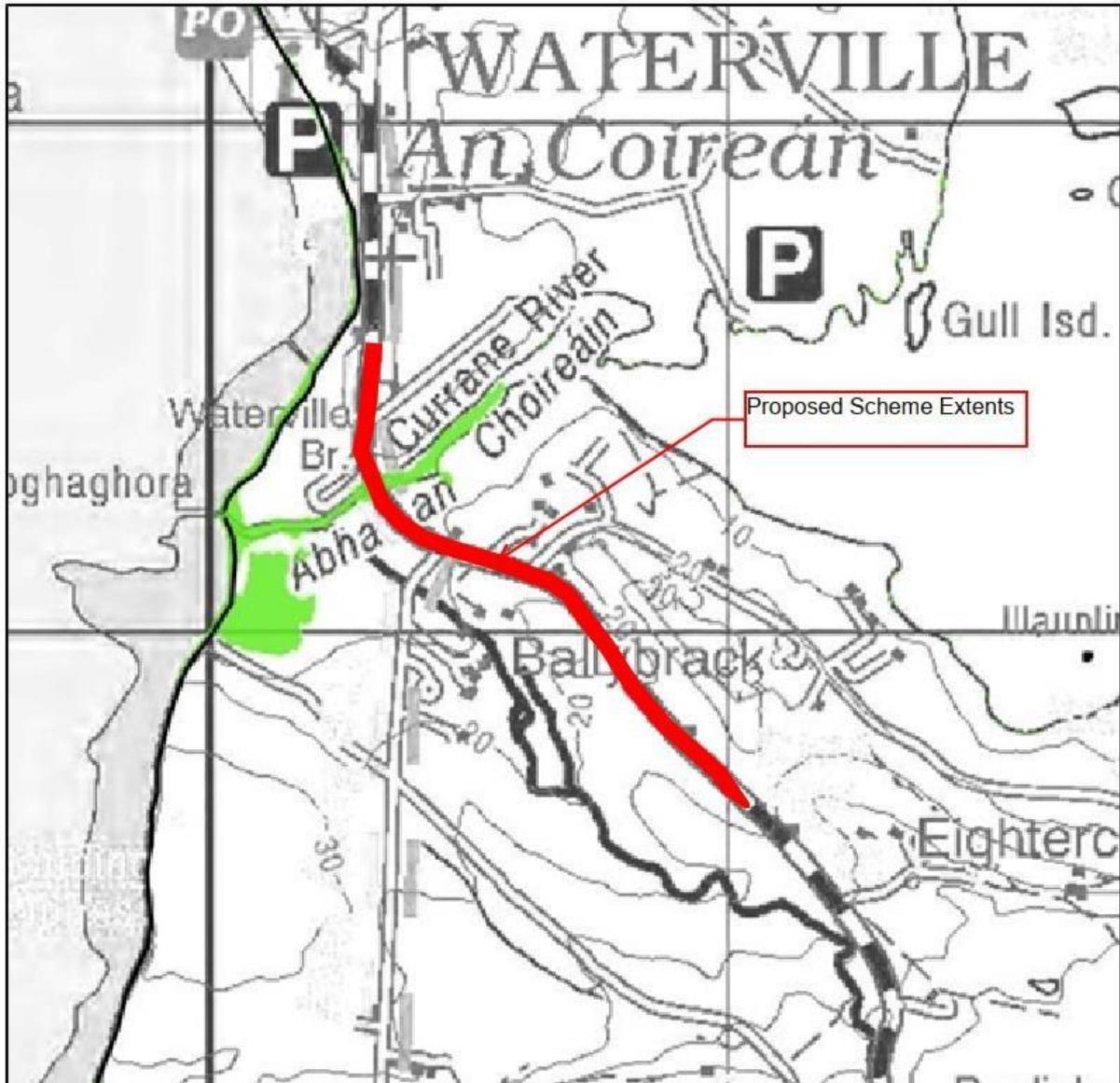


*Figure 7-6: ICPSS Existing Flood Mapping in vicinity of subject site<sup>4</sup>*

As set out above, to account for climate Change during the mid-range future scenario, a 0.5m increase in sea levels is predicted. The predicted coastal flood level at reference NODE SW12<sup>5</sup> a 0.1% AEP MRFS event is 3.13mOD. As previously mentioned, existing ground elevations along the proposed scheme range from approximately 5.328mOD to 29.251mOD, with a minimum of 1.86m above the predicted coastal flood level during a 0.1% AEP MRFS event.

<sup>4</sup> Irish Coastal Protection Strategy Study- Phase IV, Southwest Coast Flood Extent Map, Figure No. SW / RA / EXT / 16 (May 2011)

<sup>5</sup> Irish Coastal Protection Strategy Study- Phase IV, Southwest Coast Flood Extent Map, Figure No. SW / RA / EXT / MRFS / 15 (Nov 2012)



*Figure 7-7: MRFS Flood Mapping in vicinity of subject site<sup>6</sup>*

As per the ICPSS, “The maps have been produced at a strategic level to provide an overview of coastal flood hazard and risk in Ireland, and minor or local features may not have been included in their preparation. ADTM is used to generate the maps, which is a ‘bare earth’ model of the ground surface with the digital removal of man-made and natural landscape features such as vegetation, buildings, bridges and embankments. The mapping process can show some of these man-made features, such as bridges and embankments, as flooded on the flood maps, when in reality they do not flood”.

<sup>6</sup> Irish Coastal Protection Strategy Study- Phase IV, Southwest Coast Flood Extent Map, Figure No. SW / RA / EXT / MRFS / 16 (April 2012)

#### 7.4.4 National Indicative Fluvial Mapping (NIFM)

In 2020, the OPW produced the second-generation indicative fluvial flood mapping, improving upon the first generation PFRA and producing higher quality flood maps<sup>7</sup>.

The NIFM Flood Mapping Technical Data notes that “Cross sectional surveys have not been used to define the dimensions of river Channels and structures within the 2D model. Channels have been represented in the 2D model by assuming their Channel capacity is equivalent to the estimation of [the index flood flow]”<sup>8</sup>. The 2D model uses a Digital Terrain Model with a grid scale of 5m.

Figure 7-8 provides an overview of the 1% and 0.1% AEP indicative fluvial flood mapping of the Currane River.



*Figure 7-8: National Indicative Fluvial Mapping 2020- Existing Scenario*

The NIFM update also included an assessment of the likely impact of climate Change on flood risk in the area. The flood extents for a Mid-Range Future Scenario are shown in Figure 7-9.

<sup>7</sup> National Indicative Fluvial Mapping; Applying and Updating FSU Data to Support Revised Flood Risk Mapping for Ireland, Brown et al., Irish National Hydrology Conference 2019

<sup>8</sup> [https://www.floodinfo.ie/map/nifm\\_user\\_guidance\\_notes/](https://www.floodinfo.ie/map/nifm_user_guidance_notes/)



Figure 7-9: National Indicative Fluvial Mapping 2020- Mid-Range Future Scenario

An area of the proposed scheme is predicted as liable to flooding during a 1% and 0.1% AEP event. The DTM (Digital Terrain Model) used to generate the NIFM flood extent mapping is “a ‘bare earth’ model of the ground surface with most man-made and natural landscape features such as vegetation, buildings and bridges digitally removed.”<sup>9</sup> As a result, bridges may be indicated as liable to fluvial flooding by the NIFM study, when in reality, they may not be susceptible to flooding.

#### 7.4.5 Geological Survey Ireland Mapping

The Geological Survey Ireland (GSI) provides mapping<sup>10</sup> with data related to Ireland’s subsurface. Based on the map shown in Figure 7-10, the closest Karst Feature to the subject site is an Enclosed Depression located approximately 39.5km east from the road improvement section of the N70. There are no karst features (caves, springs, turloughs, etc.) in the surrounding 1km area.

GSI identified lands 43km north-east of the N70 as the nearest location to the site that is liable to Groundwater flooding. It is estimated that the extents of this flooding do not impact the proposed development.

Older hydraulic modelling completed by HR Wallingford as part of the PFRA project indicated groundwater flooding in a similar location to the vicinity of the subject site.



*Figure 7-10: GSI Mapping of Karst Features*

<sup>10</sup> <https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx>

## 7.5 DETAILED FLOOD RISK ASSESSMENT

With reference to the PSFRM Guidelines, “Local transport infrastructure” (such as the works proposed as part of this scheme) are considered “Less vulnerable” in terms of their sensitivity to flood risk (i.e., Appropriate in Flood Zone B, where the risk of flooding is less than a 1% AEP).

### 7.5.1 Fluvial Flooding

Based on the results of OPW modelling (PFRA, NIFM), the majority of the subject site is located outside the predicted 0.1% and 1% AEP flood extents. The NIFM Study (Section 3.4) indicates an area in the vicinity of the existing Currane River bridge which may be liable to flooding.

The DTM (Digital Terrain Model) used to generate the NIFM flood extent mapping is “*a ‘bare earth’ model of the ground surface with most man-made and natural landscape features such as vegetation, buildings and bridges digitally removed.*”<sup>11</sup> As a result, bridges may be indicated as liable to fluvial flooding by the NIFM study, when in reality, they may not be susceptible to flooding.

As part of the Section 50 application, further predictive modelling was undertaken by RPS Group and the predicted flood extents during a 1% AEP event was estimated to be 4.17m OD, in the vicinity of the Currane River bridge. The existing road surface elevation at the Currane River bridge is 6.77mOD, 2.6m above the predicted flood levels.

A cycle/foot bridge is proposed on the western side of the existing masonry arch bridge. This standalone steel structure will provide for the combined cycleway/footpath to cross the Currane River. The proposed bridge is designed such that the hydraulic capacity of the existing bridge is unimpacted.

Therefore, it is estimated that risk of fluvial flooding associated with the proposed scheme is minimal.

### 7.5.2 Pluvial Flooding

Based on the indicative pluvial flood mapping presented in the OPW Preliminary Flood Risk Assessment, it is estimated that the subject site is not at risk from pluvial flooding during an extreme 0.1% AEP pluvial flood event.

The surface water drainage system will be subject to upgrades and provision of new drainage elements in accordance with DN-DNG-03022 of TII Publications. Any proposed changes/upgrades will be in accordance with TII standards, suitable to public spaces used by pedestrians and cyclists and the aesthetic nature of the area.

As such, surface water arising at the site will be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates.

The landscaping and topography of the developed area will provide safe exceedance flow paths and prevent surface water ponding to minimise residual risks associated with an extreme flood event or a scenario where the stormwater drainage system becomes blocked.

Therefore, it is estimated that risk of pluvial flooding associated with the proposed development is minimal.

### 7.5.3 Groundwater Flooding

There are no karst features located within a 39.5km radius of the site. The nearest GSI historic and predicted groundwater flooding is approx. 43km from the proposed site<sup>12</sup>.

Older hydraulic modelling completed by HR Wallingford as part of the PFRA indicated no groundwater flooding in the vicinity of the subject site.

Based on a review of Geological Survey Ireland (GSI) subsurface mapping of karst features, historic and predicted groundwater flooding in the area, and the PFRA study (Figure 3–2), the risk of groundwater flooding at the proposed development along the N70 from Waterville to Eightercua is minimal.

### 7.5.4 Coastal Flooding

Costal flood extent mapping produced as part of the PFRA Study indicates that the proposed scheme is not predicted to flood during a 0.1% AEP Event.

Additionally, as per Section 3.3, the nearest predicted 0.1% AEP MRFS coastal flood level is estimated by the Irish Coastal Protection Strategy Study (ICPSS) to be approximately 3.13m OD<sup>13</sup>. Existing ground elevations along the proposed scheme range from approximately 5.328mOD to 29.251mOD, with a minimum of 2.198m above the predicted coastal flood level during a 0.1% AEP MRFS event.

Therefore, it is estimated that the lands are not at risk of coastal flooding due to their elevation.

## 7.6 IMPACT OF THE DEVELOPMENT ELSEWHERE

The proposed development predominantly consists of the upgrading of surfacing materials along with the provision of a cycle/pedestrian path which will include a cycle/foot bridge proposed on the western side of the existing masonry arch bridge.

The road improvements will not involve any significant Changes in existing ground elevations and will improve surface water drainage within the developed area. The proposed cycle/foot bridge is designed as a standalone steel structure which will provide for the combined cycleway/footpath to cross the Currane River. The proposed bridge is designed such that the hydraulic capacity of the existing bridge is unimpacted.

Therefore, the proposed development is not predicted to impact flow paths or exacerbate flood risk elsewhere in the area.

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<sup>12</sup>

<https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc>

<sup>13</sup>Irish Coastal Wave and Water Level Modelling Study 2018 – Phase 1 ICWWS OPW (Node SW12)

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## 7.7 CONCLUSIONS

### Fluvial Flooding:

It is estimated that risk of fluvial flooding associated with the proposed scheme is minimal.

### Pluvial Flooding:

Based on the indicative pluvial flood mapping presented in the OPW Preliminary Flood Risk Assessment, it is estimated that the risk of pluvial flooding at the subject site is minimal.

### Groundwater Flooding:

Based on a review of Geological Survey Ireland (GSI) subsurface mapping of karst features, historic and predicted groundwater flooding in the area, and the PFRA study, the risk of groundwater flooding predicted at the proposed scheme location is minimal.

### Coastal Flooding:

It is estimated that the lands are not at risk of coastal flooding due to their elevation.

Based on the findings of this Flood Risk Assessment, the subject site is appropriately located in Flood Zone C and is not predicted to impact flood risk elsewhere in the area.

## 8.0 TRAFFIC

### 8.1 INTRODUCTION

This Chapter describes the existing traffic situation and presents an assessment of the potential for impacts arising from the works.

### 8.2 METHODOLOGY

The primary haul route for the N70 Waterville to Ballybrack Road Improvement Scheme will be via the existing N70 National Secondary Road which forms part of the Ring of Kerry. Traffic volumes associated with the works are low in number and relate primarily to the delivery of construction equipment and materials. The methodology used investigates the potential traffic impact and proposes mitigation measures to control potential impacts, including the development and implementation of a Construction Stage Traffic Management Plan by the appointed contractor(s).

### 8.3 RECEIVING ENVIRONMENT

#### *8.3.1 Development Location*

The development location is as laid out in previous Chapters on the western end of the Ring of Kerry just south of Waterville Village.

#### *8.3.2 Existing Road Network*

The existing N70 is in general a substandard national secondary route with localised improvements along its length. It is a key tourist route and is frequented by coaches in the summer months. These tour buses travel the Ring of Kerry in a counterclockwise direction to avoid meeting on some of the narrow sections of the road. Traffic volumes were obtained from an automatic traffic counter located just north of the existing bridge in July 2019. This data was recorded in 2019 as traffic volumes for 2020 and 2021 have been affected by Covid 19 related restriction measures.

<b>Automated Traffic Counter (16-24/07/2019)</b>	<b>2019</b>
<b>AADT</b>	2,720
<b>% HGV</b>	4.3%

The speed limits on this section of the N70 road are 80Kph and 50Kph.

#### *8.3.3 Proposed Network Improvements*

The existing N70 at this location is substandard in terms of alignment (both vertical and horizontal), width, provision for Vulnerable Road Users, forward visibility and junction visibility. The 300m section on the northern side of the bridge is also in need of substantial structural repairs.

The proposed scheme will commence in the Townland of Eightercua south of the Benjamin Close housing estate and terminate at the promenade in Waterville. The mainline carriageway improvement works will be 1373m in length and will include improvements at two local road junctions as well as several private accesses. The shared cycle/pedestrian facility will connect

the Benjamin Close housing estate to the promenade in Waterville and will be 1253m in length serving several residences, the Hogs Head Golf Course, Kerry Way and two hotels. It is proposed to provide a Type 3 single carriageway in accordance with TII Publications and a segregated shared footpath/ cycleway for the extent of the improvements.

### 8.3.4 Public Transport

Public transport is provided by a local link service running three times a day to Waterville.

## 8.4 POTENTIAL IMPACTS

### 8.4.1 Predicted Traffic Impact During Development Works

Construction equipment and vehicles required for each construction element / operation will be delivered to site by appropriate vehicles. The vehicles required for the construction of the road improvement are shown below. The main activities associated with the works that will have a potential impact on traffic are as follows:

- General Road Construction – this includes the road widening and construction of the proposed cycleway. Excavation and removal of material is required to construct the proposed improvements. Imported stone and acceptable material will be placed as excavation proceeds. This work will be mainly carried out off-line but will require interface with N70 traffic for access and egress. Where excavation is required nearer the existing road, lane closures will be required.
- Pavement Works – As construction nears the required level, specialist equipment is required to place stone and bituminous bound materials to the appropriate standard. This will be carried out exclusively on the road surface and will require a lane closure.
- Bridge Works – The majority of the footbridge works will be carried out off-line with only haulage lorries taking away material and concrete lorries delivering materials. On completion of the abutment construction, the main footbridge will be installed. This will be carried out by dropping the bridge into position using mobile cranes. This operation will require a one-day road closure.
- Works associated with finishing works including landscaping and line marking will have a minimal impact on traffic.

*Table 8-1: Construction Vehicles*

	Excavation and General Road Construction	Pavement Works	Bridge Works	Lining, landscaping and finishing works
Construction Vehicles and equipment	Tracked Excavators	Paving machine	Tracked Excavators	Mini Tracked Excavator
	Rollers	Planer	Concrete Pumps	Dumper (6 Tonne)
	Tractor & Trailer	Rollers	Mobile Cranes	Line marking lorry
Materials Delivery Vehicles	Delivery / Haulage Trucks	Delivery / Haulage Trucks	Concrete Delivery Truck	Delivery Truck
			Delivery / Haulage Trucks	
			Bridge component delivery vehicles	

	Excavation and General Road Construction	Pavement Works	Bridge Works	Lining, landscaping and finishing works
Staff / Site Vehicles	Four-Wheel Drive	Four-Wheel Drive	Four-Wheel Drive	Four-Wheel Drive
	Small Vans	Small Vans	Small Vans	Small Vans

It is envisaged that a peak in material delivery vehicles will occur during the pavement section of the works where vehicles are required to line up in convoy to keep the paving machine with enough material to lay to the standards required. An estimated 6 delivery vehicles per hour could be required for this operation.

At the peak of construction, it is anticipated that there will be a requirement for 20 construction workers required at the site. All staff will be required to report and park at the construction site compound. Given the nature of roadworks and their linear nature, construction supervision staff may be required to address issues along the site and therefore, may require a vehicle to travel the site.

The capacity of the National Road on a Type 3 single carriageway (of 6.0m in width) is 5,000 Annual Average Daily Traffic. The current volume of traffic on the road is 2720. The low traffic movements for materials delivery vehicles, construction vehicles and equipment and staff / site vehicles envisaged for the works along the National Road network are considered to result in minimal impacts on existing traffic levels. There is sufficient capacity along the National Road to accommodate the anticipated peak traffic related to this project on the surrounding road network.

There will be temporary disruption to the N70 traffic during construction with single lane closures during online works and a two-day road closure for installation of the footbridge.

#### *8.4.2 Predicted Traffic Impact During the Operational Phase*

There will be no additional traffic movements associated with the proposed works. It is envisaged that there will be more pedestrians and cyclists using the new shared facility and this may reduce the traffic figures at this location.

## 8.5 MITIGATION MEASURES

### *8.5.1 Traffic Management*

On completion of the detailed design, a preliminary construction traffic management plan will be developed by the designer and further developed by the appointed contractor to minimise the effects of traffic on the existing road network. This will be a living document and will be amended to facilitate any Changes in mainline traffic flow or construction related traffic. This plan will include:

- Geometric Design;
- Position of traffic control point, signals and flag men;
- Width of Lanes;
- Working Areas;
- Safety Zones;
- Crossovers;
- Running lane / provision for emergency vehicles;
- Access and exit locations for construction vehicles;
- Access and exit locations for businesses, property owners and other users;

- All temporary traffic signs, cones, barriers and traffic control signals necessary for the safe direction and control of public traffic and other road users;
- Temporary road lighting;
- Provision for pedestrians and cyclists, including road crossing details;
- Provision for Temporary Bus Stops where Traffic Management proposals require the removal of an existing Bus Stop;
- Protection/diversion of services, supplies and the like;
- Requirements for Temporary Emergency Telephones;
- Extent of lane closures;
- Details of plant working in the vicinity of the works, and measure to be implemented to ensure public safety;
- Taking up and reinstatement of road studs and markings;
- Existing and proposed permanent road studs and markings;
- Existing and proposed temporary road studs and markings;
- When no road markings and studs are in place during works, lanes will be delineated by cones and Steady State Lamps to delineate edge of travel through night works;
- Phasing of works;
- Timing of operations; and
- Preventing mud and dust on public roads.

#### *8.5.1.1 Site Access & Egress*

The construction compound and welfare facility will be located at an existing setback area adjacent to the Hogs Head Golf Course at Ch 640m approximately.

All oils and solvents used during the construction phase of the development will be stored within specially constructed dedicated bunded areas. This will minimise any impact on the underlying sub-surface strata. Refuelling of construction vehicles and the addition of hydraulic oils to vehicles, will take place in a designated area of the site, away from surface water features. Spill kits and hydrocarbon adsorbent packs will be stored in this area of the site and operators will be fully trained in the use of this equipment.

The compound will consist of a hardstanding area housing all necessary site offices, site reception, spill kits, canteen and welfare facilities for construction workers. Any necessary infectious disease preventative measures (such as hand wash stations, sign in areas, temperature check areas, etc) will also be identified and put in place where required. Portaloos will be provided in the compound initially, with a dedicated toilet block installed later and connected to the existing foul drainage network. Electrical and potable water supply will be provided via temporary connections to the existing services located near the site, in agreement with the service providers. Car parking for construction workers and visitors will be located within the construction compound. Waste facilities will be located within the site compound as necessary. Containers and skips intended for construction waste will be located close to works areas, as required.

The construction site compound will include provision for dust control, surface water control and wheel washing facilities. Incoming construction materials will be offloaded and stored within a materials compound. Location of the site works compound shall be key in ensuring that the vehicular movements do not cause overt disruption in the town.

The site entrances will be sufficiently wide for Heavy Good Vehicles (HGVs) and construction vehicles to enter the site without causing an obstruction on the road network. Provision will be made to ensure there is sufficient space within the site for HGVs to turn before joining the public road network.

Signage will be erected on all approaches to the site to notify motorists of the construction works ahead. Signage at the site entrances will be provided to ensure members of the public do not enter the site road mistakenly.

The site will be secured using temporary fencing or hoarding at all times to ensure that the ongoing works are separated from the public. Netting will be erected on any fencing used, where required, to prevent debris and dust release from the site and provide screening of the construction and demolition works. A secure lockable gate will be erected at the site entrance and visitors to the site will be directed to the adjacent site office. The site management team will carry out regular inspections and maintenance of the security fencing/hoarding while also ensuring areas are kept clean.

Deliveries of materials, plant or machinery to site will be restricted to the working hours identified above. Deliveries will be scheduled as “just-in-time” to ensure the arrival and departure of vehicles will have minimal interference with residents and other road users. Just-in-time deliveries will also reduce the quantity of materials stockpiled within the site. Deliveries will not be allowed to queue on public roadways.

#### *8.5.1.2 Traffic Management Signage*

The following measures will be incorporated into requirements for the contractor:

- Consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements;
- Provision of temporary signage in accordance with Chapter 8 of the Traffic Signs Manual
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including project contact details.

#### *8.5.1.3 Routing of Construction Traffic*

The following measures will be incorporated into requirements for the contractor:

- Permitted access routes to and from the Site shall be via the national and regional road network. The Contractor, his Sub-Contractors and Suppliers shall access/exit the site by sharing road space with through traffic.
- Site access/egress points shall be designed considering existing traffic volumes and anticipated type and volumes of site generated traffic.
- Dump trucks, including articulated dump trucks engaged in material haulage are not permitted on the public road network. Importation of materials and disposal of material off-site shall only be carried out utilising tipper lorries to the approval of the Employer’s Representative.
- The Contractor, his subcontractors and suppliers shall use only these Permitted Access Routes for all purposes in connection with the works (including the import of acceptable and disposal of unacceptable materials) unless otherwise agreed by the Employer’s Representative.
- At any site haul route crossing of public or private right of way, a speed limit of 15kph shall be enforced on the haul route within 50 metres of the crossing.
- The Contractor shall comply with the maximum permissible loads for public roads in Ireland.

#### 8.5.1.4 Timing of Material Deliveries

Deliveries of materials, plant or machinery to site will be restricted to the working hours identified above. Deliveries will be scheduled as “just-in-time” to ensure the arrival and departure of vehicles will have minimal interference with residents and other road users. Just-in-time deliveries will also reduce the quantity of materials stockpiled within the site. Deliveries will not be allowed to queue on public roadways.

#### 8.5.1.5 Recommended Traffic Management Speed Limits

A reduced construction stage speed limit will be introduced by the local authority for the duration of the works. This speed will be set at 50kph and extend from the existing 50kph speed limit at Waterville Village out to cover the extent of the works.

#### 8.5.1.6 Road Cleaning

- Regular condition surveys of the road network in the vicinity of the site are required.
- Where identified / required, the contractor(s) shall carry out road sweeping operations, employing a suction sweeper, to remove any project related dirt and material deposited on the road network by construction / delivery vehicles.
- The contractor(s) shall also ensure that if mud / debris is carried out onto the road when the road sweeper is not present, site staff shall immediately manually clear the debris from the road, under appropriate temporary traffic management control.

#### 8.5.1.7 Enforcement of Traffic Management Plan

All project staff and material suppliers will be required to adhere to the Construction Stage TMP. As outlined above, the principal contractor(s) shall agree and implement monitoring measures to monitor the effectiveness of the Construction Stage TMP, and compliance will be monitored by the Site Engineer/Site Manager. Spot Checks will also be carried out to ensure that all project staff and material supplies follow the agreed measures adopted in the Construction Stage TMP. Temporary Safety Measures Inspections will be carried out in accordance with CC-STY-04002 of TII Publications.

#### 8.5.1.8 Emergency Procedures During Construction

In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112;
- Exact details of the emergency/ incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer;
- Where required, appointed site first aiders will attend the emergency immediately; and
- The Safety Officer will ensure that the emergency services are en route.

## 8.6 CONCLUSION

Traffic volumes associated with the works are low in number and relate primarily to the delivery of construction equipment and materials. The implementation of an approved Construction Stage Traffic Management Plan will minimise the potential for traffic and transport impacts during construction activities and there will be no residual impact.

## 9.0 AIR QUALITY - DUST

### 9.1 INTRODUCTION

The N70 Waterville to Ballybrack Road Improvement Scheme is a Minor Scheme with an estimated construction cost of less than €5 million. The project is an online improvement of the existing road including some widening and the provision of Active Travel facilities adjacent to the road. While PE-ENV-01106 and PE-ENV-01107 of TII Publications has been consulted in the planning of this project, the full extent of these standards does not apply as there is no EIA requirement and no significant change in traffic flow in traffic flow or alignment of the road.

### 9.2 METHODOLOGY

The following standards were used in the design stage of the project:

- Air Quality Assessment of Specified Infrastructure Projects - Overarching Technical Document (PE-ENV-01106)
- Air Quality Assessment of Proposed National Roads -Standard (PE-ENV-01107)

The standards require that an Air Quality Assessment (AQA) will only need to be carried out where there may be the potential to have significant effects on air quality and where the proposed scheme results in a significant change in traffic flow/composition or alignment of a road. The standards also require a proportionate level of appraisal in accordance with the TII project thresholds. In accordance with the standards, an AQA is not deemed necessary for the scheme for the following reasons:

- The works are upgrading an existing road and therefore cannot make a significant change to the traffic flow / composition.
- The alignment of the road does not change except insofar as the road is widened at certain locations.
- In cases where sensitive receptors are located within 20m of the road, the centreline is being moved slightly further away.
- The construction cost is estimated at less than €5 million and therefore the full extent of the standards does not apply.
- An EIA is not required as determined by the EIA Screening Report.

TII Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes, has been used in proportion to the nature of the project in the development of this report. A separate Dust Management Plan has been developed for the construction stage of the project and is included in Construction Environmental Management Plan.

### 9.3 RECEIVING ENVIRONMENT

The site is located on the N70 National Secondary Road commencing at the southern end of the promenade in Waterville town and extends approximately 1.373km south towards Caherdaniel.

The N70 Waterville to Ballybrack section of the route currently consists of a narrow, single carriageway cross-section without hard-shoulders and has both a poor horizontal and vertical alignment.

This section of the N70 also coincides with the Kerry Way walking trail and has many vulnerable road users, particularly during summer months.

The nearest air quality monitoring station to the proposed development site is the Valentia Observatory in Cahersiveen, Co. Kerry. The air quality in Zone D is regularly indicated as 'Good' on the EPA Environment Monitoring Website. The EPA air quality index is calculated based on the latest available measurements of ozone, nitrogen dioxide, PM10 and Sulphur Dioxide. Air quality in the county is therefore very good and falls well within EPA standards. The greatest threats to air quality are localised and relate to car emissions and domestic/commercial heating and fuel consumption.

## 9.4 POTENTIAL IMPACTS

### 9.4.1 Operation Stage

Given the nature of the project as outlined in Section 9.2, it is deemed that the operation stage of the project will not give rise to significant air quality effects.

### 9.4.2 Construction Stage

The Construction Stage of this project is likely to take 12 months for completion. There will be some dust and exhaust emissions from construction activities during the construction phase. These impacts will be temporary in duration and are not considered likely to give rise to significant impacts following the implementation of mitigation measures. Dust or pollutants generated from the proposed development will typically arise from:

- Movement of construction vehicles;
- Transport of construction materials to and within the site;
- Excavation, movement and placement of material and stockpiles (excavated soils / fill materials); and
- Wind generated dust from stockpiles and exposed unconsolidated soils and roads.

As the plant and equipment required for the construction of the development will include small scale construction machinery, machine emissions are not expected to be any greater than those used in the construction of domestic and agricultural buildings.

## 9.5 MITIGATION MEASURES

Potential impacts during the construction stage arising from dust emissions will be minimised through the provision of mitigation measures as outlined in the Dust Management Plan accompanying this application.

To minimise emission of pollutants from plant and equipment, the following measures will be implemented during the construction works:

- Regular maintenance of plant and equipment will be carried out to ensure that the equipment is operated efficiently and generating minimal air emissions.
- Plant or equipment will not be left running unnecessarily and low emission fuels will be used.

The greatest potential impact on air quality during the construction stage will be from dust emissions associated with the construction works. The proactive control of fugitive dust, rather than an inefficient attempt to control dust once released will ensure the prevention of

significant emissions. The following measures will be implemented to minimise the potential for dust generation:

- Minimisation of extent of working areas;
- Stockpiling of excavated materials will be limited to the volumes required to practically meet the construction schedule;
- Drop heights of excavated materials into haulage vehicles will be minimised to a practicable level; and
- Daily inspections by site personnel to identify potential sources of dust generation along with implementation measures to remove causes where found.

A Dust Management Plan (DMP) has been prepared (and included in the CEMP) which sets out the measures that will be implemented by the Contractor to minimise and control dust emissions. This DMP will be updated by the Contractor in the CEMP to account for any additional measures identified.

The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with environmental factors including levels of rainfall, wind speeds and wind direction. The potential for impact from dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. Most of any dust produced will be deposited close to the potential source and any impacts from dust deposition will typically be within 200m of the construction area.

To ensure mitigation of the effects of dust nuisance, a series of measures will be implemented.

- Site access roads shall be regularly cleaned and maintained as appropriate; dry sweeping of large areas shall be avoided.
- Hard surface access roads shall be swept to remove mud and aggregate materials from their surface while any un-surfaced access roads shall be restricted to essential site traffic only.
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.
- Vehicles delivering material with dust potential to an off-site location shall be always enclosed or covered with tarpaulin to restrict the escape of dust.
- Vehicles exiting the site will make use of a wheel wash facility prior to entering onto public roads to ensure mud and other wastes are not tracked onto public roads.
- Public roads outside the site shall be regularly inspected for cleanliness daily and cleaned using a street sweeper, as necessary.
- Before entrance onto public roads, trucks shall be adequately inspected to ensure no potential for dust emissions.

The following measures will be implemented to prevent significant dust emissions from material stockpiles.

- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind.
- Sand and other aggregates will be stored in bunded areas and not allowed to dry out unless this is required for a particular process, in which case appropriate additional control measures will be put in place.
- Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- At all times, the procedures put in place shall be strictly monitored and assessed.
- In the event of dust nuisance occurring outside the site boundary, appropriate procedures shall be implemented to rectify the problem.

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The DMP shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust using best practices and procedures. Community engagement before works commence on site will be put in place, including a communications plan. All dust and air quality complaints shall be recorded, and causes identified, along with the measures taken to reduce emissions. Daily on and off-site inspections shall occur for nuisance dust and compliance with this DMP. This shall include regular dust soiling checks of surfaces such as street furniture, windows, and cars within 100m of the site boundary. Cleaning shall be provided if necessary.

## 9.6 CONCLUSION

The implementation of the above mitigation measures will ensure that construction works at the proposed development will not result in an increase in dust levels in the local environment and the potential impact on air quality will be low. It is not anticipated that there will be any impact on air quality because of the operational phase of the development.

## 10.0 NOISE & VIBRATION

### 10.1 INTRODUCTION

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the Construction Phase of a project.

S.108 of the Environmental Protection Agency Act 1992 outlines that noise amounts to nuisance where the noise is "so loud, so continuous, so repeated, of such duration or pitch or occurring at such times as to give reasonable cause for annoyance to a person in any premises in the neighbourhood or to a person lawfully.

Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion. The Kerry County Council Noise Action Plan refers to major roads with a flow threshold of more than 3 million vehicles per annum which is well above the volumes on the N70 at this location. In general, higher noise levels are accepted during temporary Construction Phase of a project compared to its long-term Operational Phase, as construction works are temporary and tend to be varied.

### 10.2 METHODOLOGY

#### *10.2.1 Noise*

In the absence of specific statutory guidance, reference has been made to the following:

- Guidelines for the Treatment of Noise and Vibration in National Road Schemes October 2004
- Good Practice Guidance for the Treatment of Noise during the Planning of National Roads March 2014

to set appropriate noise construction criteria. Given that the proposed development will involve minor road realignment and resurfacing works, the construction noise criteria outlined in these documents are considered to be the most relevant and appropriate to the proposed project. The TII Noise Guidelines 2004 and TII Noise Guidelines 2014 specify noise levels that are deemed acceptable in terms of construction noise.

There will be no additional traffic movements associated with the proposed works. It is envisaged that there will be more pedestrians and cyclists using the new shared facility and this may reduce the traffic figures at this location.

#### *10.2.2 Vibration*

BS 7385-2 Evaluation and measurement for vibration in buildings. Guide to damage levels from ground borne vibration (BSI 1993) gives guidance regarding acceptable vibration to avoid damage to buildings. BS 5228-2 Code of practice for noise and vibration control on construction and open sites refers to the broader requirements.

Ground vibrations produced by road traffic are unlikely to cause perceptible structural vibration in properties located near to well-maintained and smooth road surfaces.

## 10.3 RECEIVING ENVIRONMENT

The site is located on the N70 National Secondary Road commencing at the southern end of the promenade in Waterville town and extends 1.373km south towards Caherdaniel.

The N70 Waterville to Ballybrack section of the route currently consists of a narrow, single carriageway cross-section without hard-shoulders and has both a poor horizontal and vertical alignment.

This section of the N70 also coincides with the Kerry Way walking trail and has many vulnerable road users, particularly during summer months.

Off-site receptors within 20 m of the site include 15 houses along the route.

## 10.4 POTENTIAL IMPACTS

### *10.4.1 Noise*

It is predicted that during the construction phase of the proposed development, noise relating to typical construction activities will be generated on site and within the surrounding area. This noise level will be maintained within the parameters set out in Table 10-1. During the construction phase of the proposed development, a variety of items of plant will be in use, such as excavators, lifting equipment, dumper trucks and so on.

The proposed general construction hours are 07:00 to 18:00hrs, Monday to Friday and 08:00 to 14:00hrs on Saturdays. Occasional weekday evening works may also be required; however, evening activities will be significantly reduced to manage any associated noise impacts in an appropriate manner and more stringent construction noise criteria will be applicable during any evening works that may be required in accordance with Table 10-1. As a result, noise emissions from evening activities are expected to be significantly lower than for other general daytime activities.

During operation, no increase in noise levels is anticipated over and above the existing noise levels connected with usage of the existing N70 roadway as there will be no increase in traffic volumes and only minor widening of the existing road is required.

### *10.4.2 Vibration*

The potential for vibration at neighbouring sensitive locations during construction is typically limited to excavation works and lorry movements on uneven road surfaces. Given the small-scale nature of works involved; it is not anticipated that the proposed development will give rise to significant vibration effects during construction. It will be a requirement of the contract that the vibration levels will be within the limits set in Table 10-2.

During operation, no increase in vibration is anticipated over and above the existing levels experienced in connected with the usage of the existing N70 roadway.

## 10.5 MITIGATION MEASURES

### 10.5.1 Noise

The TII guidance document specifies noise level limits that it typically deems acceptable in terms of construction noise. To adhere to these levels and number of conditions will be imposed on the successful contractor during construction:

The Contractor shall comply with the contents and recommendations of BS 5228: Parts 1 and 2, the TII's "Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes, 2014".

The Contractor shall employ the best means practicable to minimise the noise produced by on Site operations. Permitted normal working hours will be in accordance with Table 10-1.

Works other than emergency works shall not be permitted outside these working hours. Emergency works may include the replacement of warning lights, signs and other safety items on public roads, the repair of damaged fences, repair of water supplies and other services which have been interrupted, repair to any damaged temporary works and all repairs associated with public safety and working on public roads.

The Contractor shall deal with any complaints in relation to noise and vibration immediately and appropriate measures taken where the limits exceed those specified in Table 10-1.

The ambient noise level,  $L_{Aeq}$  (15 mins), from all sources measured 2.0m above the ground at noise control station shall either not exceed the appropriate level given in the Table 10-1 or not exceed by more than 3dB(A) the existing ambient noise level,  $L_{Aeq}$ , control station measured over the same period, whichever level is greater. The maximum sound level at any noise control station shall not exceed the level given in the Schedule.

All vehicles and mechanical plant used on the works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order for the duration of the works in compliance with BS 5228. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers and shall be kept closed whenever the machines are in use. Any ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers. Pumps and mechanical static plant shall be enclosed by acoustic sheds or screens.

The Contractor shall organise his operations regarding the positioning of plant and the location of haul routes etc., so it minimises Construction noise to adjacent properties.

*Table 10-1: Permitted Noise Levels*

Schedule		Total Noise Levels at Control Stations		
Period	Hours	Ambient Noise Level, $L_{Aeq}$ measured at Control Station: dB(A)	Period of Hours over which $L_{Aeq}$ is applicable	Maximum Sound Level (see Note(iv) below measured at Control Station: dB(A))
Mondays to Fridays	08:00-18:00	70	15 Mins	80*
Mondays to Fridays	18:00-08:00	60*	15 Mins	65*
Saturdays	08:00 - 16:30	65	15 Mins	75
Sundays and Bank Holidays	09:00 - 16:00	60*	15 Mins	65*

All unattended plant outside normal working hours		45		
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To ensure compliance with the specified noise limit in Table 10-1, monitoring at Control stations shall be undertaken by the Contractor using a sound level meter. Control Stations shall be established having regard to the nature of the work being carried out, its location and proximity of noise sensitive buildings. The location of the Control Stations need not be within the Works, but the Contractor shall obtain all necessary permissions for stations located outside the Site. The Contractor shall provide for at least two No. separate noise monitoring stations to be in operation at any one time at selected locations specified by the Employer’s Representative. The location of the Control Stations shall move relative to the progression of the Works. These control stations will be identified prior to construction commencing following engagement with the owners of the properties.

The Contractor shall provide instrumentation suitable for monitoring noise. Each sound level meter shall be certified as being in proper working order and shall unless otherwise approved, record noise levels with a print-out showing the noise level in dB(A). The results of the noise monitoring will be made available for inspection at the offices of the Local Authority within 1 week of the measuring of the noise level.

Where the Contractor’s execution activities result in the permitted noise levels being exceeded, the Contractor shall stop work in the area and shall not recommence such execution activities until the activities have been modified to reduce the noise impact and until the Contractor has received written consent of the Employer’s Representative to recommence the execution activities.

### 10.5.2 Vibration

The Contractor shall select and utilise methods of working and items of plant so that the maximum measured ground vibrations do not exceed a peak particle velocity of 5mm per second at any occupied property, 10mm per second at any other residential property or 12.5mm per second at any boundary wall (block or stone).

Furthermore, the Contractor shall select and utilise methods of working and items of plant so that the maximum measured ground vibrations do not exceed the following peak particle velocities:

- 4mm per second at any location within 100m of freshly poured concrete, i.e., concrete placed within the previous seven days;
- At the closest part of any building or structure, the maximum measured ground vibrations shall not exceed the peak particle velocities in Table 10-2.

*Table 10-2: Vibration levels*

Frequency (Hz)	Corresponding Peak Particle Velocity (mm/s)
Less than 10	8
10 - 50	12.5
50 - 100 and above	20

The Contractor shall install vibrographs for monitoring vibration as required to demonstrate that the requirements of the above are met. Each vibrograph shall be certified as being in

proper working order and shall unless otherwise approved, record vibrations in three directions simultaneously with print-out showing the amplitude and frequency of the vibrations.

## 10.6 CONCLUSION

The implementation of the above mitigation measures will ensure that construction works at the proposed development will not result in an increase in noise or vibration levels in the local environment and any potential impacts will be low and short term in nature. It is not anticipated that there will be any noise or vibration related impacts during the operational phase of the development over and above the existing use of the N70 roadway.

## 11.0 ARCHAEOLOGY

### 11.1 INTRODUCTION

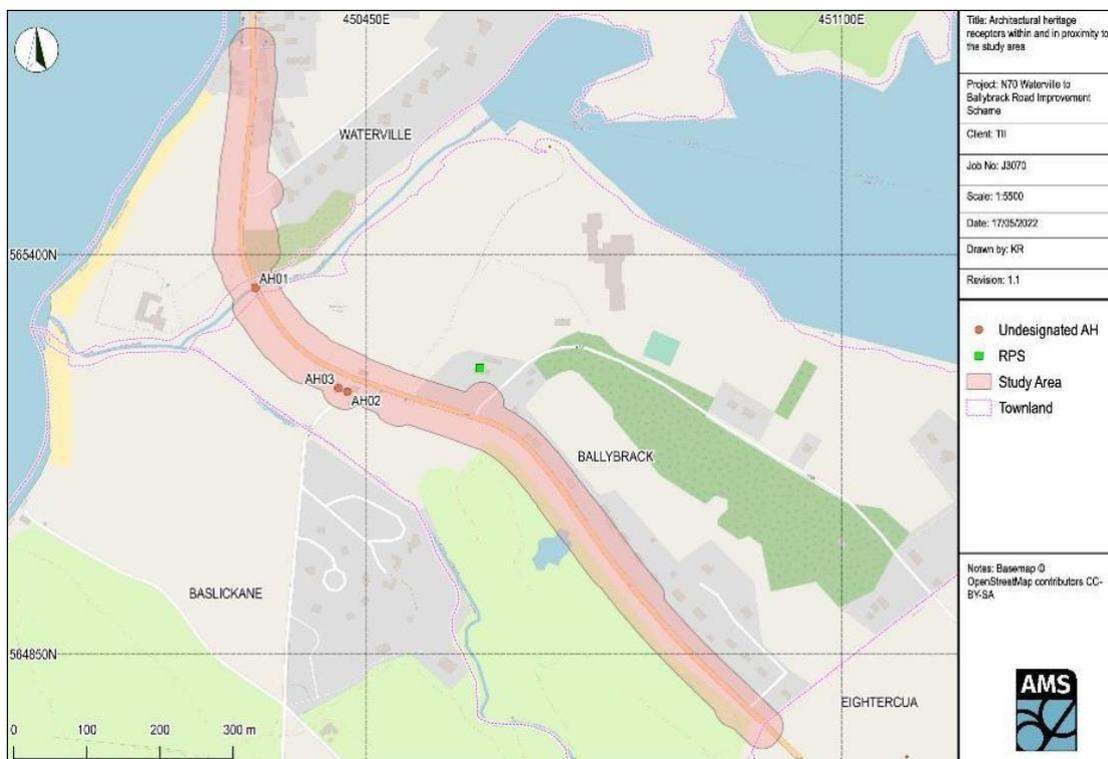
The existing archaeological, architectural and cultural heritage environment was assessed for the site and environs of the proposed development by Dr Kim Rice, of AMS Archaeological Management Services.

The assessment describes the results of a desk-based study of the potential cultural heritage impacts of the scheme and makes preliminary recommendations as to how these impacts may be avoided or reduced. The assessment was supplemented by a walkover survey.

### 11.2 SUMMARY OF ASSESSMENT

No recorded/listed archaeological or built heritage sites are in the study area; however, four undesignated built heritage sites were identified: Currane River bridge (AH01), a house/smithy (AH02) (since demolished as part of a separate development), a residential dwelling (AH03) and the iron gate, gate pillars and wing walls comprising the former entrance to ‘Ballybrack Cottage’ (AH04). No direct impacts are anticipated for any of the four sites.

Road improvement works are proposed in the area of AH01, although it is unlikely the bridge will be directly impacted as the free-standing shared cycleway and footbridge will be constructed downstream of the bridge, with no in-stream impacts predicted. AH03 is within the study area but will not be directly impacted, and their settings are already Characterised by proximity to the N70, the L-11590 and the L-7539. AH04 ‘Ballybrack Cottage’ itself is adjacent to the study area and its curtilage is also within the study area. The cottage or curtilage will not be directly impacted by the proposed works.



*Figure 11-1 Built Heritage Sites*

There is the potential that unidentified archaeological remains will be uncovered within

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greenfield areas during the road improvement works. Consequently, a programme of archaeological test excavation shall be undertaken by a suitably qualified licensed archaeologist as part of an advance Archaeological Services Contract. The test trench layout should be agreed in advance with the TII assigned Project Archaeologist.

An Architectural Heritage and Topographical Survey shall be carried out on the downstream section of the Currane River bridge (AH01) in advance of works. This shall be undertaken as part of an advance Archaeological Services Contract and conducted by qualified competent and authorised professionals. Pre-construction Condition Surveys of the bridge shall also be carried out.

The proposed upgrade works in Section 1 of the scheme will result in the removal of existing drystone field walls (approximately 320m). Not less than 10% of roadside stone walls within the Section 1 CPO shall be recorded by means of a built heritage written and photographic survey.

The above recommendations are subject to the agreement of the National Monuments Service, the National Museum of Ireland, and the TII assigned Project Archaeologist.

## 12.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

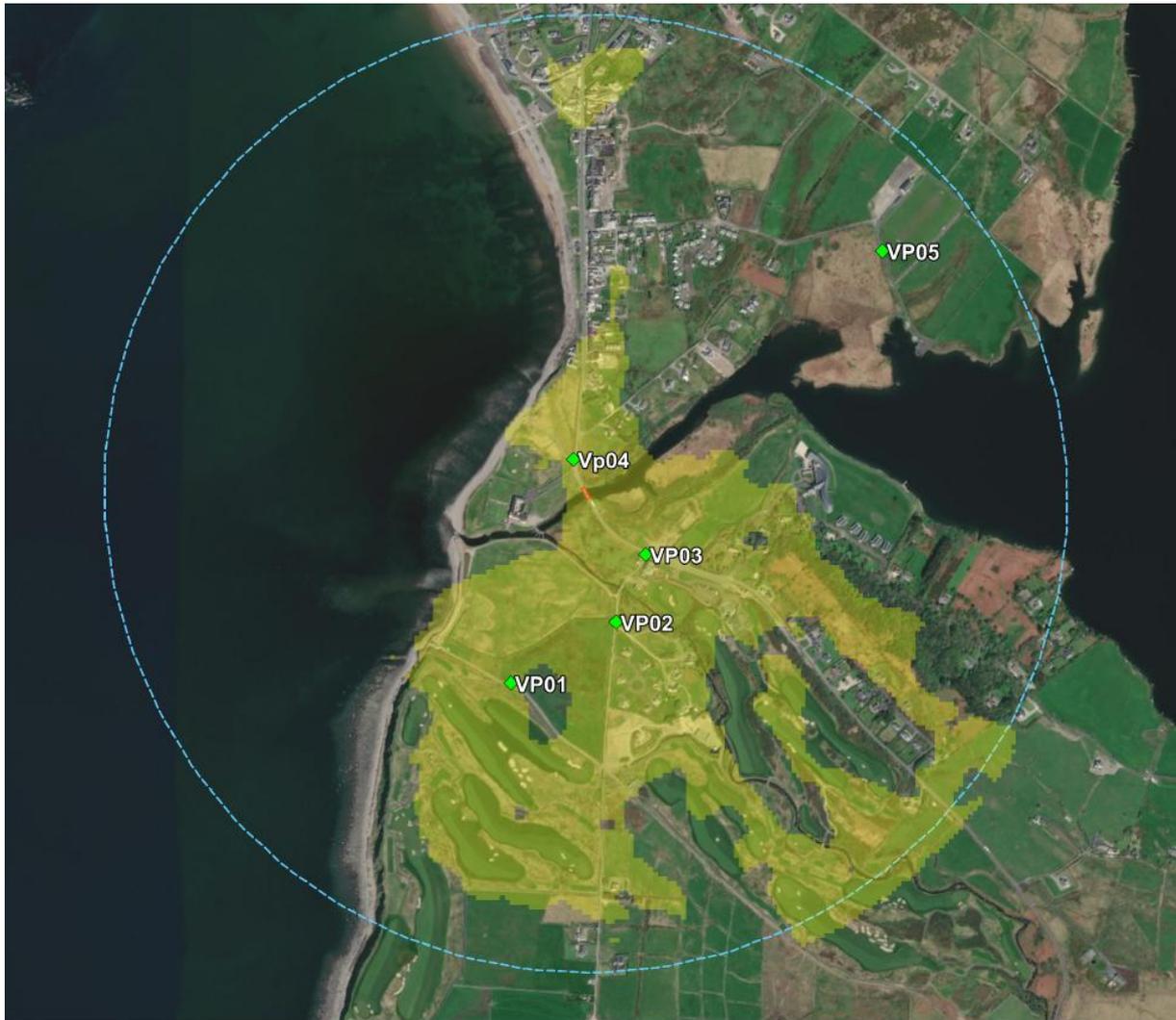
### 12.1 INTRODUCTION

A Landscape and Visual Impact Assessment (LVIA) has been prepared by RPS for upgrade works to the N70 National Secondary Road. This LVIA uses methodology as prescribed in the following guidance documents:

- Environmental Protection Agency (EPA), Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, Draft 2017.
- Landscape Character Assessment (LCA) and LVIA for Specified Linear Infrastructure Projects: Overarching Technical Document (Transport Infrastructure Ireland (TII) Publication PE-ENV-01101, December 2020).
- LCA and LVIA of Proposed National Roads: Standards Document (TII Publication PE-ENV-01102, December 2020).
- Technical Guidance Note 06/19 Visual Representation of Development Proposals (The Landscape Institute, 2019).

The assessment is supported by photomontages prepared in respect of five selected viewpoints. Photomontages are a 'photo-real' depiction of the scheme within the view utilising a rendered three-dimensional model of the development, which has been geo-referenced to allow accurate placement and scale. For each viewpoint, the following images have been produced:

1. Existing View.
2. Model View (red model showing extent of development overlaid on the existing viewpoint).
3. Photomontage the Proposed Development.



*Figure 12-1 Viewpoint Locations*

The photomontages are presented in Appendix D of PECR.

## 12.2 SUMMARY OF ASSESSMENT

Based on the landscape and visual impact judgements provided throughout the LVIA, the proposed upgrade works to the existing N70 national road between Waterville and Ballybrack, County Kerry, is considered to give rise to significant landscape or visual impacts.

In terms of landscape effects, the proposed development will involve an alteration to the landform within the application site, but it is considered that the proposed development will have only a physical impact on the landscape, mainly with the alteration of existing stone walls and introduction of an active travel route in combination with a new bridge, limited effects to the local landscape character that the Proposed Development is found in. This is a permanent change that has predicted significant effects into the operational phase.

There are significant effects assessed from the implementation of the proposed active travel route for visual receptors. Visual effects were assessed at five viewpoints (detailed in Appendix B) representing different viewing contexts along the road corridor, and of particular relevance is the relationship and impression of the wider landscape due to the presence of the various landscape scenery-based tourism routes. Visual receptors at the viewpoints assessed have a high significance and sensitivity. The proposed development will be evident from four viewpoints where the degree of effect varies. The significance of effect from viewpoints 1, 2 and

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3 are significant, whilst the significance of effect is found to be profound for viewpoint 4. There are limited views of the River Currane crossing, as illustrated in the Zone of Theoretical Visibility map, so whilst the viewpoints have been assessed with significant effects this will not be true of the majority study area, where there will be no significant effects.

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Appendix A – Regional Site Location Map - Provided Separately

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Appendix B –Site Location Map - Provided Separately

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Appendix C – Site Layout Map - Provided Separately

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Appendix D – Photomontages - Provided Separately

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## Appendix E – Invasive Species Management Plan

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## Kerry County Council

### N70 Waterville to Ballybrack Road Improvement Scheme

### Invasive Species Management Plan

December 2025



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## 1.0 INTRODUCTION

This Invasive Species Management Plan (ISMP) was prepared by TOBIN on behalf of Kerry County Council for the N70 Waterville to Ballybrack Road Improvement Scheme, located, in the townlands of Waterville, Ballybrack and Eightercua. The scheme proposes road improvement works along a section of road (approximately 1.37km in length) along the N70, commencing at the southern end of the promenade in Waterville Town and extending south towards Eightercua.

The proposed development site was searched for evidence of any invasive plant species, including invasive plant species listed in Part 1 of the Third Schedule of S.I No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011. Species protected under Flora (Protection) Order, 2015 (S.I. No. 356/2015) or listed under the Irish Red Data List of Irish Plants were also searched for.

The objectives of this Invasive Species Management Plan are:

- Objective 1: To provide a detailed account of the locations and abundance of invasive alien plant species (IAPS) found within the survey area.
- Objective 2: To provide information on how to control/ completely eradicate the invasive species within the survey area.

### 1.1 STATEMENT OF COMPETENCE

TOBIN is a multi-disciplinary consultancy employing over 180 people. TOBIN provides environmental and engineering consultancy services nationwide, to both public and private clients. This Dust Management Plan has been prepared by members of the TOBIN Roads and Ecology teams.

John O'Flaherty is a Chartered Engineer with over 26 years' post graduate experience in Civil Engineering. He has led multi-disciplinary teams in the delivery of Road Projects for over 18 years. In that time, he has delivered multiple National and Non-National Road Projects from Concept through to Handover.

Áine Sands (B.Sc.) is a qualified Senior Ecologist with seven years post-graduate experience in ecology and environmental consultancy. She has been involved in large public and private infrastructure projects where she has carried out numerous Screenings for Appropriate Assessments, Natura Impact Statements and Ecological Impact Assessments for the proposed developments. Áine has a strong understanding of National and European legislation associated with biodiversity and is cognisant of relevant rulings by the Court of Justice of the European Union (CJEU) associated with Appropriate Assessment. Áine also has experience with undertaking ecology surveys for protected habitats and species.

Brendan O'Connor (B.Sc.) is a qualified Ecologist with over five years of post-graduate experience in ecology. Brendan's current role is as an Executive Ecologist in the Environmental Assessment Unit of Kerry County Council. Brendan has extensive experience in the production of reports to inform AA screenings and Natura Impact Statements for various developments including quarries, small to large-scale housing and mixed-use developments and infrastructure projects. Brendan also has experience with undertaking ecology surveys for protected habitats and species.

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## 1.2 LEGISLATIVE BACKGROUND

The definition of invasive species as prescribed by the Convention on Biological Diversity (CBD) is; “*species whose introduction and/or spread outside their natural past or present distribution threatens biological diversity.*” Invasive species are found in all taxonomic groups including animals, plants, fungi, and microorganisms and can affect both terrestrial and aquatic ecosystems around the world. Invasive species can be classified as High Impact Species or Medium Impact Species.

The control of IAPS in Ireland comes under the Wildlife (Amendment) Act 2000, where it states that ‘*any person who plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, otherwise than under and in accordance with a license granted in that behalf by the Minister shall be guilty of an offence*’. The European Communities (The Birds and Natural Habitats Regulations) 2011 (SI 477 of 2011), Section 49(2) prohibits the introduction and dispersal of species listed in the Third Schedule, which includes Japanese knotweed (*Fallopia japonica*), as follows: ‘*any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow shall be guilty of an offence*’.

The key aim of the invasive species survey was to identify any potential species of High or Medium Impact including those listed on the Third Schedule, Part 1, of the European Communities (Birds and Natural Habitats) Regulations 2011, S.I. No. 477/2011 (commonly referred to as the Birds and Habitats Regulations), which may occur within the survey area.

Articles 49 and 50 of the Habitat Regulations details the legal requirements for the control of invasive alien species. Under Article 49 and 50 of these regulations, it is an offence to:

- Plant, disperse, allow, or cause to disperse, or grow any plant listed in Part 1 of the Third Schedule (i.e., High Impact Species);
- Possess the plant or any component of the plant for sale, reproduction, propagation, transportation, distribution, introduction or release any plant listed in Part 1 of the Third Schedule;
- Import or transport any plant listed in Part 1 of the Third Schedule; and/or
- Possess any vector material (e.g., soil, plant material) for the purposes of breeding, sale, distribution, introduction, or release as listed in Part 3 of the Third Schedule.

Note, licenses may be granted for certain activities associated with invasive species.

### *High Impact Species*

These include species designated as high-risk species recorded in Ireland and those listed on the Third Schedule, Part 1 of the Birds, and Habitats Regulations (2011).

### *Medium Impact Species*

Medium impact species include those that are amber listed by Invasive Species Ireland and are identified as those species that, under the right ecological conditions, may have an impact on the conservation goals of a site or impact on a water body achieving good/high ecological status under the Water Framework Directive. Additionally, medium impact species include those that are assessed as having a risk score of between 14-17 in a risk prioritization study, undertaken for invasive and non-native species on the Island of Ireland.

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## 1.3 METHODOLOGY

This plan adopts the most relevant and current guidance in relation to the treatment and management of invasive plant species. The following guidance was referred to in preparation of this plan.

- Transport Infrastructure Ireland (TII) (2020). The Management of Invasive Alien Plant Species on National Roads – Technical Guidance. GE-ENV-01105.
- The Management of Invasive Alien Plant Species on National Roads - Standard. GE- ENV-01104
- Circular Letter National Parks and Wildlife Services (NPWS) 2/08 Use of Herbicide Spray on Vegetated Road Verges (National Parks and Wildlife Service 2008);
- Kerry County Council (2009) Information and Guidance Document on Japanese knotweed Asset Strategy and Sustainability and Environmental Agency (2013) Knotweed Code of Practice-Managing Japanese Knotweed on Development sites 2006-2013.

## 2.0 FIELD SURVEY

Multi-disciplinary ecological surveys of the proposed development site were undertaken by qualified and experienced Kerry County Council Ecologist on the 11th of September 2024. These ecological surveys supplemented the surveys undertaken by TOBIN ecologists on the 9th of June 2021 and on the 24th-26th of January 2022. The data collected was robust and allowed TOBIN to draw accurate, definitive and coherent conclusions on the possible impacts of the proposed development.

### 2.1 SURVEY METHODS

The survey was undertaken to identify and verify the presence of non-native species of High and Medium Impact, including those listed in the Third Schedule of S.I. No. 477 of 2011, EC (Birds and Natural Habitats) Regulations 2011, and establish the distribution of these species within the survey area.

### 2.2 SURVEY RESULTS

Several invasive plant species, including Japanese knotweed (*Fallopia japonica*) and Giant rhubarb (*Gunnera tinctoria*), listed in the Third Schedule of the SI 477/2011, were recorded in several locations within the scrub and woodland habitat adjacent to the N70 road. In addition to this several other invasive species were identified within the proposed development site, these included Montbretia (*Crocasmia x crocosmiiflora*), Buddleia (*Buddleja davidii*) and Himalayan honeysuckle (*Leyesteria formosa*).

A large patch of Japanese knotweed (JK2) was recorded at the southern section of the proposed development site, on the eastern boundary of the road (coordinates: 51.815471, -10.161984). The infestation included over 80 stands of Japanese knotweed ranging between 2-3m in height. The area of Japanese knotweed is located within the works area and will be directly disturbed by the proposed construction works.



Figure 2.0-1: Location of Japanese knotweed

A second large infestation (JK1) was recorded further north along the road (coordinates: 51.816227, -10.163250), with over 200 stands 4m in height present. Similarly, the patch of Japanese knotweed is located within the proposed development site and will be directly disturbed.

A third infestation of Japanese knotweed (JK3) was recorded along the eastern bank of the Finglas River (Waterville) (coordinates: 51.818727, -10.170685). The infestation is not located within the proposed development site boundary and will not be disturbed by the proposed works.

Giant rhubarb was seen growing in scrub on the southern side of the N70 (coordinates: 51.8183795, -10.166156).

It was noted in the September 2024 surveys that a treatment program for the elimination of the Japanese Knotweed had begun on the N70, and this included the proposed development site.



*Figure 2.0-2: Japanese knotweed along the N70*



*Figure 2.0-3 Giant Rhubarb adjacent to N70*

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## 3.0 BACKGROUND TO MANAGEMENT OF JAPANESE KNOTWEED

### 3.1 DESCRIPTION

Native to Japan, Taiwan, and Northern China, Japanese knotweed was introduced to the Kew Gardens (UK) in 1825 and to Ireland later in the 19<sup>th</sup> Century. It was introduced into large demesne estates as an ornamental garden plant due to its spectacular foliage and attractive white flowers. It has since spread beyond the confines of cultivated gardens where it has now spread throughout habitats in Ireland.

Japanese knotweed is a perennial plant. Only female Japanese knotweed plants exist in Ireland, and while they can produce seeds, they are rarely actually viable. Instead, the plant spreads by way of rhizome or underground system. Cut stems of growing plants can also produce new shoots and rhizomes when buried in soil or immersed in water. A fingernail sized piece of any of the parts of the plant can produce a new plant. Therefore, any of this material must be treated as a biohazard on site. It is only when cut stems are allowed to dry out thoroughly that no further regeneration will occur in this way. However, rhizomes or underground stem material can remain dormant for up to 20 years.

This invasive species has an ability to grow through the edge of asphalt, walls, floors, foundations, and footpaths. The rhizomes can form an extensive underground network extending (up to 7m) from the above ground plant material and going down deep into the soil (depending on ground conditions). The rhizomes are in the top 0.25m of the soil.

This highly invasive species is a cause for concern as it grows in thick monospecific stands, outcompeting native plants for space, light, and nutrients. This results in a change in plant community structure and habitat and in turn causes adverse effects on local biodiversity.

### 3.2 IDENTIFICATION

This section of the report provides a general background on the characteristics of Japanese knotweed.

There are four species of the knotweed family found in Ireland. The most common of these is Japanese knotweed. The remaining three species are; giant knotweed (*Fallopia sachalinensis*), a hybrid knotweed plant known as bohemian knotweed (*Fallopia bohemica*) which is a cross breed of Japanese knotweed and giant knotweed, and Himalayan knotweed (*Persicaria wallichii*), a hybrid between Japanese knotweed and Himalayan balsam.

Japanese knotweed is a robust, herbaceous perennial plant with hollow, bamboo-like stems. It forms yellow cream flowers in late June or August.

#### 3.2.1 Distinctive Characteristics

- It is rhizomatous (produces underground stems) with distinctive hollow, bamboo-like stems that can grow up to 3m in height.
- The mature canes are hollow and have a characteristic pattern of purple speckles.
- During the winter, the leaves die back and reveal orange/brown woody stems.
- The underground rhizomes are thick, woody and when broken reveal a bright orange coloured centre.
- The rhizomes can extend laterally for up to 7m away from the parent plant. Small fragments of rhizomes can re-sprout, and the principal means of spread is through the deliberate or accidental movement of rhizome fragments or cut stems.

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### 3.2.2 *Aerial Parts*

During the summer, Japanese knotweed has pointed, heart shaped leaves, approximately the size of a human hand which are staggered on the stem. In late summer or early autumn, small clusters of white flowers will appear. The stems, which are hollow and bamboo-like, are green with red spots and have a distinctive zigzag appearance.

During late autumn and the beginning of winter the knotweed canes die off and the weed becomes dormant. The leaves turn from green to yellow to brown and then fall off. The canes are hollow, dark brown and brittle.

### 3.2.3 *Identification of Rhizomes*

Japanese knotweed rhizomes are the underground part of the plant. A rhizome is a modified plant stem that sends out roots and shoots from its nodes. The outside of the Japanese knotweed rhizome is dark brown while the inside is bright orange/yellow in colour. As mentioned above the Japanese knotweed rhizome system can spread up to 3m in depth and 7m laterally from the parent plant in certain circumstances, and particularly where the plant is well established it may extend further than this. The rhizomes are responsible for spreading the plant by vegetative means.

The rhizomes can extend laterally for up to 7m away from the parent plant. Small fragments of rhizomes can re-sprout, and the principal means of spread is through the deliberate or accidental movement of rhizome fragments or cut stems.

## 3.3 CHOOSING AN APPROPRIATE TREATMENT METHOD

Note: all the proposed management options listed below involve the use of herbicides. It is important when using herbicides that the manufacturer's instructions are followed and that there is compliance with relevant legislation. The application of herbicide can only be applied by a person with appropriate training and who has received an appropriate certificate as per legislation.

### 3.3.1 *Chemical Treatment*

This option involves the application of a herbicide to the Japanese knotweed stand without any excavation or removal of the plant material. The preferred types of herbicides to be used in the treatment of Japanese knotweed are Glyphosate and 2,4-D Amine. Generally, if herbicide is applied as the treatment option, it will need to be reapplied for up to five years after the first application to ensure the plant control measures have been effective or monitored for a minimum of 2 years during which no regrowth is recorded.

The most effective time to apply Glyphosphate is from July to September (or before cold weather causes leaves to discolour and fall). Most herbicides are not effective during the winter dormant stage because they require living foliage to take up the active ingredient. It is essential that a competent and qualified person carries out the herbicide treatment in accordance with the Kerry County Council Biocide Strategy and Policy. Reapplication rates will depend on site specific considerations including the extent of the infestation, its location, and the time of year treatment commences.

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### 3.3.2 Foliar Application

This type of treatment is usually applied with a sprayer such as a knapsack sprayer. It is important to use a treatment dye to identify clearly all areas treated. It is an efficient way to treat large monocultures of invasive plants, or to spot-treat individual plants that are difficult to remove mechanically such as Japanese knotweed.

Depending on weather and temperatures in the days following the initial treatment, and to ensure optimal uptake of herbicide into the rhizome system, a second similar treatment will be required usually within ten days, before the internal vascular system is no longer capable of translocating the herbicide to the root system. While the upper surface of the leaves will be easier to treat, it is also important to treat the leaf under surface as Japanese knotweed possesses many stomata openings on the leaf under surface. Dead stems should be cut, removed, and burned on site in accordance with the Waste Management Acts 1996 as amended and the Waste Management (Prohibition of Waste disposal by burning) Regulations 2009 (SI 286).

For deep rooted species, such as Japanese knotweed, regrowth will occur in subsequent years, albeit much less vigorously, which will require follow up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed.

### 3.3.3 Stem Injection

The stem injection method is sometimes used for Japanese knotweed control. This treatment requires a higher concentration of the active ingredient than is used in foliar applications. It involves the use of a specialist herbicide injection tool whereby the injection tool injects the herbicide directly into each of the canes approximately 20-30cm from the base of each cane (between the 1<sup>st</sup> and 2<sup>nd</sup> node). Subsequently approximately 10ml of herbicide mix is injected into each cane at a ratio of 5:1 using a specialist stem injection tool. The application of glyphosate-based products are most effective when applied in the early Autumn (mid to late September). Regrowth will occur in subsequent years, albeit much less vigorously, which will require follow-up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed.

### 3.3.4 Cutting and Injecting

As the name suggests this management approach requires the cutting of a plant that has matured (in mid to late September) to approximately 200mm above ground and ideally 40mm above the node. The cut material must be left on top of plastic sheeting until dried out and subsequently monitored for any sign of regrowth (this is not recommended for a riverbank habitat where there is the possibility of flooding occurring). Once dried out, the material should be burned on site in accordance with the Waste Management Acts 1996 as amended and the Waste Management (Prohibition of Waste disposal by burning) Regulations 2009 (SI 286). Herbicide is then injected into the remaining hollow stems; subsequent spot treatment of herbicide may be required for up to five years after the initial application. This method of treatment can be very labour intensive particularly if there is a large extent of infestation.

Studies carried out in 2004 for the cut and inject method stated "Initial monitoring has shown a success rate of between a 60% to 95% kill of Japanese knotweed in the treated areas. Although the cut and inject method did not match the kill of the more commonly used method of foliar spraying it did allow very selective application" <sup>7</sup>.

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### 3.3.5 *Combined Treatments*

Wherever possible, Japanese knotweed should be treated in its original location. Excavating Japanese knotweed should only be considered as a last resort unless this is part of an on-site treatment method.

For all forms of treatment or management involving excavation, the Environmental Agency (EA) Guidelines<sup>8</sup> advise that the extent of the rhizome network should be identified prior to excavation. Where it is known that recently contaminated soil has been introduced to the site, the rhizome system may not be deeper than 3m. However, where you are dealing with long established infestations of Japanese knotweed the extent of the rhizome system can be deeper than this. These guidelines also advise on applying a non-persistent herbicide to the proposed excavation area approximately two weeks before the planned excavation takes place.

The above chemical treatment methods would not be suitable methods at the proposed development site due to proposed program of works.

#### 3.3.2.1 *Excavation and Herbicide Treatment*

This option employs both physical and chemical methods of treatment. This method is employed in situations where treatment of the Japanese knotweed is required to be completed in a shorter timeframe. The EA guidance suggest that by digging up the rhizomes and recultivating it stimulates plant growth and will result in more successful herbicide application and management.

In summary this management method requires cutting and killing of the surface plant. The cut material must be left on top of plastic sheeting until dried out and subsequently monitored for any sign of regrowth (this is not recommended for a riverbank habitat where there is the possibility of flooding occurring). They should not be placed in a green waste recycling bin. Once dried out, the material should be burned on site in accordance with the Waste Management Acts 1996 as amended and the Waste Management (Prohibition of Waste disposal by burning) Regulations 2009 (SI 286). The surface of the affected area should be raked with tines to remove crowns and surface material, and to break up the rhizomes, bringing them to the surface, which will stimulate leaf production. This will make the plant more vulnerable to herbicide treatment. The more rhizomes that are brought to the surface, the more growth will occur and allowing for a more successful treatment. An excavator can be used to scrape the surface crowns and rhizomes into a pile and then cultivate the ground to stimulate rhizomes to produce higher density of stems for treatment. Reapplication of herbicide may be required for up to five years after initially application, subject to the site-specific management plan.

#### 3.3.2.2 *Excavation and Burial*

Excavated material containing Japanese knotweed can also be buried on site. This will require burying the material at a depth of at least 5m. The contaminated material must be covered with a root barrier membrane before being backfilled with topsoil or other suitable fill material. The membrane must stay intact for at least 50 years. A manufacturer's guarantee is required.

Accurately map and record the location of the burial site to prevent any future accidental disturbance. Inform future owners of its position. Following the provisions of the Waste Management Act 1996, as amended, a license or permit may be required for the burial of excavated material.

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If soil containing Japanese knotweed is stockpiled, the material must be stored in a manner that will not harm health or the environment. The stockpile should be on an area of the site that will remain undisturbed. The area should be clearly fenced and signed and should be regularly treated with herbicide to prevent any regrowth or reinfestation. As a precaution, the stockpiled material should be laid on a root barrier membrane and covered to avoid contaminating the site further.

This option is not feasible within the proposed development site due to the lack of sufficient space for burial.

### 3.3.2.3 Excavation and Root Barrier Cell Method

Under the Waste Management Act 1996, as amended, a license or permit may be required for the burial of excavated material. If soil containing Japanese knotweed is stockpiled, the material must be stored in a manner that will not harm health or the environment. The stockpile should be on an area of the site that will remain undisturbed. The area should be clearly fenced and signed and should be regularly treated with herbicide to prevent any regrowth or reinfestation. As a precaution, the stockpiled material should be laid on a root barrier membrane and covered to avoid contaminating the site further.

This option is not feasible within the proposed development site due to the lack of sufficient space for burial.

### 3.3.2.4 Excavation and Bund Method

Where there is not sufficient depth on a site for deep burial the EA Guidelines<sup>8</sup> set out another option whereby such excavated material is placed in a structured bund. The bund will comprise a raised area above ground level or a shallow excavation, no more than 0.5m deep, and lined with a root barrier membrane. The membrane must stay intact for at least 50 years and a manufacturer's guarantee is required. This method of treatment can also be used where the Japanese knotweed material needs to be moved from a location and there is another ideal area of the site available to contain it. Following the provisions of the Waste Management Act 1996, as amended, a license or permit may be required for the burial of excavated material.

The aim of this method is to concentrate the rhizome material into the upper surface of the bund, where it will grow and be controlled by herbicide. If the rhizome is buried deep, it will become dormant when inside the bund and regrow when the apparently clean soil is used for landscaping on the site. The bund location needs to be clearly signed and protected from potential accidental damage.

Reapplication of herbicide may be required for up to five years after the initial application, subject to the site-specific management plan.

This option is not feasible within the proposed development site due to the lack of sufficient space to create a bund.

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### 3.3.2.5 Excavation and Removal from Site

This option is generally considered to be the least favourable option because of the prohibitive costs involved and risks with spreading the IAPS further.

Where the above treatment options are not possible (site is too small to contain excavated material, too shallow for burial, or where there is lack of space) removal of excavated material may be the only option. Where there are small amounts of Japanese knotweed material to be removed it is possible to double bag the material and send to a fully licensed waste facility for disposal (i.e., landfill). Where the amount of material is larger in volume it will be necessary to haul from site to a suitably licensed waste facility.

It should also be noted that in the process of excavating the Japanese knotweed if it has been treated with a persistent herbicide, the excavated material will need to be classified as hazardous waste and therefore will need to be disposed of to a hazardous waste facility.

Furthermore, if Japanese knotweed contaminated material is removed off site it will require a license from the NPWS in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).

This is the preferred treatment option for the Japanese knotweed within the proposed development site due to program of works and lack space.

A summary of the above treatment methods is outlined in Table 3-1 below.

Table 3-1 Summary of Management Options for Japanese Knotweed

Treatment	Description	When	Follow up Treatment	Comment
Chemical Treatment-General	The application of a herbicide to the Japanese knotweed plant without the removal of the plant.	Glyphosate: May to October (later in the season is preferable) 2,4-D Amine: May to October (earlier in the season is preferable).	Up to five years after the first application or monitored for a minimum of 2 years during which no regrowth is recorded.	The two preferred herbicides to use are Glyphosate and 2,4-D Amine.
Chemical Treatment Foliar Application	Herbicide is applied directly on plant with a sprayer using a treatment dye	Refer to relevant instructions for specific herbicide used	A second similar treatment will be required usually within ten days before the internal vascular system is no longer capable of translocating the herbicide to the root system. Regrowth will occur in subsequent years, all be it much less vigorously, which will require follow up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed.	<ul style="list-style-type: none"> <li>• Most desirable method of treatment.</li> <li>• Most cost-effective method of treatment.</li> <li>• May not be possible if development of the site is a priority.</li> <li>• Used to treat large monocultures of invasive plants, or to spot-treat individual plants that are difficult to remove mechanically such as Japanese knotweed.</li> <li>• Dead stems should be cut, removed, and burned on site in accordance with relevant waste legislation.</li> </ul>
Chemical Treatment-Stem Injection	Use of specialist herbicide injection tool whereby the injection tool injects the herbicide directly into	Glyphosphate based products are most effective when	Spot Treatment will be required each year until no regrowth is observed	<ul style="list-style-type: none"> <li>• Labour intensive</li> <li>• Suited to smaller areas of infestation.</li> </ul>

Treatment	Description	When	Follow up Treatment	Comment
	each of the canes approximately 20-30cms from the base of each cane. Subsequently approximately 10 mls of herbicide mix is injected into each cane.	applied in the early Autumn (mid to late Sept)		<ul style="list-style-type: none"> <li>Requires a higher concentration of the active ingredient than is used in foliar applications.</li> </ul>
Chemical Treatment- Cutting and injecting	Cut stems down, inject individual stems with herbicide	Mid to late September	Herbicide application may be required for up to 5 years after initial application	<ul style="list-style-type: none"> <li>Labour intensive</li> <li>Suited to smaller areas of infestation.</li> <li>Limited to time of year when this method can be employed.</li> <li>Cut stems should be stored on plastic sheeting until dried out and no signs of regrowth, then burned in accordance with relevant waste legislation.</li> <li>This method is not suitable for riverside sites which may be liable to flooding.</li> </ul>
Combination Treatments	All forms of such treatment will require excavation and chemical treatment	Refer to relevant treatment type	Refer to relevant treatment type	<ul style="list-style-type: none"> <li>The extent of the rhizome network should be identified prior to excavation.</li> <li>A non-persistent herbicide should be applied to the proposed excavation area approximately two weeks before the planned excavation takes place.</li> </ul>
Excavation and Herbicide Treatment	Excavate, promote growth of rhizomes to increase success of herbicide application. The	Excavation can occur at any stage but to optimize herbicide treatment,	Herbicide application may be required for up to 5 years after initial application	<ul style="list-style-type: none"> <li>May be required where faster treatment is needed.</li> <li>Cut stems should be stored on plastic sheeting until dried out and</li> </ul>

Treatment	Description	When	Follow up Treatment	Comment
	surface of the affected area should be raked with tines to remove crowns and surface material, and to break up the rhizomes, bringing them to the surface, which will stimulate leaf production. This will make the plant more vulnerable to herbicide treatment.	application must occur during the growing season(May-October).		no signs of regrowth, then burned in accordance with relevant waste legislation. <ul style="list-style-type: none"> <li>• Suited to a site where infested area is not required to be developed immediately.</li> <li>• This method is not suitable for riverside sites which may be liable to flooding.</li> </ul>
Excavation and Burial	Excavate, allow plant material to die off and bury at 5metre depth with root barrier membrane	Following excavation	Monitor site of excavation and burial regularly	<ul style="list-style-type: none"> <li>• Requires space to store excavated material before burial.</li> <li>• Requires space for deep burial.</li> <li>• Costly to bury at this depth with a root barrier membrane.</li> <li>• The membrane must stay intact for at least 50 years.</li> <li>• A manufacturer's guarantee is required.</li> <li>• If excavated material needs to be stockpiled the material must be stored in a manner that will not harm health or the environment e.g., store on root barrier membrane.</li> <li>• May require a waste license or permit for burial.</li> </ul>
Excavation and Root Barrier Cell Method	Excavated material containing Japanese knotweed can also be buried on site within a	Following excavation	Monitor site of excavation and burial regularly	<ul style="list-style-type: none"> <li>• Requires space to store excavated material before burial.</li> <li>• Requires space for burial.</li> </ul>

Treatment	Description	When	Follow up Treatment	Comment
	root barrier membrane cell. This will require burying the material at a depth of at least 2m.			<ul style="list-style-type: none"> <li>• Costly to bury at this depth within a root barrier membrane cell.</li> <li>• The membrane must stay intact for at least 50 years.</li> <li>• A manufacturer's guarantee is required.</li> <li>• If excavated material needs to be stockpiled the material must be stored in a manner that will not harm health or the environment e.g., store on root barrier membrane.</li> <li>• May require a waste license or permit for burial.</li> </ul>
Excavation and Bund Method	Excavated material is placed in a structured bund (shallow lined area lined with a root barrier membrane) of no more than 0.5 metre depth which can be raised above ground level or placed within a shallow excavation. The aim of this method is to concentrate the rhizome material into the upper surface of the bund, where it will grow and be controlled by herbicide.	Following excavation	Apply suitable herbicide	<ul style="list-style-type: none"> <li>• Used where the knotweed material needs to be moved from a location if there is another ideal area of the site available to contain it.</li> <li>• May require a waste license or permit for burial.</li> </ul>
Excavate and Removal Off-Site	Excavate, remove off site to a fully licensed waste facility	Following excavation	Monitor site of excavation regularly. Inform operator of destination waste	<ul style="list-style-type: none"> <li>• Least desirable method of treatment.</li> </ul>

Treatment	Description	When	Follow up Treatment	Comment
			facility of content of waste beforehand	<ul style="list-style-type: none"> <li>• Costly to remove material from site and landfill.</li> <li>• Potential for higher costs if material is deemed hazardous.</li> <li>• Will require a license from the NPWS in advance of any removal.</li> </ul>

Note: Before all excavations, treat affected area with a non-persistent herbicide, if during the growing season.

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### 3.4 TRANSPORTING CONTAMINATED MATERIAL

This is only to be conducted if all other options are not viable.

- A loading area, a clean-down area must be set up before any trucks arrive on-site or any work takes place within 7m of the knotweed.
- Stockpile areas shall be chosen to minimise the movement of contaminated soil. Any stockpiles must be clearly marked and isolated.
- A license from the NPWS must be obtained for the transportation of contaminated material.
- Additional to this, if the material has been treated through chemical means it may need to be classified as hazardous waste.
- Vehicles used to transport materials must be lined and covered and shall be decontaminated before they leave the work zone.
- Do not fill the truck to the very top (min 20cm) and seal securely with a suitable membrane for transportation to ensure no material can escape.
- Biosecurity measures shall be implemented for de-contamination.

### 3.5 PREVENT FURTHER SPREAD AND INTRODUCTION OF INVASIVE SPECIES

- On completion of site decontamination, biosecurity measures shall be removed under the supervision of a qualified ecologist.
- No material will be removed off-site without prior consultation and consent from the qualified ecologist. A management plan will be required to transport and dispose of materials off-site.

### 3.6 ASSESSMENT OF TREATMENT OPTIONS

Both areas of infestation as identified in Section 2.2 have been the subject of the TII routine maintenance of invasive species for the past number of years. This, however, cannot inform the proposed treatment option as there is still clear evidence of growth recorded by the TII survey in September 2024.

There are a few constraints to consider in the assessment of options:

- There is no area within the site to provide for burial.
- The area of both the infestations within the boundary of the site is quite small.
- The development is required to be delivered in the short term.

Given these constraints, the only viable option for treatment is to Excavate and Remove off-site to a fully licensed waste facility.

Professional services will be used to manage this process. Disposal will be carefully coordinated under the supervision of an ecologist and landfill engineer to ensure the fullest protection possible for the environment and building readiness of the site. Full chain of custody and safe disposal certificates will be provided.

A biosecurity plan and license will be required in advance of disturbing the infected area. Strict and verified biosecurity and control measures will be put in place to reduce risks associated with excavation and transport of the materials.

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## 4.0 MANAGEMENT PLAN AND MONITORING

### 4.1.1 *Seed Bank*

Although seeds from this invasive species are rarely viable, a fragment of this plant, the size of a fingernail, could reproduce a plant. Therefore, it is imperative that those involved in the treatment process are aware of the threat of plant fragments being dispersed, more so than the spread of seeds.

### 4.1.2 *Timing*

As previously mentioned in Section 3.6, the excavate and remove method can occur at any stage of the year, but the chemical treatments must be carried out in early autumn (mid to late September).

### 4.1.3 *Legislative Framework*

Invasive species material can only be removed off-site by a licensed waste haulier and brought to a licensed waste facility. Under Statutory Instrument 477/2011 it is an offence to transport Invasive Species (as listed in the Third Schedule), their propagules or a vector material without first obtaining a license from NPWS.

### 4.1.4 *License from National Parks and Wildlife Service*

A NPWS transport license must be obtained and submitted to the receiving waste facility before excavation works commence.

A license application must include:

- As much information as possible on the removal, transportation and treatment of the species in question;
- A detailed description of the biosecurity measures that will be in place;
- A copy of the Japanese Knotweed Management plan; and
- Details of the timeframe for carrying out the work.

### 4.1.5 *Waste Acceptance Criteria Analysis*

Excavated material will require a Waste Acceptance Criteria analysis to be conducted in advance of transport. The soil can only be transported to a licensed waste facility that has been notified in advance of the nature of the waste and has agreed to accept the waste material.

Biosecurity measures shall be put in place on site, appropriate to containing and safely removing all vegetative material and contaminated soil. Monitoring and treatment shall be ongoing until all ground works are complete.

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#### 4.1.6 Biosecurity Protocols

The following biosecurity protocols should be applied onsite by all site personnel. The protocols include the following:

- All site personnel shall be trained via a 'Toolbox Talk,' which will show the identification of Japanese knotweed;
- Exclusions zones must be clearly marked or fenced off to prevent accidental incursions;
- All works within 7m of Japanese knotweed must be supervised by an Ecological or Invasive Species Clerk of Works;
- A designated clean down area(s) should be created adjacent to the exclusion zone;
- All equipment, PPE, and machinery to entering and leaving the site must be thoroughly cleaned down within the designated clean down area;
- All footwear should be thoroughly cleaned using brushes and soapy water;
- All personnel are always to be mindful of the threat posed by the spread of Japanese knotweed and to take all precautions to ensure that their actions do not result in the accidental movement of contaminated material.

#### 4.2 RESURVEYING

As previously mentioned, although seeds from this plant are rarely viable, a very small fragment of Japanese knotweed can in fact cause the further spread of this invasive species. Therefore, annual monitoring of the area after the initial treatment will be required to detect and treat any regrowth, in the bid to achieve full eradication of the plant population.

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## 5.0 RECOMMENDATIONS

Japanese knotweed is a high-risk invasive species and should be treated in accordance with this ISMP. The preferred treatment option is detailed in Section 3.6. Annual monitoring of the area and follow-up treatments should be conducted under the supervision of a qualified ecologist.

### 5.1 Management of Other Invasive Species

Two further species of invasive plants were identified on the site. Giant Rhubarb was identified in the verge adjacent to the Hogs Head Golf Course on the southern end of the site and Himalayan Honeysuckle where a setback of the road boundary is in place nearby.



Figure 5.1-1 Location Map

#### 5.1.1 Giant Rhubarb

Giant Rhubarb has unmistakable massive rhubarb-like leaves (up to 100 cm in diameter and 200 cm in height) which emerge from a perennial rhizomatous rootstock on stout stalks. It is found throughout the country but generally grows best close to water or in wetter areas along the southern and western coast.

A single stand of Giant Rhubarb was recorded close to the stand of Japanese Knotweed noted above. The application of glyphosate late in the growing season (late August to early September) by direct application to cuts made on the stems or on leaf stalks following cutting back of leaves is likely to be most effective. Subsequent treatments and site visits will be required.

Using the recommended concentration, thoroughly spray the leaves on both sides if possible. If the plants are close to waterways or are not possible to spray due to the size of the plants, the leaves can be cut at the base and herbicide applied directly to the stumps. Herbicide should be applied immediately after cutting, with a brush or sponge. It is possible that herbicide will need to be reapplied to larger plants.



*Figure 5.1-2 Giant Rhubarb*

### *5.1.2 Himalayan Honeysuckle*

Himalayan Honeysuckle is another Invasive species, listed under the European Communities (Birds and Natural Habitats) Regulations 2011 present on the site.

Herbicide treatment (such as our Green Matters™ foam treatment) - is the most effective method, particularly when applied in late summer/early autumn when the plant is storing energy in its roots. If near watercourses, use only aquatic-approved herbicides to prevent contamination and consider stem injection technique for a more precise application. Maintain a buffer zone (at least 10 metres) and avoid herbicide run-off.

### *5.1.3 Treatment Management*

Management plans and monitoring as described for the treatment of Japanese Knotweed should be extended to cover the treatment of Giant Rhubarb and Himalayan Honeysuckle. Professional services will be used to manage this process. Disposal will be carefully coordinated under the supervision of an ecologist and landfill engineer to ensure the fullest protection possible for the environment and building readiness of the site. Full chain of custody and safe disposal certificates will be provided.

A biosecurity plan and license will be required in advance of disturbing the infected area. Strict and verified biosecurity and control measures will be put in place to reduce risks associated with excavation and transport of the materials.

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## Appendix F – Dust Management Plan

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## Kerry County Council

# N70 Waterville to Ballybrack Road Improvement Scheme

## Dust Management Plan

October 2024

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## 1. INTRODUCTION

The length of the proposed development is 1.373km with an overall site boundary area of 2.617 hectares (ha). The proposed development will comprise the following:

- Realignment and improvement of 1373m of existing carriageway
- Construction of a separate pedestrian and cycle lane facility, totalling 1253m in length
- Provision of a shared pedestrian and cycleway bridge, c. 32m in length

This is the Dust Management Plan for the construction stage of the project.

## 2. STATEMENT OF COMPETENCE

TOBIN is a multi-disciplinary consultancy employing over 180 people. TOBIN provides environmental and engineering consultancy services nationwide, to both public and private clients. This Dust Management Plan has been prepared by members of the TOBIN Roads and Ecology teams.

John O'Flaherty is a Chartered Engineer with over 26 years' post graduate experience in Civil Engineering. He has led multi-disciplinary teams in the delivery of Road Projects for over 18 years. In that time, he has delivered multiple National and Non-National Road Projects from Concept through to Handover.

Áine Sands (B.Sc.) is a qualified Senior Ecologist with seven years post-graduate experience in ecology and environmental consultancy. She has predominantly been involved in large public and private infrastructure projects where she has carried out numerous Screenings for Appropriate Assessments, Natura Impact Statements and Ecological Impact Assessments for the proposed developments. Áine has a strong understanding of National and European legislation associated with biodiversity and is cognisant of relevant rulings by the Court of Justice of the European Union (CJEU) associated with Appropriate Assessment. Áine also has experience with undertaking ecology surveys for protected habitats and species.

### 3. DESCRIPTION OF SITE

The site is located on the N70 National Secondary Road commencing at the southern end of the promenade in Waterville town and extends south towards Caherdaniel. The proposed scheme provides for 1373m of realigned and strengthened National Secondary Road together with 1253m of shared cycleway/footway. The scheme also includes a proposed shared pedestrian and cycleway bridge over the Currane River along the western side of the existing bridge. The location of the proposed upgrade works within the wider geographical setting is shown in Figures 1-1 and 1-2 below.

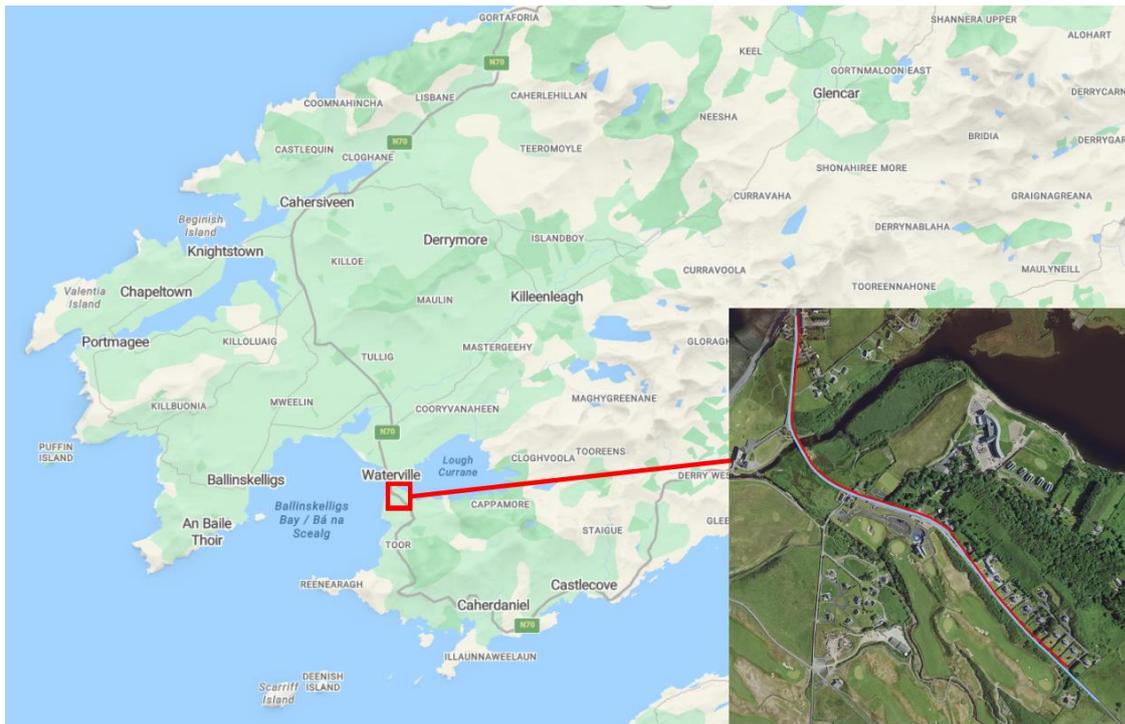


Figure 1 Site Location

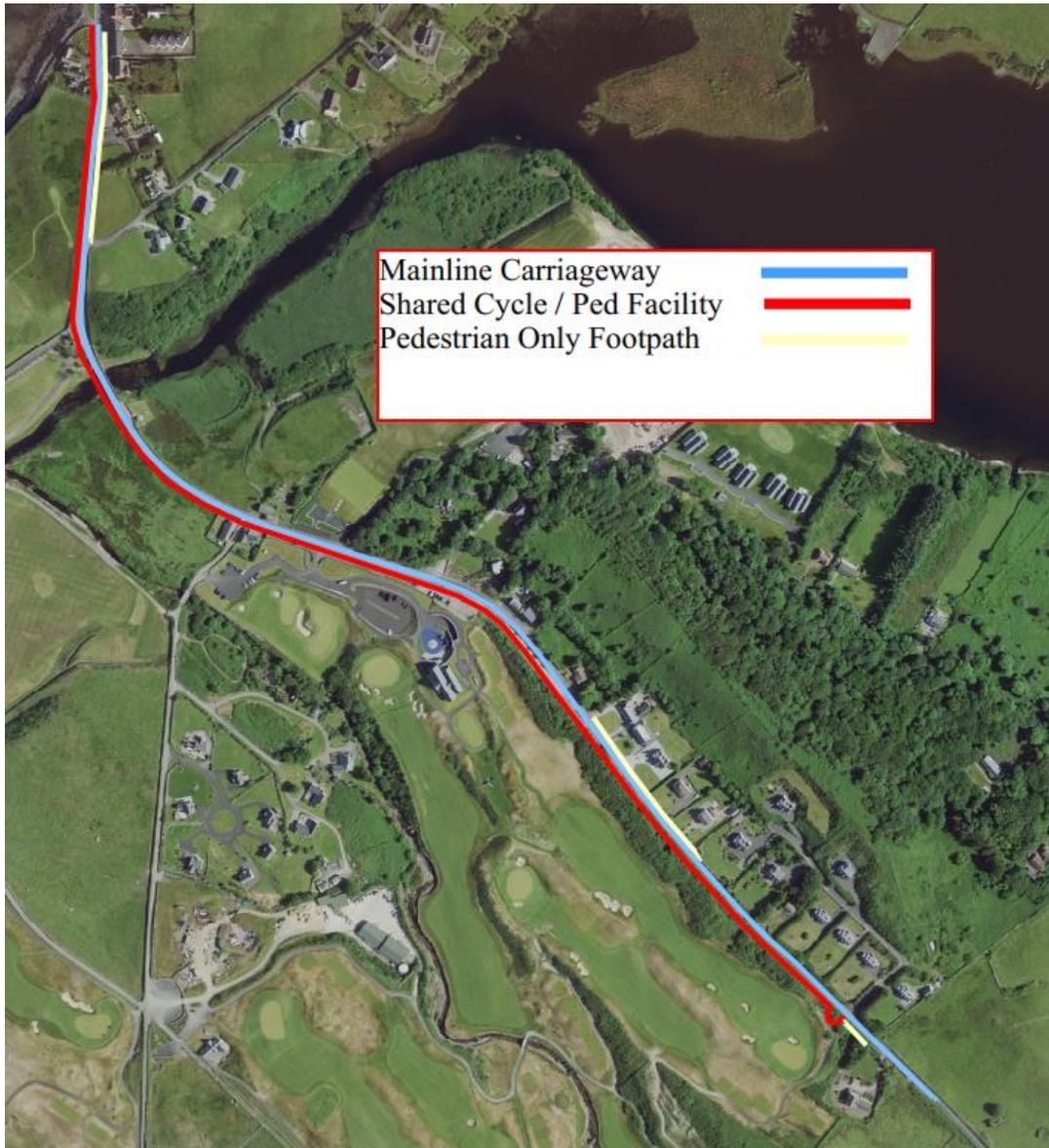


Figure 2 Project Location

## 4. DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development will begin at the southern end of the promenade in Waterville town and extend 1.373km south towards Caherdaniel.

The proposed development includes 1373m of realigned and improved carriageway with a separate pedestrian and cycle lane facility provided on one side. The proposed cycle lane facility will extend from the southern end of the promenade in Waterville town to the Benjamin Close housing development. The total distance of shared cycleway / footpath to be provided is 1253m. The proposed development will provide a new bridge for shared pedestrian and cycleway use over the Currane River.

In summary, the scheme will involve:

- Removal of 320m of hedgerow located along the route realignment at the southern end and other associated earthworks;
- Removal and replacement of stone walls
- Excavation and/or fill of route realignment, although most of the works relate to levelling of existing surface;
- Construction of new independent, single span steel arch footbridge c.32m in length;
- Overlay of the existing carriageway involving excavation and overlay of existing N70 road bridge to tie in with the new scheme; and
- All associated drainage works and other ancillary works.

## 5. SENSITIVE RECEPTORS

Whilst construction activities are likely to produce some level of dust during earth moving and excavating phases of the project, these activities will mainly be confined to particles of dust greater than 10 microns. Particles of dust greater than 10 microns are considered a nuisance but do not have the potential to cause significant health impacts.

There are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Furthermore, no specific criteria have been set in respect of this development. However, PE-ENV-01107 of the TII Publications provides guidance and the following Dust Management Plan complies with this guidance and is proportionate to the potential for significant effects to occur.

Recommendations outlined by the Department of the Environment, Health & Local Government, apply this limit of 350 mg/m<sup>2</sup>\*day to the site boundary of quarries.

In terms of establishing the extent of the area likely to be affected by nuisance dust effects, the IAQM Guidance on the assessment of dust from demolition and construction suggests that disamenity dust impacts are not usually experienced beyond 350 m of the sources.

On this basis, to ensure a worse-case scenario, consideration has been given to sensitive receptors within 350 m of the site boundary, as depicted in Figure 3.

Receptors are present at greater distances, but these are unlikely to be affected by nuisance dust during the construction phase of the development.

At the construction planning stage, the siting of activities and storage piles will take note of the location of sensitive receptors and prevailing south westerly wind directions in order to minimise the potential for significant dust nuisance

Particulate emissions are anticipated to be generated by activities including:

- Site Preparation
- Site Clearance
- Regrading and Re-profiling Works
- Excavations
- Earthworks
- Construction traffic on haul roads
- Material Transportations
- Finishing and Landscaping

The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with ambient conditions including rainfall, wind speed and wind direction. The potential for impact from dust also depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. Most of the dust would be deposited close to the potential source. Off-site receptors within 20 m of the site include 15 houses along the route. There will be road excavation and construction activities outside of these houses and enforcement of the mitigation measures herein is critical at this location. Trigger levels have been defined to reduce nuisance dust effects at the nearest receptors during high-risk conditions.

The trigger levels established for the site include the following:

- Winds that are, or are forecast to be, above a moderate breeze (Beaufort scale 4 – described as conditions under which ‘dust and loose paper are raised. Small branches begin to move and are, or are forecast to be, from the south or south-west on days when there has been no rainfall for the last 3 days or more;
- The chance of further daily rainfall is forecast to be, below 40% on five consecutive days according to the met office website;
- Routine checks/inspections/surveys on site have identified evidence of dust off-site;
- A dust complaint is received
- A failure in equipment or control is identified, or an abnormal/unintentional situation occurs, e.g. a spillage

The additional controls to be employed if a trigger level is exceeded are set out below:

- Increase frequency of use of the road sweeper, both on-site and on local roads;
- Temporary cessation of the activities responsible for causing the dust impact until the trigger level is no longer exceeded;
- Use of additional dust suppression measures such as dampening of specific surfaces
- Relocation of activities so that the distance between the source of emissions and the receptors is increased.

Implementation of the above additional measures (either singly or in combination) will be applied as necessary to effectively control dust emissions, as evidenced by the visual and monitoring checks described in the next section. The Site Manager will be responsible for implementing these risk management measures in accordance with procedures.

The Ecological Clerk of Works (ECoW) will make daily inspections at the site boundary to ensure that visible dust is not leaving the site. Particular attention will be given to the eastern part of the site boundary, closest to the residential properties identified as being most susceptible to nuisance dust.

The results of the inspections will be recorded in a site log. The prevailing weather conditions and the activities undertaken at the time of the inspection will also be recorded in the site log.

In the event that any of the trigger levels are exceeded and additional measures are employed, the frequency of the visual site boundary inspection will increase to twice daily until such time as no dust is visible at the site boundary. If after two days, the results of such monitoring indicate that the additional control measures are not effective, the Site Manager will instruct all site operatives that the operations will cease until the issue can be resolved.

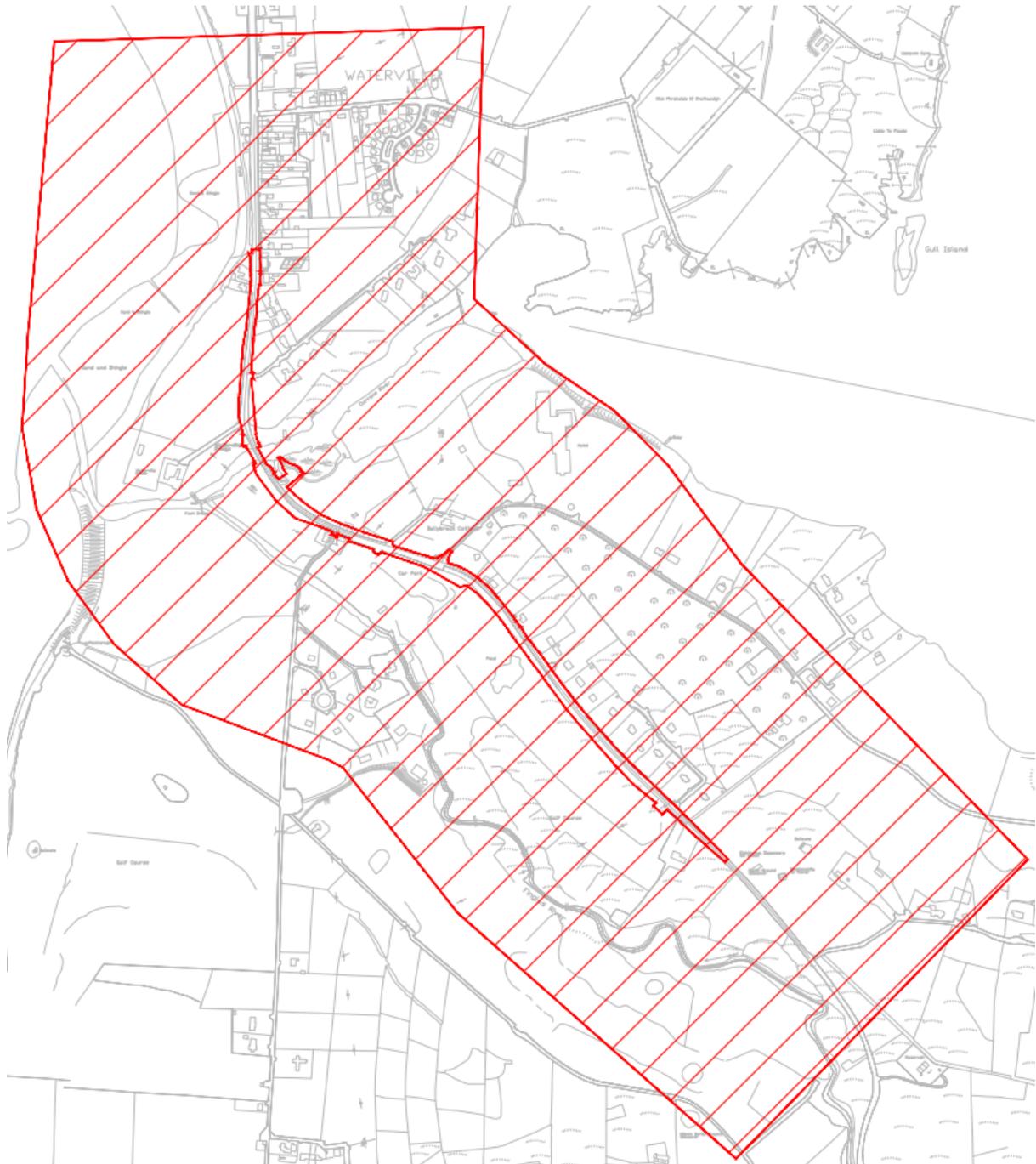


Figure 3 350m Zone

## 6. MITIGATION MEASURES

### 6.1 SITE MANAGEMENT

The Contractor will implement the following measures :

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information
- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on- site vehicles on unpaved haul roads and for all roads within 100m of the SAC.
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A suitably qualified ECoW will be appointed by the Contractor. The ECoW will be present for the duration of the construction phase programme and will ensure that all mitigation measures outlined within this report are implemented during the proposed construction works.
- The ECoW will monitor the contractors' performance to ensure that the proposed mitigation measures are implemented, and that dust impacts and nuisance are minimised;
- During working hours, dust control methods will be monitored as appropriate by the ECoW, depending on the prevailing meteorological conditions. The prevailing wind in the area is south-westerly and this should be considered when planning construction activities and programme.
- Community engagement will be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- The dust minimisation measures shall be reviewed at regular intervals during the works to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are described below.
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where possible
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.

- All staff on the site will be made fully aware of the need to be constantly vigilant with regard to site dust control and management procedures. New staff will be trained to deal with dust management issues and will be made aware of the DMP during the induction process. All staff will be made aware of the details of changes to the DMP.
- The Site Manager will maintain a statement of training requirements for each operational post and keep a record of the training received by each person whose actions may have an impact on the environment.
- Any sub-contractors working on site will be made aware of the DMP and will be expected to comply with the DMP at all times.
- Staff responsible for the operation, maintenance or repair of dust suppression systems will be trained and competent. Training records will be maintained, demonstrating compliance with this.
- A list of approved repair contractors will be kept in the site office and relevant site operatives will be made aware of the existence and the location of the list. Where appropriate, essential spare parts will be kept on site.

### 6.1.1 Complaints Procedure

The following procedures will be followed in dealing with complaints:

- Record and respond to all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;
- Make the complaints log available to the local authority when asked.
- In the case of complaints submitted, an acknowledgement and initial response will be given by telephone or by email within 48 hours, provided that telephone or email contact details have been given by the complainant. The site manager will respond as rapidly as possible to the complaint to maximize the opportunity for identifying the source of the nuisance dust.
- A representative of the site manager will inspect the nuisance dust location referred to in the complaint.
- Where complaints cannot be resolved on initial contact and further investigations are required, a written response will be made within 10 working days of submission of the complaint although sometimes longer may be needed. The complainant will be told if this is the case and how long it will take to give a response.

## 6.2 SOIL AND ROCK EXCAVATION

Soil and Rock Excavation have the potential to generate nuisance due to dust generation and the following mitigation measures will be applied during such activities:

- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and rock and thus suppress dust.
- During periods of very high winds (gales), construction activities likely to generate significant dust emissions will be postponed until the gale has subsided.
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. If sweeping using a road sweeper is not possible due to the nature of the surrounding area, then a suitable smaller scale street cleaning vacuum will be used.

## 6.3 OPERATIONS

The following measures will be applied during specific operations:

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

## 6.4 SITE TRAFFIC ON PUBLIC ROADS

Construction traffic can generate nuisance emissions and dust. Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- At the main construction traffic exit, a wheel wash facility shall be installed. All trucks leaving the site must pass through the wheel wash. The wheel wash will be located a minimum of 20m but sufficiently far from the exit to allow trucks to 'drip off' prior to exit. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.
- Vehicles onsite shall turn off engines when not in use to prevent idling emissions.
- Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and provide an inspection log to the local authority when asked
- Increase the frequency of site inspections by the ECoW when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Ensure all non-road mobile machinery (NRMM) comply with the standards set within this guidance.
- Impose and signpost a maximum-speed-limit of 15kph on surfaced haul routes and work areas (if long haul routes are required these speeds may be increased with suitable

- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
- Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

## 6.5 WASTE MANAGEMENT

In addition to construction operations, waste generated from the activities will have the following controls in relation to air quality and dust control:

- There will be no bonfires and burning of waste materials.
- Reuse and recycle waste to reduce dust from waste materials.



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