Mountmellick
FLOOD RELIEF SCHEME

EIAR – Volume 1 Non-Technical Summary

Final Report

September 2025

Tionscadal Éireann
Project Ireland
2040

OPW
Oifig na nOibreacha Poiblí
Office of Public Works

JBA Project Manager

Richard Buck
Unit 8, Block 660
Greenogue Business Plaza
Rathcoole
Dublin
D24 YN81

Revision History

Revision Ref/Date	Amendments	Issued to
S3-P01 / 11-10-2024	Draft Report for AG1 Approval	LCC via email
S3-P02 / 14-08-2025	Final Report	LCC Sharepoint
A3-C01 / 16/09/2025	OPW Comments	LCC Sharepoint

Contract

This report relates to the Mountmellick Flood Relief Scheme commissioned by Limerick City and County Council, on behalf of the Office of Public Works. Conor O'Neill and Ana Tomori of JBA Consulting compiled this Non-Technical Summary, which was prepared by the competent experts listed in Table 1-1 of Chapter 1 of the EIAR, Volume II.

Purpose

This document has been prepared as a Final Report for Limerick City and County Council and the Office of Public Works. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

JBA Consulting has no liability regarding the use of this report except to Limerick City and County Council and the Office of Public Works.

Copyright

Carbon Footprint

A printed copy of the main text in this document will result in a carbon footprint of 305g if 100% post-consumer recycled paper is used and 388g if primary-source paper is used. These figures assume the report is printed in black and white on A4 paper and in duplex.

JBA is aiming to reduce its per capita carbon emissions.

Table of Contents

List of Tables

List of Figures

Abbreviations

AA	Appropriate Assessment
AEP	Annual Exceedance Probability
CFRAM	Catchment Flood Risk Assessment and Management
EIAR	Environmental Impact Assessment Report
FRS	Flood Relief Scheme
GIS	Geographic Information System
GSI	Geological Survey Ireland
MCA	Multi-Criteria Assessment
NBHS	National Built Heritage Unit
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
NPWS	National Parks and Wildlife Service
OPW	Office of Public Works
PCD	Public Consultation Day
pNHA	Proposed Natural Heritage Area
QI	Qualifying Interest
SAC	Special Areas of Conservation
SFRA	Strategic Flood Risk Assessment
SPA	Special Protection Areas
WFD	Water Framework Directive
WWTP	Wastewater Treatment Plant
ZoI	Zone of Influence
ZoN	Zone of Notification

1 Introduction

This document provides a non-technical summary (NTS) for the Environmental Impact Assessment Report (EIAR) for the proposed Mountmellick Flood Relief Scheme (FRS). There are five stages in the project:

- Stage I - Development of a number of flood defence options and the identification of a preferred Scheme
- Stage II - Planning
- Stage III - Detailed Design and Tender
- Stage IV - Construction
- Stage V - Project Close-Out (Handover to Client)

The NTS and EIAR are produced during Stage I of the project and finalised in Stage II. They should be read in conjunction with the earlier Constraints Study[1], Options Report[2] and the EIAR Screening and Scoping Report[3] and the Natura Impact Statement (NIS)[4].

Study Area

The study area for the proposed Flood Relief Scheme is shown in Figure 1 below, it covers the Area for Further Assessment (AFA) that was the core of the Catchment Flood Risk Assessment and Management (CFRAM).

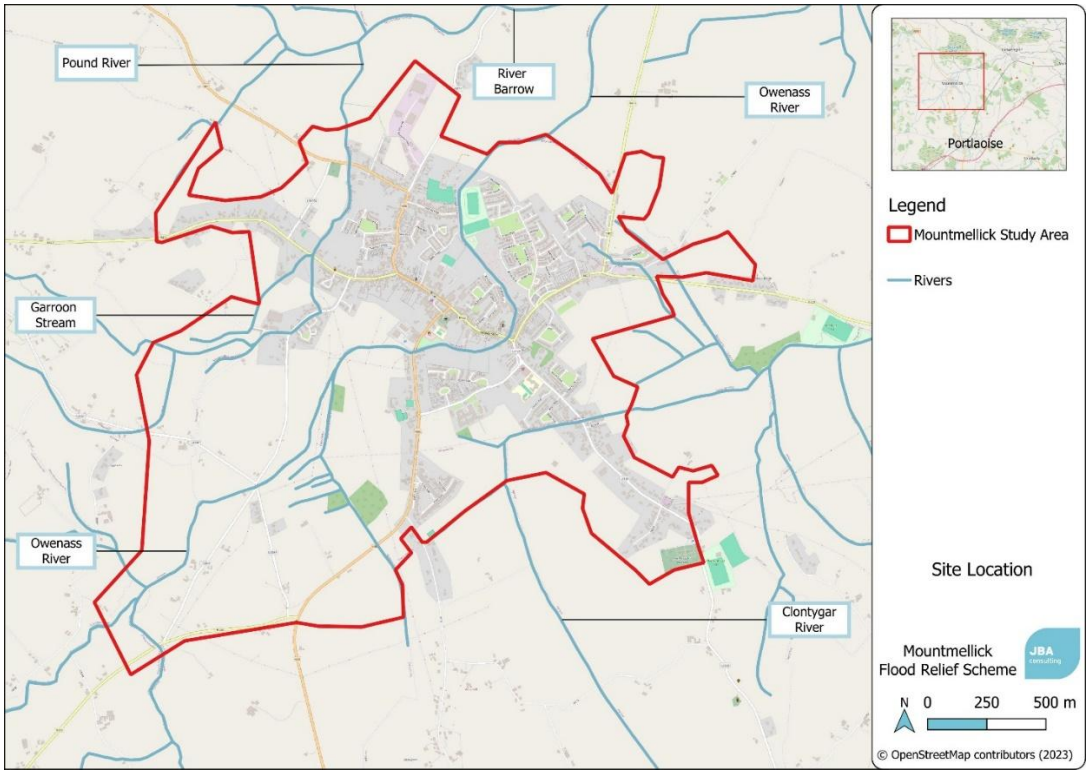

Figure 1: Site Location

[1] JBA Consulting and JB Barry & Partners for Laois County Council (V3 May 2020), *Constraints Study for Mountmellick Flood Relief Scheme*, unpublished.
[2] JBA Consulting and JB Barry & Partners for Laois County Council (V1 April 2023), *Options Assessment* Report for Mountmellick Flood Relief Scheme, unpublished.
[3] JBA Consulting and JB Barry & Partners for Laois County Council (V2 November 2023), *EIAR Screening and Scoping Report for Mountmellick Flood Relief Scheme*, unpublished.
[4] JBA Consulting and JB Barry & Partners for Laois County Council (V3 November 2023), Natura Impact Statement for *Mountmellick Flood Relief Scheme*, unpublished.

Site Description

Mountmellick lies on the banks of the Owenass River and sits on the eastern side of the River Shannon in Co. Laois. This river is a part of the River Barrow and River Nore Special Area of Conservation (SAC), which is a designated Natura 2000 site under the European Union Habitats Directive. The town of Mountmellick and the contiguous area were severely flooded during the winter of 2017 due to flood waters from the Owenass River and its tributaries. Further flooding events took place in 2005 and 2008.

Schedule 5 of the Planning and Development Regulations 2001 (as amended, hereafter the '2001 Regulations') sets out a wide range of development categories with associated thresholds for which an EIA is required. Part 2 of Schedule 5 of the 2001 Regulations includes "flood relief works, where the immediate contributing sub-catchment of the proposed works (i.e., the difference between the contributing catchments at the upper and lower extent of the works) would exceed 100 hectares or where more than 2 hectares of wetland would be affected or where the length of river channel on which works are proposed would be greater than 2 kilometres". As the proposed FRS area has an immediate contributing sub-catchment of approx. 175 hectares, the proposed development is above the threshold, and an EIAR is required.

The EIAR comprises three volumes as follows:

- Volume 1: Non-Technical Summary (this document);
- Volume 2: Environmental Impact Assessment Report; and
- Volume 3: EIAR Appendices.

The EIAR is split into the following Chapters:

- Chapter 1 – Introduction
- Chapter 2 – Legislation and Planning Policy
- Chapter 3 – Examination of Alternatives
- Chapter 4 – Description of Proposed Development
- Chapter 5 – Consultation
- Chapter 6 – Population and Human Health
- Chapter 7 – Biodiversity
- Chapter 8 – Land and Soil
- Chapter 9 – Water – Surface and Groundwater
- Chapter 10 – Cultural Heritage
- Chapter 11 – Landscape and Visual Impact Assessment
- Chapter 12 – Material Assets
- Chapter 13 – Construction Impacts – Air Quality, Noise and Vibration, and Climate
- Chapter 14 – Interactions
- Chapter 15 – Cumulative Effects

The EIAR has been compiled by JBA Consulting with input from a team of experienced consultants. The EIAR follows the guidance set out in the Environmental Protection Agency's (EPA) *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (2022). Where relevant, individual chapters also make reference to specific guidelines which are relevant to that discipline.

Need for the Proposed Development

The scheme is being developed primarily to protect affected properties against fluvial flooding. Mountmellick has several rivers, including the Barrow, Owenass, Pound, and Clontygar, making it prone to flooding. The town experienced severe floods in November 2017 and most recently in February 2020, causing significant damage to homes, businesses, and infrastructure. To address this, Laois County Council has commissioned a Flood Relief Scheme to protect Mountmellick from future flooding.

Outline of the Proposed Development

An overview of the proposed development is shown in Figure 2. Generally, the proposed flood relief scheme comprises 10No. continuous flood defences to defend properties from flooding from the Owenass River,

Garroon Stream, Pound River and Clontygar River. The flood defences comprise a series of embankments with culverts and walls, one bridge (replacement Owenass Bridge) and one pumping station (subterranean precast storage tank, control panel kiosk and above ground gantry structure). There will be localised upgrades to surface water drainage around the walls, flow control measures on the Pound plus a diversion of the Clontygar Stream into a new stream channel to facilitate the works.

Embankments - Approximately 3,160 linear metres of flood embankment will be formed throughout the scheme. Embankments will be constructed with heights between 1.2m and 3 m above ground level, and will be constructed of impermeable clay, with a top width typically of 3m, and with local widening points. A temporary haul road varying between 3-5m in width is proposed around both sides of the embankment. Beyond the haul road temporary fencing ('heras' fencing) will be erected to define the limits of construction. A suitable corridor (minimum 3m) has been provided adjoining the foot of each embankment to allow access for maintenance to the fencing. The location of Proposed Embankments is shown in green in Figure 2 below.

Walls - Approximately 3,500 linear metres of flood defence wall will be constructed. For the purposes of environmental assessment and mitigation, four types of wall construction are proposed for the proposed development. The final design of walls at each location will be subject to confirmation of ground conditions from site investigation at detailed design stage and construction methodology. A 2m wide right of way is proposed on the dry side of all proposed defences to allow the operator to undertake regular inspections. The location of Proposed Flood Walls is shown in pink in Figure 2 below.

The scheme proposes also the replacement of Owenass Bridge with a new larger span arch structure and new wing walls are proposed to tie into the bridge replacement works.

A full detailed description of the proposed development is included in Chapter 4 of the EIAR (Volume 2).

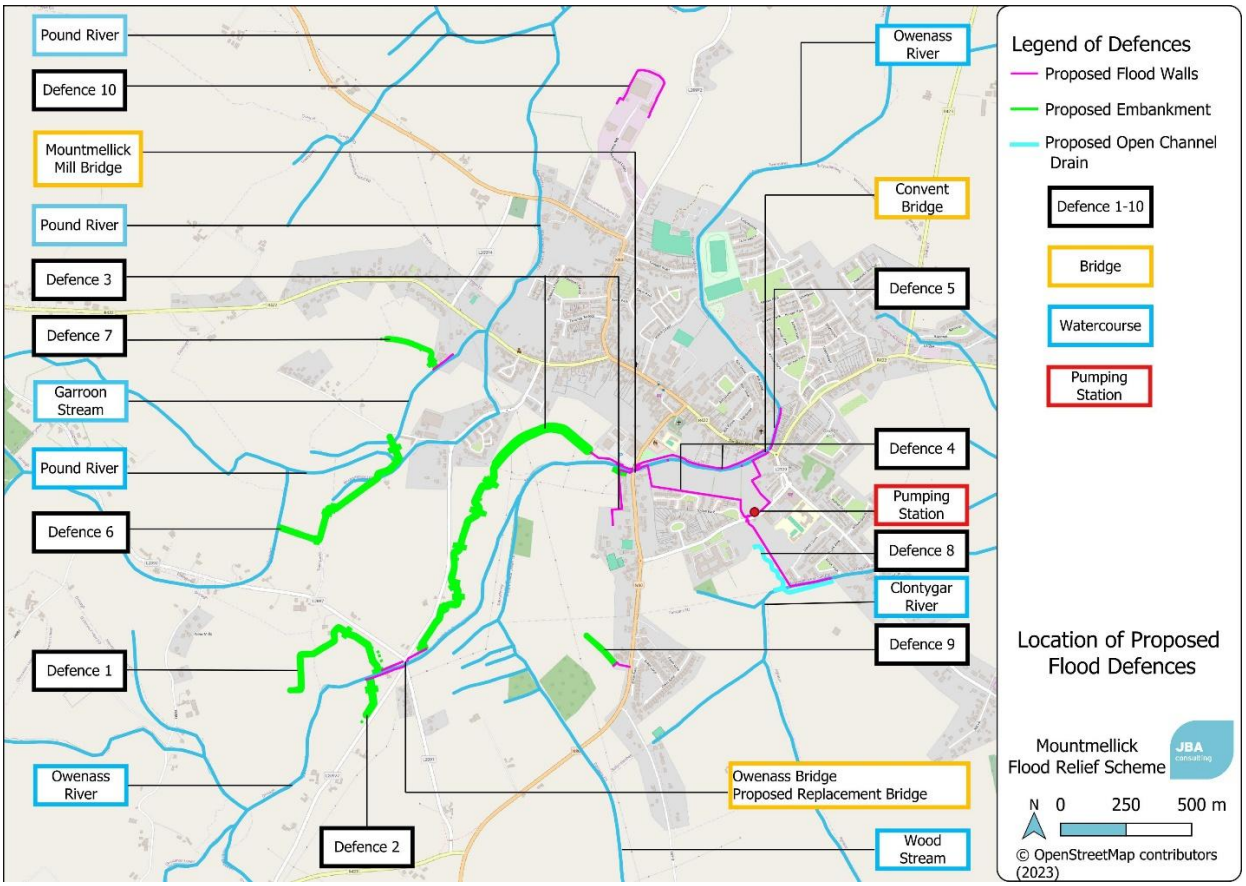

Figure 2: Overview of proposed development

2 Legislation and Planning Policy

This section of the Environmental Impact Assessment Report considers the proposed development in the context of national, regional, and local planning policy, and the legislation governing the proposed works. The principal guiding national, regional and local documents are listed below in addition to the governing legislation:

- EU 'Floods' Directive 2007;
- The Planning and Development Act 2000 (as amended);
- The National Planning Framework (NPF);
- The Planning System and Flood Risk Management 2009;
- Climate Change Sectoral Adaptation Plan for Flood Risk Management, 2015;
- Our Sustainable Future: Framework for Sustainable Development;
- Climate Action Plan 2023;
- Regional Spatial and Economic Spatial Strategy, Eastern and Midland Regional Assembly;
- Barrow River Basin Flood Risk Management Plan (CFRAM); and
- Laois County Council Development Plan 2021-2027.

The National Planning Framework sets out a framework of policy objectives to help Ireland achieve its long-term sustainable goals. The strategic plan focuses on integrating Ireland's economic development, spatial planning, infrastructure planning and social considerations. It promotes environmentally focused planning at local level to tackle climate change and the implementation of appropriate measures to mitigate existing issues.

The plan identifies National Strategic Outcomes (NSOs) which seek to guide future development.

National Strategic Outcome 9 Sustainable Management of Water and other Environmental Resources outlines the urgency of upgrading and investing in water management and environmental resources. Strategic Outcome 9 seeks to ensure investment in water infrastructure nationally while also ensuring the protection of our watercourses. With regard to flooding and flood risk management NSO 9 seeks to *'implement the recommendations of the CFRAM programme will ensure that flood risk management policies and infrastructure are progressively implemented'.*

It is envisioned that planning will play a vital role in mitigating development in inappropriate or vulnerable areas and will aid the delivery and design of necessary infrastructure in our towns and cities. As such, the proposed development is fully supported by the National Planning Framework.

Further to this, the scheme was assessed in relation to Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region, which was adopted in 2019. The plan provides a long-term regional level strategic plan for physical growth, economic investment and social development for the Southern Region and seeks to align national goals set out in the NPF with local considerations.

The RSES identifies that the region has experienced a number of severe flooding events in recent years and that such events are increasing due to more extreme weather events which are linked to climate change. The RSES outlines that the long-term land use planning for the region will need to consider the likelihood of future flooding events. The RSES outlines a number of policies which seek to ensure that there is investment in flood relief works, and infrastructure which will mitigate against the risk of climate change.

The Laois County Council Development plan 2021-2027 set out the policies and objectives, with regard to both National and Regional planning policies, the policies and objectives which will guide the development of the Laois County environs to 2027.

The proposed works, and subject of this EIAR, seek to deliver works which would be entirely consistent with the climate change adaptation and flood risk management objectives outlined in the Development Plan.

The Mountmellick Local Area Plan (LAP) 2018-2024 notes that in the absence of a review of the Local Area Plan, the County Development Plan is the policy document which will guide the development of Mountmellick.

As the Local Area Plan has not yet expired and a review is not underway, this EIAR has regard to the policies and objectives set out in the Local Area Plan.

The Local Area Plan sets out the following Specific Objectives for Mountmellick:

1. *To support and facilitate sustainable intensification and consolidation of the town centre and established residential areas.*
2. *To promote balanced economic development and employment, ensuring a diverse range of economic sectors are developed and supported.*
3. *To support and facilitate development on zoned land based on the policies and objectives of the Laois County Development Plan 2017-2023.*
4. *To focus new residential development primarily into infill and back land sites.*
5. *To protect, conserve and enhance the built, natural and cultural environment, through promoting awareness, utilising relevant heritage legislation and promoting good quality urban design.*
6. *To develop and improve flood alleviation measures throughout the town and rural hinterland*

The Plan identifies that there have been significant flood events in recent years and that the frequency of such events will be increased as a result of climate change. With regard to this, the Plan outlines that a Flood Relief Scheme is required for the town.

With regard the policies and objectives outlined above, it can be concluded that the proposed works, subject of this EIAR, are in keeping with the objectives set out in the Mountmellick Local Area Plan and in keeping with the proper planning and sustainable development of the town.

3 Examination of Alternatives

Prior to the preparation of the EIAR, several studies were undertaken to inform the option design and scoping of the EIAR.

The alternatives for the scheme were evaluated in the early stages in a two-stage approach. First, potential measures were screened based on viability and relevant to the study area. This considered, applicability to the area, economic, social and environmental aspects. This stage included eight Flood Risk Management approaches, seven of which were screened out as not suitable for the area, limited flood benefit or not being cost-effective, and one (Containment of flood level) was taken forward for further assessment.

The second stage assessed different options based on the area-by-area applicability, considering constraints and feasibility and their likely environmental, social, and cultural impact. The results are provided in the Options Report. The measures considered at this stage were structural flood defences, including embankments, flood wall and culverts, along the length of the watercourses. Replacement of Owenass Bridge was also considered.

Three options were developed, using combinations of flood walls and embankments. 2 of the Options (referenced 2A and 2B in the EIAR), were very similar to each other.

The merits of the alternative options were assessed and compared on the basis of cost, environmental and ecological impact, process and programme, and climate change adaptability. A multi-criteria analysis (MCA) was used to aid this assessment.

Based on the MCA results Option 2B emerged as the Preferred Option. All the Options had similar technical scores as measures (flood walls and embankments) were similar. Option 1 would rely on demountable flood barriers. In terms of social criteria both Option 2B and 2A, had a slight difference while Option 1 scored lower. Environmental criteria made the difference between Option 2A and 2B, attributed to the set back of the embankment in the area from Owenass Bridge to Mountmellick Bridge form the river and rear of the properties. This will allow connection of the river with its floodplain and consequently provide long term positive benefits to water quality hydrology and biodiversity. The preferred Option assures flood protection to properties while maintaining and enhancing natural features and allowing accessibility.

Following selection of an Emerging Preferred Option, a Scoping Report was developed, which was the first stage in the preparation of the EIAR. The Scoping Report introduced the proposed development, defined the location and extent of works, identified the key environmental issues and receptors in the vicinity, the potential impacts of the proposal, and identifies the likely environmental studies that are required to inform the full EIAR. The Scoping Report was distributed to statutory consultees as part of the consultation phase.

4 Description of Proposed Development

The proposed flood relief scheme comprises ten continued flood defences to defend properties form the flooding caused by Owenass River, Garroon Stream, Pound River and Clontygar River. The flood defences comprise a series of embankments with culverts and walls, one bridge (replacement Owenass Bridge) and one pumping station (subterranean precast storage tank, control panel kiosk and above ground gantry structure). There will be localised upgrades to surface water drainage around the walls, flow control measures on the Pound plus a diversion of the Clontygar Stream into a new stream which will facilitate the works.

The proposed development comprises the following. Numbers refer to references shown in Figure 3.

Table 1 Summary of proposed defences and their location

Area	Proposed Flood Defence Design
Upstream of Owenass Bridge	1A - Embankment upstream of Owenass Bridge, on left side of Owenass River, Height up to 1.4m, Length 630m 1B - Wall upstream of Owenass Bridge, on left side of Owenass River, Height up to 1m, Length 84m. 2A - Embankment upstream of Owenass Bridge, on right side of Owenass River, Height up to 1.1m, Length 148m 2B - Wall upstream of Owenass Bridge, on right side of Owenass River, Height up to 1.1m, Length 155m Replacement of Owenass bridge with a new larger span arch structure, 18.1m in width, up to 2.8m in height and 15m in length
Owneass Bridge to Mountmellick Mill Bridge	3A- Embankment on left side of Owenass River in Bakers field, Height up to 2.5m, Length 1275m 3B- Wall down stream of Owenass Bridge, on left side of Owenass River, Height 1.6m, Length 87m 3C- Wall upstream of Mountmellick Mill Bridge, on left side of Owenass River, Height up to 2m, Length 315m 3D - Wall upstream of Mountmellick Mill Bridge, on right side of Owenass River, to rear of Pearse St/ M80 Wall 284m in length and up to 1.9m in height (above stream bed level)
Mountmellick Mill Bridge to Convent Bridge	4A - Wall between Mountmellick Mill Bridge and Convent Bridge, left side of Owenass River, adjacent to playground, Height between 0.6m and 4.0m high, Length 525m 4B - Wall downstream of Mountmellick Mill Bridge, right side of Owenass River, Raised footpath and wall. Height up to 1.9m, Length 115m 4C - Wall right side of Owenass River, to rear of properties in Grove Park, wrapping around the green space and to rear of Connolly St, Height up to 3.1m, Length 965m Mix Wall 4D - Wall upstream of Convent Bridge, right side of Owenass River, Raised footpath and wall. Height up to 1.9m, Length 112m
Near Manor House and Manor Road	6A - Embankment on right side of Pound River, Height up to 1.4m, Length 705m
Houses off Wolf Tone Street	7A - Embankment on western side of Garron Stream, Height 1.3m, Length 230m 7B - Wall left side of Garron Stream, 92m length and up to 1.3m in height
South and west of Davitt Court	8A - Wall left side of Clontygar River, Height 1.9m, Length 475m
Irish town Garden Centre	9A - Embankment right side of Wood Stream Height 0.8m, Length 155m 9B - Wall south of Garden Centre Height 0.8m, Length 70m
Midland Steel	10A - Wall around western, northern and eastern side of factory, Height 1.1m, Length 428m

The construction phase of the project is expected to span 48 months, divided into four sequential time periods.

Following construction, each proposed measure will have its own bespoke management plan. Regular inspections of the embankments will take place, together with investigations of their performance after each flood event.

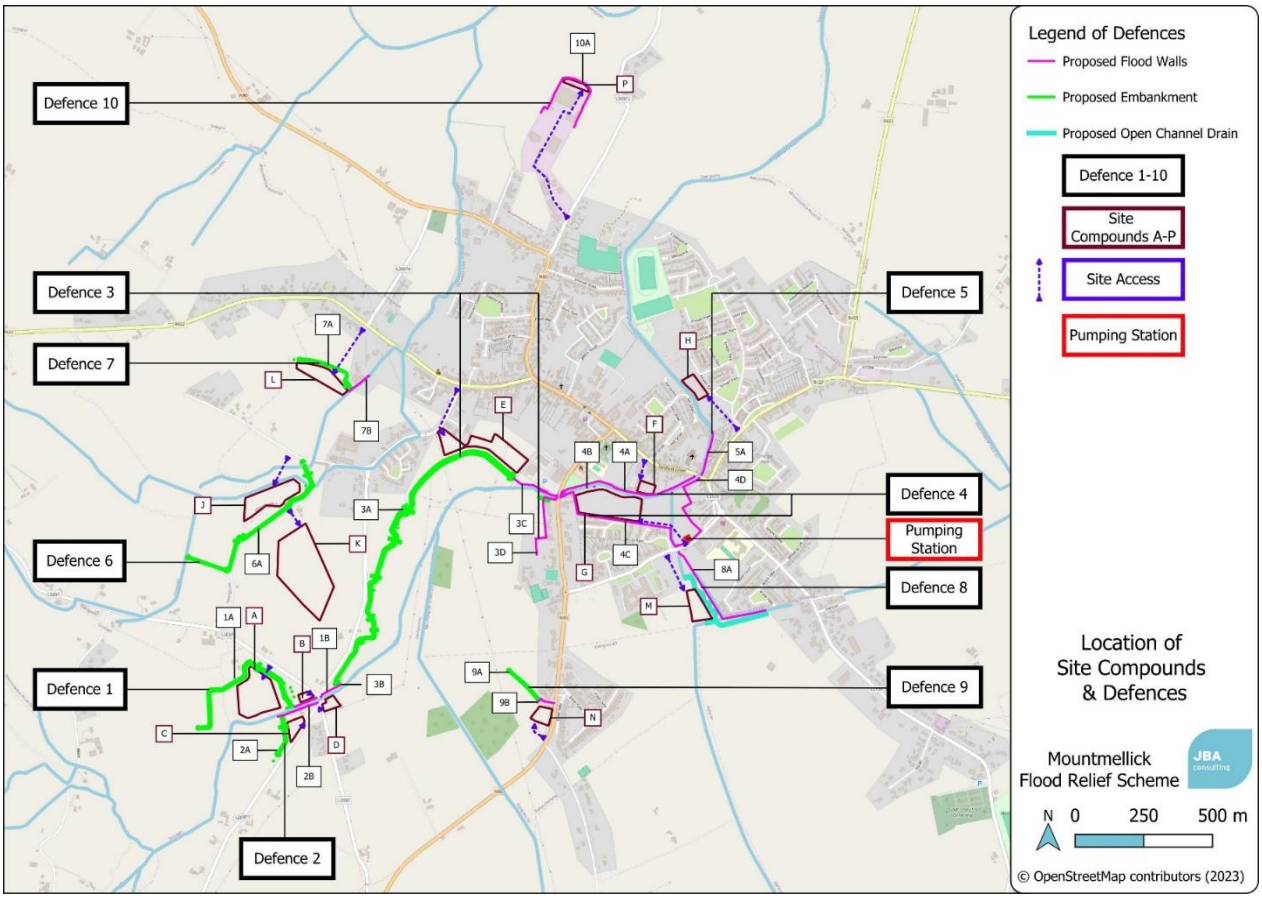

Figure 3: Construction defences, compound locations and access points

5 Consultation

Public and statutory consultation are a requirement of projects undergoing EIAR. Statutory consultees include government bodies, regulatory bodies, non-governmental organisations and other who have an interest or responsibility in some respect to a part of the development. These consultees were identified in the Scoping stage of the EIAR. The second avenue is to consult with the public including local residents and business owners who may be impacted by the development or any member of the public who wants to provide input.

Statutory and non-statutory consultees were issued the EIAR Scoping Report via email and were asked to submit any comments, observations, or submissions in relation to the proposed scope and level of information to be included in the EIAR. Responses were received from the following:

- Department of Housing, Local Government and Heritage – Development Applications Unit (DAU);
- Uisce Éireann;
- Failte Ireland;
- Geological Survey Ireland;
- Transport Infrastructure Ireland; and
- Inland Fisheries Ireland

Responses were considered in the preparation of the EIAR and were passed onto the design team where amendments to the design were required.

To date there have been three public consultation days on the Mountmellick FRS:

- Initial Public Consultation Event was held in November 2019 at the Mountmellick Development Association (MDA), Irishtown, Mountmellick.26 questionnaires were returned filled, and the feedback influenced the flood relief scheme. Concerns about river maintenance, combined system flooding, and forestry runoff in Slieve Blooms were noted.
- Emerging Options Public Participation Day took place on 16th of September 2021 and was held online due to COVID-19. It consisted of a virtual engagement through questionnaires and follow-up calls. Submissions provided feedback on emerging options.
- Public Information Day (PID) took place on the 12 September 2023 at the MDA, Irishtown, Mountmellick. 16 questionnaires were returned, and 21 issues raised. The feedback contributed to refining the preferred Option for the flood relief scheme as it moved into the planning stage.

Additional consultation meetings took place between members of the EIAR team and certain consultees, in order to ensure that environmental issues were fully assessed.

- A meeting with the National Parks and Wildlife Services' Regional Ecologist for the area took place on the 12 December 2023 where the project's ecological sensitivities and survey efforts were discussed at length, as well as the proposed FRS design.
- A meeting took place with Derrycloney residents in 21st December 2023. Concerns related to the properties on the unprotected side of the river. Letter was received from residents in the area south of the Owenass Bridge and north of Derrycloney Bridge. The Owenass river flows north-west of this community. At present, when the Owenass overflows it floods the land to the north-west, away from their homes. The proposed flood relief scheme will see barriers erected to prevent this, preventing the river from taking its natural course and creating a new flood plain towards their homes. Residents were concerned as all of their properties are within 200 meters of the unprotected side of the river, the new flood plain, while all the emphasis is being placed on protecting properties 700 meters away. Laois County Council (LCC) provided letters of response on 23rd January 2024 and 28th March 2024 to the queries raised by the Derrycloney residents group. In response to these letters addressing queries raised, the residents replied to LCC on the 20th April 2024 highlighting more questions, and perceived inconsistencies in data provided previously supplied by the council. To progress the discussion and clarify a number of points a meeting was held between the Derrycloney residents, members of LCC, and JBA Consulting on the 15th May 2024 to discuss the points raised in the letter of the 20th April

2024. The meeting was constructive with many of the points raised clarified or points where further information needed to be provided noted. A separate Note dated 8th August 2025 was produced for the residents responding to further points.

- A meeting with the National Monument Service (NMS) of the Department of Housing, Local Government and Heritage took place on the 11th of January 2024. The focus of the discussion was on the methodology, ensuring that heritage and archaeological considerations are integrated into the flood relief scheme. The need to preserve historical elements in the area and ensure that any demolitions respect the town's heritage were emphasized by the DAU and considered form JBA in the Cultural Heritage Chapter.
- A meeting with Inland Fisheries Ireland took place on the 8th of February 2024. Key discussions included potential impacts on the River Barrow and River Nore SAC. The IFI inquired about the use of nature-based solutions (NbS) and measures to connect the river with riparian areas. JBA explained the defence strategies and noted that some areas, like the stretch north of Convent Bridge, are sensitive for fish, requesting IFI input on construction methods. The need for replacing the Owenass Bridge was discussed, with JBA explaining that the existing structure would not withstand redirected floodwaters, necessitating a new, stronger bridge. Outcomes from the discussion were considered in the Biodiversity Chapter.
- A site walkover, followed the meeting with IFI, and took place on the 6th of March 2024. The meeting focused on flood defences and measures to ensure minimal environmental impact, particularly concerning riverbeds, fish spawning, and maintaining riparian areas. IFI was satisfied with some proposed wall placements but raised concerns about others, asking for modifications to preserve riverbank features and reduce the impact on the riparian strip. They also addressed construction methodologies for bridges and flood defences, emphasizing the importance of timing to protect fish habitats, particularly during spawning season. The outcomes of the discussion were considered in Biodiversity and Water Chapters. After reviewing the detailed drawings sent, IFI expressed their satisfaction in a letter sent on March 27th, acknowledging the quality and completeness of the information provided. Along they sent key points regarding actions on final designs, which were noted and considered by JBA.
- Finally, a site walkover with NMS took place on the 7th of March 2024. The meeting primarily focused on the construction of flood walls and the preservation of historical features around the Owenass and Convent Bridges. NMS was generally satisfied with the proposed left bank, noting the existing walls to remain where possible, with new walls stepped behind to preserve the heritage structures. They also emphasized the need for heritage engineer input at Convent Bridge and expressed concerns about the potential archaeological damage from constructing a haul road. Strengthening Owenass Bridge with a concrete saddle was also discussed. NMS requested details of alternatives and early archaeological investigations of the bridge foundations, though JBA noted the tight construction window. The outcomes of the discussion were considered in the Cultural Heritage Chapter of the EIAR Volume 2 and the Scheme Options Report.

6 Population and Human Health

This chapter assessed impacts to population and human health including residential dwellings and people living in Mountmellick, as well as a number of businesses, schools, childcare facilities, medical facilities, social, community, and recreational facilities.

Information on Mountmellick was gathered from the Central Statistics Office (CSO), including their 2022 and 2016 Census data, as well as from Mountmellick Local Area Plan 2018 – 2024 and the Laois County Development Plan 2021-2027.

Mountmellick is situated within Co. Laois, approximately 75km southwest of Dublin and 10.5km from the M7, lying between the towns of Portarlington and Portlaoise. It is laid out around a relatively narrow and long linear Main Street that extends roughly southeast to northwest with O'Connell Square located in the centre. Several approach roads gather at either end of this Main Street with several other roads branching in a perpendicular manner (Laois County Council 2018). There are four main local watercourses within its environs, namely the Owenass River, Garroon Stream, Pound River and Clontygar River. The two latter of which are more central to the town, with the River Owenass encompassed within the local Natura 2000 site, also the River Barrow and River Nore Special Area of Conservation (SAC).

Mountmellick is located in close proximity to the Slieve Bloom Mountains and associated amenities including the Mountain Bike Trail and hiking trails. Combined with Mountmellick's unique built and cultural heritage and existing green infrastructure, the town's assets provide the basis for a unique opportunity to create a strong tourism industry.

The proposed development is expected to have the greatest impact to population and human health during the construction phase of the project. These impacts are predicted to be secondary impacts as a result of disruptions to traffic, noise, air quality, and visual amenity. These impacts are addressed in their respective chapters of the EIAR.

During construction there is a risk to the health and safety of workers on the development, which are typical for any construction project. There is also the potential for negative impacts on the community as a result of air emissions, disturbance from noise and visual impacts during construction. Mitigation measures will include a Construction Environmental Management Plan (CEMP), which will limit the effects on human health with regards to traffic, noise, air, dust, access, and visual amenity. The residual impact of the construction phase with proposed mitigation measures in place is predicted to be temporary, imperceptible, negative. Temporary positive impacts are expected during construction as a result of indirect employment via related services during the construction phase.

Once the scheme is operational the impacts are expected to be long term positive making Mountmellick more desirable residential and economic area due to the protection from flooding provided by the scheme. A maintenance and monitoring schedule will be put in place to verify that the proposed flood defences are operating to the appropriate design standard. Repairs will be made as necessary. This will ensure that there is no risk to human health as the scheme ages. The proposed FRS has been designed so that guarding heights are at an appropriate level (1.20m) along flood defence walls, and that embankments are sloped gently, to ensure that there is no risk of injury arising from typical use of quay walls and embankments. The residual impact to population and human health during the operation of the scheme is predicted to be Positive, with Long Term effects.

7 Biodiversity

This chapter assesses the impacts of the proposed FRS on biodiversity during the construction and operation phases. It provides an overview of the assessment and field methodologies; receiving ecological environment; a description of the nature and scale of any potential significant direct or indirect impacts; and any necessary mitigation and biodiversity enhancement measures recommended as part of this Environmental Impact Assessment Report (EIAR).

Part of the proposed Scheme is located within the boundary of the River Barrow and River Nore SAC and ecological receptors within the study area can be strongly linked to the water environment and hydromorphological factors, and this chapter assesses inter-relationships between these aspects. A Natura Impact Statement (NIS) has been carried out for this proposed Scheme and addresses relevant information for the Natura 2000 sites. The ecological receptors identified during the walkover surveys and from desk-based assessments were reviewed. The value of designated sites, habitats and species populations was assessed in reference to their importance in biodiversity conservation value, social and economic benefit that species that habitats deliver.

Various ecological surveys were performed by JBA ecologist to identify species and habitats. From these surveys, the following were identified:

- Terrestrial mammals: Otter in the vicinity of the FRS;
- Other mammals were recorded 10 km of the scheme area: European Hedgehog, Pygmy Shrew, Red Squirrell;
- Sensitive bat species:

The key locations of importance that bats may use for commuting and foraging along the study area include watercourses, treelines, hedgerows, areas of woodland, scrub, and scattered trees, while there were some bat boxes observed on Poplar trees next to the children's playground during the ecological walkover. Following a bat emergence survey of the Owenass Bridge, it was deemed that the bats do not currently use the bridge for roosting.

Ecological receptors were screened for assessment. Impacts have been identified on ecological features of international, national and local level that are posed during construction and operation and include potential disturbance on the Annex 1 protected habitats and species:

The key construction phase impacts are:

- Habitat loss/disturbance;
- Habitat degradation;
- Disturbance to faunal species;
- Impacts on water quality;
- Release of dust (impacting habitats and water quality);
- Spread of invasive non-native species

Considering the above, the impacts from construction for each ecological feature are provided in the table below:

Table 2 Summary of assessment of effects to local ecological receptors resulting from the construction phase

Ecological Feature	Value	Impacts from Construction	Effect without Mitigation
Stone walls and other stonework (BL1)	High Local	Dismantling of the wall between Mountmellick Bridge to Convent Bridge	Permanent negative effect of moderate significance due to the loss of this locally high value habitat
Other artificial lakes and	High Local	Pollutant infiltration into the pond	Short-term temporary

Ecological Feature	Value	Impacts from Construction	Effect without Mitigation
ponds (FL8)		through embankment works near Irishtown Garden Centre	effect of moderate significance due to deterioration of water quality from pollutants
Depositing / Lowland rivers (FW2)	County level	Pollutant infiltration throughout the scheme and in-stream works at identified locations	Short-term temporary effect of moderate significance due to deterioration of water quality from pollutants
Depositing lowland rivers / Drainage ditches (FW2)	High Local	Pollutant infiltration throughout the scheme and in-stream works at identified locations Improper realignment of the Clontygar Stream	Short-term temporary effect of moderate significance due to deterioration of water quality from pollutants Permanent negative effect of moderate significance due to improper realignment of the Clontygar Stream
Drainage ditches (FW4)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat	Short-term temporary effect of moderate significance due to deterioration of water quality from pollutants
Mosaic: Improved agricultural grassland, Scrub (GA1/WS1)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat	Short-term temporary effect of slight significance due to direct habitat damage or pollutant infiltration
Dry meadows and grassy verges (GS2)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat Direct habitat loss on a local scale	Short-term temporary effect of slight significance due to direct habitat damage or pollutant infiltration
Dry meadows and grassy verges, Scrub (GS2/WS1)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat	Short-term temporary effect of slight significance due to direct habitat damage or pollutant infiltration
(Mixed) broadleaved woodland (WD1)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select areas to accommodate works	Short-term temporary effect of slight significance due to the mechanical damage or destruction of habitat during works
Mixed broadleaved / conifer woodland (WD2)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select areas to accommodate works	Short-term temporary effect of slight significance due to the mechanical damage or destruction of habitat during works
Hedgerows (WL1)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select areas to accommodate works	Short-term temporary effect of slight significance due to direct habitat removal and potential pollutant spill
Mosaic: Hedgerows / Scrub (WL1 / WS1)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select	Short-term temporary effect of slight significance due to direct habitat removal and potential pollutant spill

Ecological Feature	Value	Impacts from Construction	Effect without Mitigation
		areas to accommodate works	
Treelines (WL2)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select areas to accommodate works	Short-term temporary effect of slight significance due to direct habitat removal and potential pollutant spill
Wet willow-alder-ash woodland (WN6)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select areas to accommodate works	Short-term temporary effect of slight significance due to direct habitat removal and potential pollutant spill
Scrub (WS1)	High Local	The spread of dust, excavation material and pollutants from works throughout the site in the vicinity of this habitat. Direct removal of vegetation in select areas to accommodate works	Short-term temporary effect of slight significance due to direct habitat removal and potential pollutant spill
Mammals – Badger, Hedgehog, Pygmy Shrew, Red Squirrel, Pine Marten	High Local	Localised hedge and tree removal Accidental introduction of pollutants into the habitats utilised by local mammal populations, reducing their ability to provide refuge, safe commuting routes and foraging opportunities. Physical, visual, and audible disturbance from construction works. Accidental entrapment and/or injuries caused by on-site machinery or supplies.	Short-term, slight negative effect due to disruption of activity from habitat deterioration or entrapment
Otter	International	Habitat degradation Accidental introduction of pollutants into the habitats utilised by local mammal populations, reducing their ability to provide refuge, safe commuting routes and foraging opportunities. Physical, visual, and audible disturbance from construction works. Accidental entrapment and/or injuries caused by on-site machinery or supplies. Disruption of Otter sprainting sites	Short-term, slight negative effect due to disruption of activity from habitat deterioration, species entrapment, enaction of in-stream works
Bats	County	Localised tree and hedge removal Accidental introduction of pollutants into the habitats utilised by local bat populations, reducing their ability to provide refuge, safe commuting routes and foraging opportunities. Physical, visual, and audible disturbance from construction works.	Short-term, slight negative effect due to reduction of commuting and foraging potential

Ecological Feature	Value	Impacts from Construction	Effect without Mitigation
Breeding and Wintering Birds	High Local	Accidental introduction of pollutants into the habitats utilised by local bird populations, reducing their ability to provide refuge, nesting, and foraging opportunities. Physical, visual, and audible disturbance from construction works.	Short-term, slight negative effect due to disruption of activity from habitat deterioration
Amphibians	High Local	Accidental introduction of pollutants into the pond habitat, degrading its condition and its ability to support the protected species associated with the habitat on site.	Short-term, slight negative effect due to disruption of activity from habitat deterioration
Terrestrial Invertebrates	High Local	Direct removal or accidental introduction of pollutants into the habitats utilised by terrestrial invertebrates, reducing their foraging opportunities.	Short-term, slight negative effect due to disruption of activity from habitat deterioration
Fish: Eel, Lamprey, Salmon, Crayfish	County	Habitat degradation Species foraging, commuting, and breeding disruption (in-stream works) Accidental introduction of pollutants into the habitat, degrading its condition and its ability to support the protected species associated with the habitat on site and downstream.	Short-term, slight negative effect due to disruption of activity from habitat deterioration, species entrapment, enaction of in-stream works

During the operational phase there are expected some positive impacts in water quality due to the protection from flood risk reducing the likelihood of pollutants being washed and ending up in the watercourses as the water recedes. The defences will include mammal passes to not restrict Otter traversal for the area, therefore no negative operational effects are expected.

A summary of operational impacts is provided in the table below.

Table 3 Operational impacts on ecological receptors

Ecological Feature	Value	Effect from Operation	Effect without Mitigation
Stone walls and other stonework (BL1)	High Local	Short term, negative effect after the reinstatement of wall plants to reestablish	n/a
Other artificial lakes and ponds (FL8)	High Local	No effect during operational phase	n/a
Depositing lowland rivers / Drainage ditches (FW2)	High level	No effect during operational phase	n/a
Drainage ditches (FW4)	High Local	No effect during operational phase	n/a
Drainage ditches (FW4)	High Local	No effect during operational phase	n/a
Mosaic: Improved agricultural grassland, Scrub (GA1/WS1)	High Local	No effect during operational phase	n/a
Dry meadows and grassy verges (GS2)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Dry meadows and grassy verges, Scrub (GS2/WS1)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
(Mixed) broadleaved woodland (WD1)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect

Ecological Feature	Value	Effect from Operation	Effect without Mitigation
Mixed broadleaved / conifer woodland (WD2)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Hedgerows (WL1)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Mosaic: Hedgerows / Scrub (WL1 / WS1)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Treelines (WL2)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Wet willow-alder-ash woodland (WN6)	Low Regional	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Scrub (WS1)	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Mammals – Badger, Hedgehog, Pygmy Shrew, Red Squirrel, Pine Marten	High Local	Deteriorated through vehicular access and potential maintenance works causing occasional short term habitat degradation.	Short term, slight negative effect
Mammals - Otter	International	In built design of an Otter pass on Owenass Bridge will prevent any effects during operation phase	Neutral. In build mitigation
Bats	County	Deteriorated and depleted resources for bats through vehicular access for maintenance	Short-term, slight negative effect
Breeding & Wintering Birds	High Local	Deteriorated and depleted resources for birds through vehicular access for maintenance	Short-term, slight negative effect
Amphibians	High Local	No effect during operational phase	n/a
Terrestrial Invertebrates	High Local	Deteriorated and depleted resources for terrestrial invertebrates through vehicular access for maintenance	Short-term, slight negative effect
Fish: Eel	County	No effect during operational phase	n/a

Mitigation measures during construction phase include standard environment best practice, outlined in the Construction and Environmental Management Plan and Construction Method Statement, including measure to reduce siltation, pollution and any accidental spill. A surface water management plan will be developed to protect surface water and ground water. Also, a Pollution Control and Dust Management Plan will be in place to reduce air pollution. Details of these plans are provided in the Chapter 7 of the EIAR, Section 7.10 – Mitigation. Preparation works to protect trees and hedgerows are set in the Arboricultural Impact Assessment outlining the methodology required to protect local trees. Details are provided in Chapter 7 of the EIAR. Regarding scheduled tree removals, it will take place in September-October, a time outside the breeding bird and summer mammal season and mammal hibernation. Other mitigation measures to protect the wildlife include limiting working hours during daylight, to avoid using lighting at night, maintaining clean site, and cover of any excavation during night and cupping pipes. Biosecurity measures include fencing off/demarcating invasive non-native species, communicating the location, risk and hazards associated with invasive non-native species to construction personnel, identifying dedicated access points into and out of fenced-off areas, the installation of designated decontamination facilities (where appropriate), protocols around the storage of infested soils, and the checking of boots, tyres, and tracks before they enter the works site. Removal of Three-cornered Garlic invasive species) can be done by either physical control or chemical control and it is recommended that this is done either through digging up the root network, or the application of herbicide.

During operation phase mitigation measures include reseeding of grass, and replacement of any tree removed if damaged with native plant species. Also bat and bird boxes are considered to enhance the site for local bats and birds. Details on the bat boxes installation are provided in the Biodiversity Chapter of the EIAR (Volume 2).

Monitoring of mitigation measures will be in place prior, during and for at least 5 years post construction, to assess the measures performance. Compensation of trees during operational phase will reduce residual impacts to slight - negligible. No other residual impacts are anticipated. A summary of potential impacts on the important ecological receptors, mitigation measure employed, and significance of residual impacts during construction and operational phases of the scheme are provided in Table 7-18 in Chapter 7 of the EIAR (Volume 2).

8 Land and Soil

The potential effects on land, soil, and geology during the construction and operational phases of the proposed development have been assessed in this chapter. This assessment is based on a desktop study, site visits, and site investigations conducted by PGL. The assessment methodology adheres to the EPA (2022) Guidelines and follows the guidance set out in the Institute of Geologists of Ireland (IGI) Guidelines for the Preparation of Soils, Geology, and Hydrogeology Chapters of Environmental Impact Statements (2013).

The desktop study and ground investigation revealed that Mountmellick is underlain by dark muddy limestone and shale. A band of massive, unbedded limestones lies to the east and a narrow vein of sandstone, mudstone and thin limestone lies to the west. Subsoil is predominantly limestone till (carboniferous), alluvium along the Owenass River, [random soil association], peat, and made ground. A thick vein of basic esker sands and gravels is mapped from the north along the eastern edge of the proposed scheme which becomes the county geological heritage site of the Ridge of Portlaoise further south. Site investigations showed poor stability of the ground throughout the site area.

The land use in Mountmellick is characterized by compact development in the town centre, with radial expansion along major roads. The northeastern areas saw urban and residential growth between 1990 and 2006, with little change since. The eastern part of the town consists of discontinuous urban fabric adjacent to pastures and small areas of non-irrigated arable land. Surrounding the town, especially to the south and west, the land is primarily pasture, dotted with rural dwellings.

Mitigation measures including the preparation of a Construction Environmental Management Plan (CEMP) which encompasses a Soil Management Programme, are outlined in Chapter 8 of the EIAR main report. These measures cover:

- Safe storage of soil stockpiles, oils, and fuels;
- Prevention of spills and leaks;
- Safe pouring of concrete; and
- Temporary pathways and roads to allow the movement of heavy machinery and avoid soil compaction

The mitigation measures also outline that the contractor must carry out a waste characterization of soil material to be taken off site for disposal, which will include a waste acceptance criteria (WAC) analysis and measurement of asbestos levels.

Immediately after construction, the proposed embankments will have silt fences in place until the soil on the banks has stabilized, and grass has taken root. This is to mitigate sediment flush during rain events.

During construction mitigation measures will be monitored to assess their performance and ensure works are delivered in the appropriate way, during operation no underlying geological environment impacts are not anticipated so no further monitoring is required.

With the proposed mitigation measures in place, the residual impacts to land and soil, during construction will be reduced to short-term slight negative to imperceptible.

9 Water – Surface and Groundwater

The potential effects on surface water and groundwater during the construction and operational phases of the proposed development are assessed in this chapter. This assessment is based on a desktop study, a site visit, and a review of the proposed development details. The assessment methodology adheres to the EPA's 2022 Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

The existing environment at the site was noted during the site walkover and desktop studies. The proposed site lies just south of the River Barrow, with the River Owenass and several other Barrow tributaries in the area. The waterbodies in the study area are of high importance due to the designation of the River Nore and River Barrow as Special Areas of Conservation. The catchments comprising the area have a Moderate (Owenass, Barrow) and Poor (Triogue) WFD status. Biological assessment was carried out for the purpose of this report in 5 sampling locations showing Good status downstream Owenass Bridge and Mountmellick Bridge. The hydro geomorphological condition of the Owenass sub-basin is generally good, with a balanced sediment regime and some areas of hydraulic diversity. However, modifications such as channelization, bank protection, and drainage inputs affect certain sections. Important salmonid spawning habitats exist, and despite historical changes, the river maintains a healthy flow and sediment balance.

The groundwater body underlying the area is the Portlaoise GWB and has a Good WFD status. The aquifer beneath the FRS area has a local importance.

Construction activities have the potential to negatively impact the surface waterbodies via increased silt and sediment runoff, groundwater pumping, instream works and accidental spills and leaks from chemicals such as hydrocarbons and lubricants. These pollutants could reach the River Owenass and its tributaries via overland drainage or surface water drainage. Changes to runoff and flow pathways could also occur due to excavation activities during construction. A summary of these impacts is provided in Table 9-4 in the Water Chapter.

Construction works will be carried out in accordance with the CEMP. The CEMP includes standard best practice guidance for the protection of water quality, and specific mitigation measures such as the control, treatment and monitoring of surface water runoff, and pollution prevention measures, such as bunding, spill management and inspection procedures.

Highest impacts in hydromorphology are expected due to culverting, because of the potential interaction of the structure with downstream sediment dynamics. These are expected to be significant negative at the reach scale (as defined in Figure 4). Potential positive impacts for hydromorphology are expected as well due to habitat enhancement provided by the scheme through instream and minor floodplain works to improve habitat diversity in the channel throughout the scheme and meandering of the realigned Clontygar Stream.

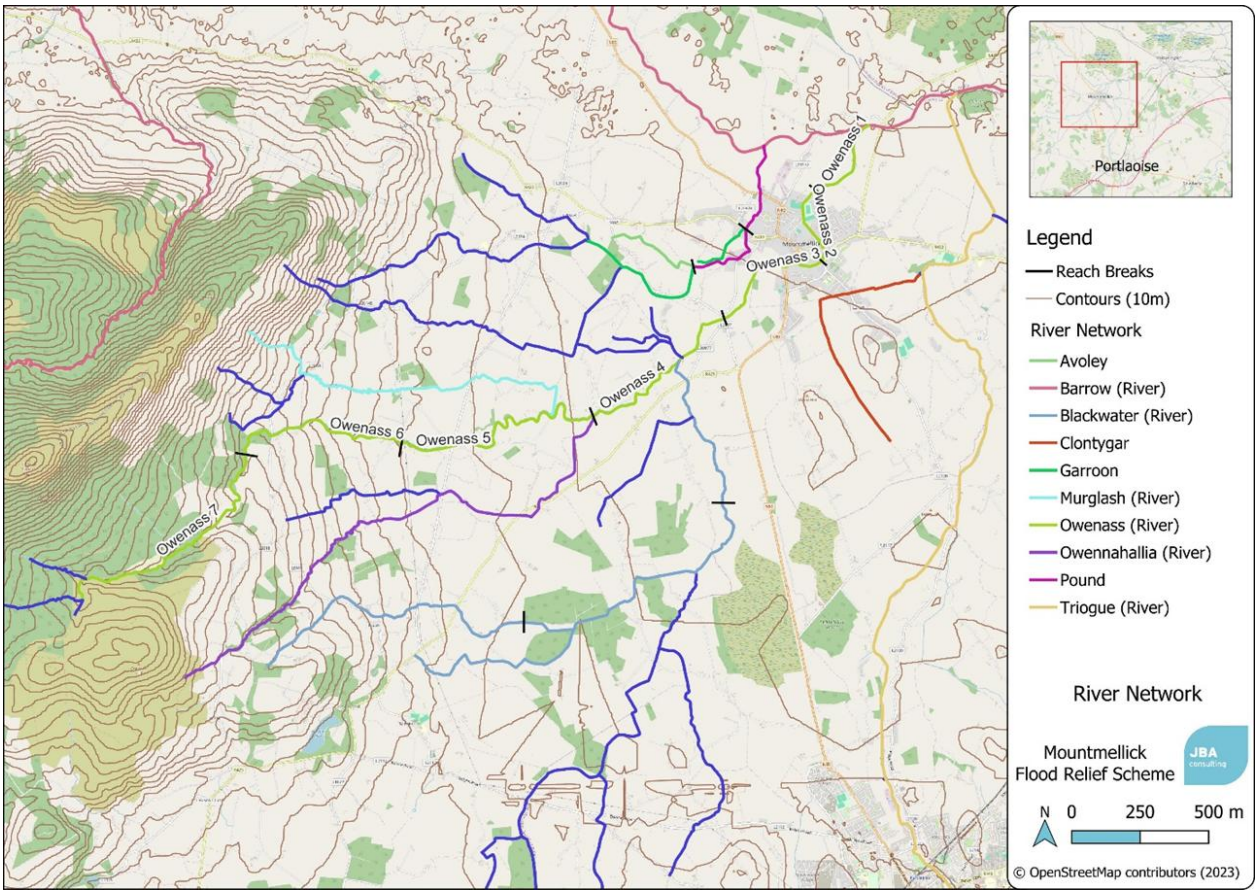

Figure 4: River network in Flood Relief Scheme area

During construction, with the proposed mitigation measures in place, the residual impacts to surface water and groundwater bodies will be reduced to temporary, slight negative to imperceptible.

During the operation phase of the project, the residual impact will be long-term and slight, with a neutral impact on the quality of surface and groundwater bodies.

10 Cultural Heritage

An assessment of potential effects to cultural heritage from the proposed FRS was undertaken by Courtney Deery Heritage Consultancy Ltd. The assessment was based on a desk-study, with a detailed documentary and cartographical review. This was supported by a site inspection, an underwater wade and metal detection survey and a geophysical survey.

The Flood Relief Scheme (FRS) study area is centred on the post-medieval town of Mountmellick and its hinterland. The constraints study and options study (O' Brien 2019[5]; 2022[6]) for the FRS scheme examined the designated cultural heritage sites within this area and beyond as the assessment developed. The study area for the EIAR assessment is 100m from the planning application boundary. Using data from initial stages of the FRS, this report considers sites and their settings within 100 meters of the proposed flood measures; these sites are discussed in the context of the cultural heritage environment to understand and characterise the character, context and significance of the archaeological, architectural and cultural heritage environment that falls within and surrounding the proposed FRS. Undesignated cultural heritage features in the immediate vicinity of the flood measures are also examined.

Mountmellick is recorded in the Record of Monuments and Places (RMP) as an historic town (RMP LA008-032) and one of the proposed flood walls touches the edge of the Zone of Notification (ZoN) for this post-medieval town. In addition to the recorded monuments, nine discrete areas of archaeological potential (AP1-AP9) have been identified where flood relief measures are proposed. These relate predominantly to the archaeological potential associated with riverine environments, but other features such as townland boundaries, former structures and the railway line etc. are also evident within some of these sites. Ground reduction works have the potential to impact these sites. Three potential archaeological sites were identified during the geophysical survey, a ring of pits/post holes (GS1, in the Manor Road measure), two anomalous features (GS2 and GS3, in the Clontygar and Davitt Road measure and the Upstream from Owenass measure). Their exact nature is unknown, and they will be subject to archaeological test excavation.

Three sites listed on the industrial heritage survey for which there are no upstanding remains are considered as archaeological sites. They comprise the now demolished Irishtown Bridge (LAIAR-0008-021), a former mill (LAIAR-008-070) (north of the river where the present-day convent is) and a former brewery (LAIAR-008-054). An underwater wade survey of Irishtown Bridge did not reveal any features associated with the bridge or the mill site.

Two additional sites from the Industrial Heritage Survey are assessed as built heritage features. They comprise the former Manor Mills (LAIAR-007-002) and Owenass Bridge (LAIAR-007-004). There will be a not significant negative visual effect from an embankment at the rear of Manor Mills. Modelling indicates that the flood relief measures would result in a change in water levels at Owenass Bridge such that the 100-year flood event would cause the water levels to rise above the level of the arch. It will therefore be necessary to replace this structure, resulting in a moderate negative effect. The form of the proposed bridge at Owenass should be followed as far as practical and the new structure should be refaced in reused stone, in particular the arch voussoirs. This will ensure that the new bridge will blend into the receiving agricultural environment.

While there is no Architectural Conservation Area (ACA) for Mountmellick at present, it is proposed to introduce one, and parts of the flood relief measures will fall inside the proposed ACA. A cluster of historic structures comprising the Presentation Convent (RPS 001), St. Joseph's Church (RPS 002) and Convent

[5] O' Brien, Y. (2020) 'Mountmellick Flood Relief Scheme, Mountmellick, Co. Laois. Cultural Heritage Constraints Study'. Unpublished report: Courtney Deery Heritage Consultancy Ltd. For JBA Consulting on behalf of Laois County Council.

[6] O' Brien, Y. (2023) 'Cultural Heritage Options Assessment Report. Mountmellick Flood Relief Scheme, Co. Laois'. Unpublished report: Courtney Deery Heritage Consultancy Ltd. For JBA Consulting on behalf of Laois County Council.

Bridge (RPS 701) are best viewed from the east end of the riverwalk on the south bank of the river, as this view captures the historic character of these structures in a way which is not possible from the streetscape. The proposed flood walls are not high enough to block this view, but they will slightly alter it. Overall, the potential impact to the proposed ACA is predicted to be not significant.

There are twenty protected structures and one NIAH only site within 100m of the proposed flood relief measures and these were assessed for impact from the proposed FRS. Potential negative effects were noted at three of these sites. At the railway station (RPS 693) a not significant negative visual effect is predicted. At Convent Bridge, a slight effect is predicted from the visual impact and the tie-in of flood walls into the protected structure. A sculpture (RPS 704) in the Children's Park will have to be relocated as a result of the proposed scheme, resulting in a slight negative effect.

Four undesignated cultural heritage features (CH1-CH4) (refer to Chapter 10 of the EIAR Volume 2) which will be impacted were identified along the proposed flood relief measures. CH1 and CH2 are located between Mountmellick Bridge and Owenass Bridge and comprise a section of wall on the north bank of the River Owenass, and a long boundary wall on the south bank of the river. CH4 is a former mill race on the Garron Stream. It will be necessary to demolish these features as part of the flood relief measures, with negative effects ranging from not significant to moderate.

The construction phase will involve earth moving activities including excavations for the construction of flood walls and embankments, diversion of services and land drains, some temporary diversions of watercourses, tree removal, piling, and the provision of construction compounds and temporary roads. Some instream works will be required due to lack of space in certain areas, and also where Owenass Bridge will be replaced, which will be achieved by way of a cofferdam. Diversions of watercourses are generally temporary using piping, but a section of the Clontygar Stream will be permanently diverted to facilitate flood relief measures. This watercourse has already been canalised and altered.

A Project Archaeologist (PA) will also be retained to advise on the archaeological aspects of the FRS.

Archaeological test excavation is recommended in the to take place across three potential sites identified in the geophysical survey (GS1-GS3) (refer to Appendix 10 of the EIAR Volume 3) to establish their exact nature and extent and significance. In addition, a programme of archaeological testing is also recommended across the footprint of the embankments and compound areas in greenfields where geophysical survey was not possible. Where archaeological features revealed by the test-trenching, are directly impacted by the proposed works and cannot be avoided (preserved in-situ), they will be preserved by record by means of archaeological excavation, recording and publication of results.

All earth moving activities will be subject to archaeological monitoring under licence from the National Monuments Service of the Department of Housing, Local Government and Heritage. Programming will allow for appropriate monitoring and any subsequent mitigation required. This could be in the form of preservation in-situ or full archaeological excavation (preservation by record). An archaeological assessment of dredged/excavated spoil that is removed from riverbeds, streambeds, alluvial environments, and other waterways will be carried out as they can be very rich in archaeological material and objects.

As recommended by the National Built Heritage Unit (NBHS) a project conservation engineer/ conservation architect will be retained during the detail design, construction and reinstatement stages of the FRS scheme.

It is recommended that upstanding features which will be removed as part of the proposed flood relief scheme be fully recorded in advance of construction. This comprises Owenass Bridge (LAIAR-007-004) and stone walls along the River Owenass (CH1, CH2). The record will include a written and photographic record and scaled drawings. This will serve as preservation by record. A record of the sections of property boundary walls to the north of the Owenass river (CH6) and the style (CH4) will also be carried out which will inform their reinstatement once construction is complete under the methodology and specifications of the project conservation engineer.

Where new flood walls are proposed, cladding is proposed on sections of flood wall which are in areas where the built environment merits it, for example the urban environment between the downstream of

Convent Bridge section and the proposed flood wall west of Mountmellick Bridge. The material for the cladding will be salvaged from an existing stone wall which is due to be demolished. This measure will ensure that the impact to the setting and character of the proposed ACA, protected structures and built heritage and character of the riverine area of Mountmellick is eliminated. The cladding will be carried out in accordance with the methodologies and specifications of the project conservation engineer.

A public realm plan will be devised in advance of the construction phase which will ensure effective integration of the flood relief works into the historic townscape and river setting in a manner that seeks to contribute positively to the riverfront taking into consideration the historic and riverine heritage of the scheme area. This must include provisions for the relocation of the standing stone sculpture (RPS 704) in the Children's Park. The channels which link each stone are a part of the sculpture and they must also be reinstated at the new location for the sculpture. It is recommended that the artist, Eileen MacDonagh, be consulted to devise a suitable relocation strategy.

It will be necessary to remove some vegetation in order to facilitate the construction of the flood relief measures. This will contribute to a negative visual effect in some areas as it may remove screening at some cultural heritage receptors. It is also noted that trees in the long gardens facing the River Owenass are a feature of the proposed ACA and their removal may create a negative effect. A programme of tree planting will mitigate against this.

In addition to mitigation measures, the overall effect of the proposed FRS will be a reduction in flood extents, which will have a positive effect on cultural heritage receptors. At present, parts of the proposed ACA and sites such as Presentation Convent (RPS 001), Mountmellick Development Centre (RPS 703), standing stone sculpture (RPS 704), the thatched cottage (RPS 857), Manor Mills (LAIAR-007-002) and Pound Bridge (LAIAR-008-009) are vulnerable to flood events. The flooding of these sites can cause a degradation to these cultural heritage receptors and their setting. The protection of these cultural heritage receptors from flood events serves as a mitigating factor to potential construction phase effects and effects to setting.

All recommendations are subject to approval from the National Monuments Service of the Department of Housing, Local Government and Heritage, and the local authority.

This methodology has ensured that a robust assessment has taken place on all recorded cultural heritage assets within and in proximity to the proposed development and that the likely and significant impacts are considered.

The proposed scheme will not result in any changes to flooding outside of the protected areas and it was consequently not necessary to expand the study area to include areas of redirected floodwater.

11 Landscape and Visual Amenity

The LVIA chapter examines the potential effects of the proposed development on views from receptors including residential properties and nearby open spaces, in terms of visual intrusion and visual obstruction. It also examines the impact on landscape character areas from the permanent physical changes to the site brought about by the development. The chapter was prepared with reference to the EPA's 2022 Guidelines, the 2013 Guidelines for Landscape and Visual Impact Assessment (GLVIA) from the Landscape Institute (UK), and the Limerick Development Plan 2022-2028 Landscape Character Assessment. Additionally, Ordnance Survey Ireland historical maps were used to help identify past land uses, landscape components and historic landscape evolution. The potential impacts have been assessed based on landscape character sensitivity, magnitude of the likely impacts and significance of landscape effects.

A set of photomontages was prepared which contributes to the assessment carried out in this chapter, see photomontage view below showing proposed view from riverwalk looking southwest towards playground. A Zone of Theoretical Visibility (ZTV) map was produced using GIS, proposed heights of structures, and a Digital Terrain Model (DTM).

Regarding the visual amenity there are no protected views designated which could be impacted by the proposed development. Visual amenity is primarily on a local or household scale, with residences in the area enjoying views over the rural landscape and occasionally riparian vegetation along the Owenass River.

Receptor groups were identified in terms of function, such as residential, community, commercial, etc., and were assessed for sensitivity considering distance from the proposed development. For most receptor groups, the impacts expected are slight, negligible, neutral or imperceptible in both construction and operational phases. Moderate impacts are expected due to the mounds of excavated material and onsite construction machinery will contrast with the surrounding rural fields. It will be temporary during construction. A summary of the impacts is provided in Chapter 11 of the EIAR Volume 2.

Mitigation measures include the use of existing stone to finish proposed flood walls, as shown in photomontage above and to clad the replacement of Owneass Bridge. Existing stone will be collected from demolition of existing walls and from demolition of the Owenass Bridge. The proposed development is not expected to significantly reduce the landscape and visual qualities of the area, and no residual impacts are expected.

12 Material Assets

The potential effects on material assets during the construction and operational phases of the proposed development are assessed in this chapter. The material assets include roads, traffic, transport, built services (utilities), and waste management. The assessment methodology adheres to the EPA's Guidelines. The assessment is based on a desktop study. Test trenching will be carried out on site by utility companies to accurately locate services in proximity to the proposed works sites.

Roads, Traffic, and Transport

The existing infrastructure in the Mountmellick area includes;

- M7 Motorway: Located 10.3 km east of the site, connects Mountmellick to Limerick City and Dublin via the N80 and R422.
- N80 Road: Passes through Mountmellick, connecting it to Tullamore (north) and Portlaoise (south).
- R422 Road: Runs east/west, intersecting with the N80, connecting to the R423.
- R423 Road: Runs northeast, connecting Mountmellick to Portarlington (11 km away).
- Local Roads: Main streets in Mountmellick include Chapel Street, Emmett Street, Patrick Street, Market Street, Pearse Street, O'Moore Street, Parnell Street, and Sarsfield Street.
- Bridges: Owenass Bridge (to be replaced), Mountmellick Mill Bridge (parapets to be raised), Convent Bridge (no major works planned).

During construction impacts expected include traffic increase due to the HGV movement and road closures required throughout the scheme and the closure of Owenass Bridge for its replacement. The latest Is expected to have the highest impact from construction, which will be significant temporary, for the duration of the replacement works. Closure at the Grove Park pumping station will require road closure and will have moderate impacts when both lanes are closed. Temporary Moderate impacts on private accesses are expected for residents due to the works upstream Owenass Bridge. Temporary slight impacts are expected in the rest of the scheme from partial road closures.

No negative impacts are anticipated during operation phase. Furthermore, the replaced Owenass Bridge will have a widened road, assisting larger vehicles manoeuvring at the junction, providing permanent positive impacts. Construction vehicles will use designated haul roads, and limits on construction hours will be applied to reduce risk of increased traffic.

With mitigation measures in place, residual impacts on roads, traffic and transport are not expected

Utilities

The existing utilities present and serving Mountmellick, in proximity with the works are:

- Medium-voltage ESB overhead and underground cables: Present across multiple locations, including Midland Steel, Grove Park Pumping Station, Convent Bridge, Mill Bridge, Clontygar Stream, Owenass Bridge, and Manor Road.
- Low-voltage ESB overhead cables: Located at Grove Park Pumping Station, Mill Bridge, and Owenass Bridge.
- Surface water drainage pipes: Found at Midland Steel and throughout Mountmellick, with seven outfalls into the River Owenass and River Pound.
- Water main services: Present near Brock View estate, Convent Bridge, and other areas.
- Telecommunications lines: Found near Convent Bridge and across Owenass Bridge.
- Foul and storm sewers: These follow the road network in Mountmellick, with some exceptions running through greenfield sites.
- Mountmellick Wastewater Treatment Plant (WWTP): Located on the northern edge of Mountmellick, upgraded to an 8,000 PE capacity.
- Pumping stations: Three main stations located at Connolly Street, Irishtown, and Emmett Terrace, each with emergency storm overflow discharging to the Owenass River.

During construction any disruptions to services will be agreed with the relevant service providers and the property owners. The works will include temporary culverting of the remaining existing land drain to allow

temporary working space. Direct impacts are not expected to occur to other utilities, such as Mountmellick WWTW at Bay Road Industrial Estate. Impacts to utilities during construction will be temporary, slight to negligible.

Prior to construction beginning, the appointed contractor will liaise with the relevant utility providers and carry out advance testing in order to identify the precise locations of services on-site. To mitigate impacts on utilities during construction, any disruption of services will be agreed with the relevant service providers and will be communicated in advance to the relevant property owners. No other mitigation measure is needed.
Residual impacts on utilities during construction are negligible. No operational impacts are expected.

Waste management

There is no public waste recycling facility in Mountmellick. The nearest recycling centre is located in Kyletalesha Landfill on the outskirts of Portlaoise town. The refuse collection service is privatised in Co. Laois.

This section also assessed the amount of waste soil expected to be generated by the construction works of the proposed embankments.

The total material to be excavated for creation of the foundations for the proposed embankments will be approximately 77,000m^3, most of this material will need to be disposed of at a licenced soil recovery facility. Albeit if excavated material can be reused a backfill then the volume of material to be disposed of from site will be in the region of 56,000m^3. Seven licenced sites within Co Laois have been sourced that have capacity to received unsuitable material (https://facilityregister.nwcpo.ie/).

Alternatively, the contractor can reuse this material on another site as a by-product while adhering to Article 27 of the EC (Waste Directive) Regulations (2011). This would further reduce the volume of waste generated during excavation. Small volumes of general construction waste will also be generated, typical of construction activities. This will be collected, segregated, and disposed of by licensed waste contractors.

A Resource Waste Management Plan (RWMP) will be produced by the appointed contractor to help manage, reduce, and dispose of waste generated during construction phase. All construction waste will be segregated and removed to an approved location. A key waste reduction strategy will be reuse of material where feasible. The management of all hazardous waste materials, if they occur, will be coordinated in liaison with Health and Safety Management.

With the CEMP and RWMP in place the residual impacts on waste during the construction phase will be temporary, slight negative. No operational impacts on waste are expected.

13 Construction Impacts: Noise/Vibration, Air/Dust, Climate

AONA Environmental Consulting Ltd. was commissioned to assess the construction impacts (air quality and dust, noise and vibration, and climate impact) of the Mountmellick Flood Relief Scheme.

Air Quality and Dust Impact Assessment

The air quality and dust impact assessment has been prepared to assess the potential air quality impact of the FRS on the sensitive receptors in the vicinity of the proposed FRS.

The construction activities of the proposed FRS have been examined to identify those that have the potential to give rise to dust and air pollutant emissions and a suitable construction impact assessment has been undertaken. As appropriate, Construction Phase mitigation measures have been outlined.

The air quality impact assessment was undertaken with reference to Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) & CAFE Directive 2008/50/EC. As prescribed within Environmental Protection UK and the Institute of Air Quality Management, Land-use Planning & Development Control: Planning For Air Quality (January 2017) the proposed FRS has been assessed in accordance with the “Guidance on the Assessment of Dust from Demolition and Construction (IAQM) January 2024 (Version 2.2). This guidance has been referenced to assess the potential impact of the vehicle movements and the earthworks phase of the proposed works. Good practice construction mitigation measures are recommended to be implemented to minimise emission quantities during construction.

Two EPA air quality stations were referenced for this assessment. One located approximately 8km of the Mountmellick FRS and the station at Portlaoise located approximately 8.5 km southeast of the Mountmellick FRS, where Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2), Carbon Monoxide (CO) and Particulate Matter (PM_{10} and $PM_{2.5}$) background concentrations are recorded. The closest national ambient air quality monitoring stations are Station 39- Peoples Park and Station 85- Henry Street, which are both located approximately 10.32 Km south-west of the proposed FRS. The monitored parameters indicate ‘Good’ air quality in the area.

An assessment of the potential impact on air quality during construction has been undertaken. There are more than 200 human receptors within 250m of the boundary of the site and an ecological receptor within 50m of the boundary of the site. Using the IAQM methodology for the assessment of impacts from construction activities, the following is indicated:

- The risk of dust soiling is medium for demolition, earthworks and track-out, and high risk during for construction activities.
- Dust emission risk magnitude for human health is negligible for demolition and low for earthwork, construction and trackout
- Risk to ecological receptors is medium for demolition and earthworks and high for construction and trackout

In accordance with the IAQM Guidance, the highest risk category measures have been applied in the determination of appropriate mitigation measures. Therefore, appropriate recommended construction phase dust mitigation measures, in terms of dust soiling, human health, and ecological impacts, have been recommended. During the construction phase of the project, with the proposed mitigation measures in place, the residual impact to dust soiling, human health, and ecology will be negligible. During operation, impacts on air quality and dust from maintenance are expected to be negligible to the receptors.

Climate Impact Assessment

The climate impact assessment has been prepared to assess the potential impact of increased carbon emissions due to the proposed FRS. The construction activities of the proposed FRS have been examined to identify those that have the potential to give rise to increased carbon emissions and a construction impact assessment has been undertaken.

The assessment and evaluation of the potential climate impact arising from the proposed FRS was based on reference to the relevant Transport Infrastructure Ireland (TII) Publications and TII Carbon Tool. In accordance with the TII Guidelines, the climate impact assessment included a Greenhouse Gas (GHG) Assessment Process to quantify available GHG data using the TII Carbon Assessment Tool.

During the construction phase of the proposed FRS, GHG emissions will potentially be generated by site preparation works, excavation, infilling works, construction activities, energy usage, etc. The Total Greenhouse Gas Emissions due to the construction phase of the proposed Mountmellick Flood Relief Scheme as predicted using the TII Carbon Tool have been compared to the 2022 Annual Carbon Emissions of 69,448.1 kt CO_2 equivalent. The proposed Mountmellick Flood Relief Scheme will account for 0.00248% of annual CO_{2e} emissions. This represents a negligible impact.

During the operational phase, no significant climate impacts will result from carbon emissions. The proposed development will provide tangible benefits in terms of reduced flood impacts, and a reduction in financial loss and disruption. As no significant impacts are expected due to construction, no specific mitigation measures are considered. No specific residual impacts on climate are predicted.

Noise Impact Assessment

The noise impact assessment has been prepared to assess the potential noise and vibration impacts of the proposed FRS on the nearest residential properties and noise sensitive receptors in the vicinity of the proposed FRS.

The construction activities of the proposed FRS have been examined to identify those that have the potential to give rise to noise and vibration and a suitable construction impact assessment has been undertaken. As appropriate, Construction Phase mitigation measures have been outlined.

The noise impact assessment and evaluation of the noise impact arising from the proposed FRS involved the completion of a baseline noise survey at sensitive receiver locations in proximity to the specific areas of the proposed FRS in accordance with suitable guideline methodology. This established the current baseline conditions. The baseline noise measurement data indicates that Mountmellick is a relatively quiet town with passing traffic on the surrounding road network the dominant noise source.

The results of the baseline noise monitoring data indicate that the noise levels at the sensitive receivers in the area of the proposed FRS are broadly in accordance with the World Health Organisation (WHO) *Guidelines for Community Noise*, recommended daytime levels of 50 – 55 dB(A) for outdoor living areas.

There is the potential for temporary and intermittent increases in noise levels during the Construction Phase of the proposed FRS at the nearest residential properties. The worst-case construction noise levels at specific locations in proximity to the expected main areas of construction activity have been predicted using the methods of predicting construction noise levels set out in BS 5228-1:2009+A1:2014. The construction practices that have the potential to produce intermittent and temporary noise impacts include site clearance & excavation, infilling / levelling, wall removal & construction, general construction and road and pathway construction. The construction noise level in the area is predicted 45 - 60 dB $L_{Aeq,}$ during daytime. Based on the expected short-term duration of works at each location there will be a short-term noise impact at the nearest sensitive receivers to the proposed works. In some of the works areas, the predicted worst-case 1-hour construction noise levels may briefly in excess of the recommended maximum noise level of 70 dB L_{Aeq} / 80 dB L_{AMax} at the nearest residential properties. Appropriate construction mitigation measures have been outlined and once implemented, the residual impacts from the construction phase will not be significant. With mitigation measures in place the construction noise impacts will be short-term and will not be significant. Also, while the overall construction activities for the proposed flood relief scheme will occur over several months, the nature of the proposed works and its duration at any one location will mean that noise sensitive receivers will not be exposed to continuous construction noise impact during the construction phase.

Construction vibration impacts have the potential to occur if piling works are undertaken in very close proximity to sensitive receivers. Piling works will occur at Convent Bridge and temporary sheet pile

cofferdams will be needed in order to create a dry working space at 6 other locations. Therefore, there is potential for a noise and vibration impact at nearby properties. Vibration due to the bottom driven mini piling method is <1 mm/s when at a distance in excess of 12m-15m from the piling location. This is based on available information which advises that this is a low noise and vibration method of piling widely used in urban settings. The nearby residents and occupants of adjacent buildings will be made aware of the period of piling works and therefore, will not experience startle or undue surprise from occasional increased noise and vibration levels. As there are no significant mechanical elements such as removable flood defences included in the proposed flood relief scheme, there will be no operational noise and vibration impacts.

14 Interactions

The interactions of environmental effects were considered throughout the design development for the proposed flood relief scheme and adjustment were made to the design of the layout to mitigate impacts arising from these interactions. Interactions between certain environmental aspects are illustrated in Table 14-1 and discussed in the sections below.

Table 4 Summary of environmental impacts interactions

Interaction	Population and Human Health		Biodiversity		Land and Soil		Water		Cultural Heritage		LVIA		Material Assets		Air Quality and Dust		Climate		Noise and Vibration	
	Con	Op.	Con	Op.	Con	Op.	Con	Op.	Con	Op.	Con	Op.	Con	Op.	Con	Op.	Con	Op.	Con	Op.
Population and Human Health			✗	✗	✗	✗	✓ to ✓	✗	✗	✗	✗	✗	✓	✗	✓	✗	✗	✗	✓	✗
Biodiversity					✓	✗	✓ to ✓	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗	✓	✗
Land and Soil							✓	✗	✗	✗	✗	✗	✓	✗	✓	✗	✓ to ✓	✗	✗	✗
Water									✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗
Cultural Heritage											✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
LVIA													✗	✗	✗	✗	✗	✗	✗	✗
Material Assets															✗	✗	✗	✗	✗	✗
Air Quality and Dust																	✗	✗	✗	✗
Climate																			✗	✗
Noise and Vibration																				

Legend to Table 14-1

Con.	Construction Phase	✗	No Interaction	✓	Imperceptible
Op.	Operational Phase	✓	Not Significant	✓	Slight

In terms of residual impact resulting from interactions, with implementation of mitigation measures in place, these interactions are not expected to be significant.

The assessment of the interaction of these effects was assessed to be temporary, with a slight negative to negligible impact during construction.

15 Cumulative Impact

This chapter assesses the potential cumulative effects of the proposed development in combination with other relevant existing, planned and permitted projects. These were assessed to determine whether together they would give rise to significant effects on the environment.

The projects assessed included larger projects in the area with permission durations that overlap the likely construction period of the proposed development. Smaller projects such as house extensions and alterations have been excluded as they are unlikely to have significant impacts, even cumulatively with the proposed FRS.

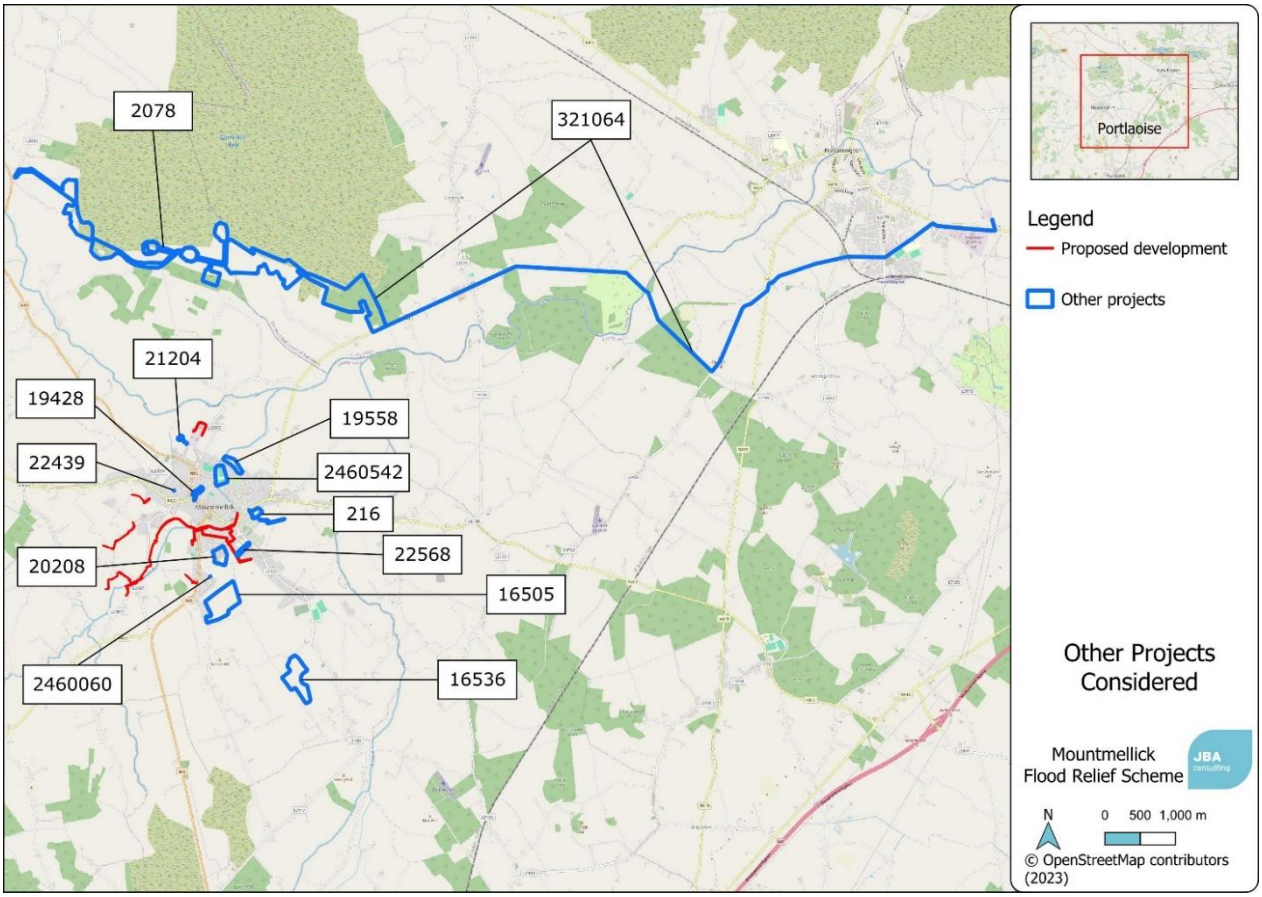

Figure 5: Projects considered for cumulative effects assessment

The projects considered are listed below and shown above in Figure 5.

- Planning reference 321064 at Townlands Barranaghs, Garryhinch, Annamore in County Offaly and Forest Lower, Coolnavarnoga, Coolaghy, Kilbride, Ballymorris, Cooltederry and Bracklone Co. Laois. 1No. 110kV substation with associated compound, including Two (2) single storey control and operational buildings & 10.85km of 110kV underground electrical cabling from the proposed 110kV substation to the consented Bracklone 110kV substation.
- Planning reference 2460060 at Horan Bus Hire, Irishtown Ballycullenbeg, Mountmellick
  Erection of 24m high lattice tower with antennas, dishes, and associated telecommunications equipment, enclosed by security fencing.
- Planning reference 22568 at Davitt Road, Mountmellick, Co. Laois
  Demolition of existing building and construction of 32 two-bedroom apartments, in four two-storey blocks with bin bays, cycle shelters, parking, site entrance, and associated works.
- Planning reference 19558 at Cullenbeg Park, Ballycullenbeg, Mountmellick
  Construction of 70 two-storey houses, including 2 four-bedroom houses, 41 three-bedroom houses, and 27 two-bedroom houses in 16 two-storey blocks, along with associated site works.

- Planning reference 20208 at St Vincent's Hospital, Ballycullenbeg, Mountmellick
  Construction of a new 50-bed unit to replace existing beds, along with support services, site works, and landscaping upgrades.
- Planning reference 21204 at Townparks, Mountmellick, Co. Laois
  Construction of a dwelling house with a detached domestic garage/shed, wastewater treatment system, and associated site works.
- Planning reference 19428 at Patrick Street, Mountmellick, Co. Laois
  Construction of a 62-bedroom two-storey nursing home with 8 two-storey step-down apartments, landscaped gardens, parking areas, service yard, and ancillary works.
- Planning reference 16536 at Acragar, Mountmellick, County Laois
  Erection of a 4.2MVA solar farm comprising photovoltaic panels, inverter/transformer stations, electrical switchroom, security fencing, CCTV, and associated works.
- Planning reference 16505 at Sronagh, Mountmellick, Co. Laois
  A 10-year Solar PV Energy Development with photovoltaic panels, inverter/transformer stations, substations, fencing, CCTV, and ancillary development works.
- Planning reference 216 at Ballycullenbeg, off Harbour Street, Mountmellick
  Development of 54 dwelling units, including terraces and semi-detached houses, site works, entrance creation, drainage, roadways, landscaping, and public utilities.
- Planning reference 22439 at Townparks, Mountmellick, Co.Laois
  Construction of 49 dwelling units with a mix of semi-detached houses, duplex units, refuse storage, bicycle storage, internal roads, and pedestrian links, along with associated site works.
- Planning reference 2078 at Townlands of Dernacart Forest Upper & Forest Lower, Co. Laois
  Construction of up to 8 wind turbines with a tip height of 185 meters, an on-site electrical substation, construction compound, access tracks, meteorological mast, and associated site works.

Summary

Potential impacts were identified for some of the projects and discussed in chapter 15 of the EIAR Volume 2.

Potential cumulate impacts may arise for Roads, Traffic and Transport for one project listed below:

- Planning Ref. 321064

Adverse impacts if the construction works along the R423 overlap with Phase 1 construction of the Mountmellick Flood Relief Scheme. This Phase will be based on the eastern side of Mountmellick town and construction traffic will access site compounds using the R423. Phase 1 is expected to last 12 months.

Potential cumulate impacts also may arise for Air Quality and Dust for project listed below which are close to the proposed flood defence sites:

- Planning Ref: 19558
- Planning Ref: 19428
- Planning Ref: 22439
- Planning Ref: 216
- Planning Ref: 22568
- Planning Ref: 16505

Mitigation measures propose regular liaison meetings with other high risk construction sites. The aim of these is to ensure that plans are coordinated, and dust and particulate matter are minimised.

Offices at:
Dublin
Limerick
Cork
Castlebar

JBA Registered Office
24 Grove Island
Corbally, Limerick
Ireland
+353 61 345463
info@jbaconsulting.ie
www.jbaconsulting.ie