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1 Introduction and Background

Kilkenny County Council (KCC), in collaboration with the Office of Public Works (the funding authority for the scheme), intends to undertake engineering works along the Ballyhale River and its tributaries with the objective of minimising the risk of flooding in the village of Ballyhale in County Kilkenny.

The Environmental Impact Assessment Report (EIAR) presents a systematic analysis of the impact of the Proposed Project in relation to the existing environment and follows guidelines published by the Environmental Protection Agency (EPA 2022). The EIAR document is prepared as part of the Environmental Impact Assessment (EIA) process and will be submitted to the Competent Authority (An Bord Pleanála) as part of the planning process for the project.

The proposed works are collectively referred to as The “Ballyhale Flood Relief Scheme”. The terms *proposed development* and *proposed scheme* are used interchangeably in the EIAR to refer to the “Ballyhale Flood Relief Scheme”.

1.1 Proposed Scheme

The proposed works consist of a range of interventions along the watercourse (Ballyhale River) reach. The general intent of the works are to enhance the flow capacity and level of defence through the town so that the design flows can be conveyed through the town without causing property and infrastructure flooding.

The proposed flood relief scheme and associated works, with associated traffic management measures and site works, will protect Ballyhale Village from the 1% AEP event.

The location of the proposed Flood Defence Scheme is located within the town of Ballyhale in the south of County Kilkenny. The proposed flood relief scheme will be located in the electoral division of Ballyhale; and the townlands of: Ballyhale.

Ballyhale is included within the KCC County Development Plan as an Area of Further Assessment for the implementation of a flood relief scheme.

A detailed works description is presented in Chapter 5 and an overview of proposed works is presented below.

- Embankments located upstream of the village to prevent overland flooding.
- Flood wall to western perimeter of “Arrigle View” Property

- A section of new river channel re-connecting all outlets from the Chapel Lane bridge into the western river channel and removing the flow split. This will require excavation of the existing church pedestrian access and replacement via a new pedestrian connection which also serves to form a new bank to the redirected stream.
- Landscaping of eastern river channel to allow for a low flow channel to reflect reduced flow conditions.
- Flood Defences (wall and embankments) between the western channel and the properties at risk on Main St. Lands acquired for these flood defences will be landscaped to provide a riverside walkway/park.
- Removal of one of two existing minor private bridges providing access across the river to a private land parcel.
- Removal of a boundary wall spanning the watercourse.
- The existing weir at the Ballyhale Business Park will be removed allowing the channel gradient to be increased along this section which increases capacity. The existing bridge will be removed and replaced with a 6m wide by 1.2m high precast portal culvert.
- Low flood wall alongside the road opposite Brookfield to prevent out of bank flows emerging onto the road surface.
- Provision of rock ramp to existing weir at Ballyhale Shamrocks access to improve fish pass conditions.
- Channel reprofiling at the existing Main St bridge to improve bridge inlet conditions.
- Provision of additional conveyance capacity to the Main Street Bridge. The additional conveyance will be provided by an additional bridge opening (box culvert) set at high level to provide capacity for extreme flood events.
- Provision of rock ramp to downstream face of the Main Street Bridge to improve fish pass conditions.
- Provision of a temporary construction compound.
- Fencing, accommodation works and all site development and landscaping works.

The layout of the proposed scheme is illustrated in Figure 1-1 below.

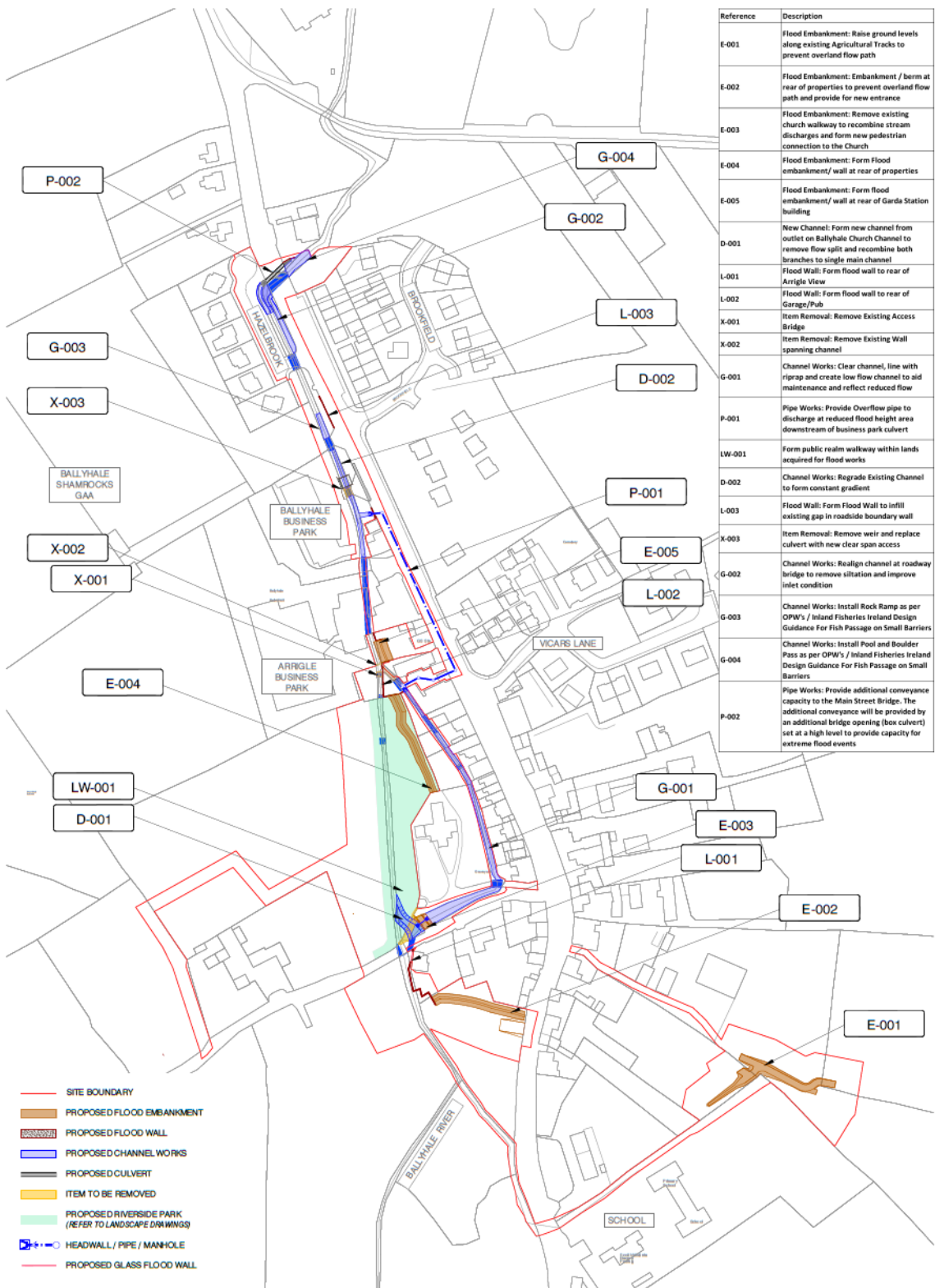


Figure 1-1 - Overview of Scheme Layout

1.1.1 EIA Format

The format used in this EIA document is referred to as the 'grouped format' in that it seeks to enable the reader to readily access the issues of interest to them. The EIA has been divided into the following chapters;

1. Introduction & Background
2. Planning & Policy
3. Consultations
4. Alternatives Considered
5. Description of the Proposed Scheme
6. Biodiversity
7. Water Environment
8. Land and Soils
9. Landscape & Visual
10. Cultural Heritage
11. Population and Human Health
12. Air Quality
13. Noise and Vibration
14. Material Assets
15. Traffic & Transport
16. Interactions
17. Schedule of Environmental Commitments

Each element of the environment is described in a separate chapter generally under the following headings:

- Introduction;
- Assessment Methodology;
- Baseline Environment;
- Predicted Impacts;
- Mitigation Measures;
- Residual Impacts;
- Difficulties Encountered; and
- References.

1.2 EIAR Methodology

1.2.1 Purpose of the Environmental Impact Assessment Report

Environmental Impact Assessment Reports require the assimilation, co-ordination and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. To allow for ease of presentation, and consistency when considering the various environmental factors, a systematic structure is used for the main body of the report.

The EIAR includes an assessment on potential significant environmental impacts (both Direct and Indirect) of the Proposed Project, and highlights the proposed mitigation measures, where applicable.

The principal elements of the EIAR assessment process can be described as follows:

1. Screening
2. Scoping
3. Consideration of Alternatives
4. Project Description
5. Description of Receiving Environment
6. Identification and Assessment of Impacts
7. Monitoring and Mitigation Proposals

1.2.2 Statutory Requirements and Guidance for the Contents of an EIAR

The amended EIA Directive and legislation include requirements around the topics and factors that should be addressed through the EIAR. These matters can then be used to formulate the structure of the report. Article 5(1) of the amended Directive describes what an EIAR is to contain as follows (EPA, 2022).:

The information to be provided by the developer shall include at least:

- a) a description of the project comprising information on the site, design, size and other relevant features of the project;
- b) a description of the likely significant effects of the project on the environment;
- c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;

- d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;
- e) a non-technical summary of the information referred to in points (a) to (d); and
- f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

The EPA 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' May 2022 describe inclusion of the following as good practice in the preparation of an EIAR:

- Key alternatives considered;
- Proposed project;
- Receiving environment;
- Likely significant effects;
- Mitigation and monitoring measures
- residual effects.

A non-technical summary must also be provided.

The receiving environment and the effects of the project can then be explained by reference to its possible effects on the following environmental factors:

- Population and Human Health;
- Biodiversity;
- Land and Soils;
- Water;
- Air;
- Climate;
- Material Assets;
- Cultural Heritage;
- Landscape; and

- Interactions.

Within each of these factors, different specialist topics may be of relevance and included as part of the assessment.

A full list of relevant legislation and guidance is included in the References at the end of this chapter.

1.2.3 General EIAR Methodology

Introduction

The methodology adopted for the preparation of this EIAR comprised a systematic analysis of the impact of the Proposed Project in relation to the existing environment. The overall methodology for preparation of the EIAR is discussed under the following headings;

- Basis for assessment;
- Impact assessment and mitigation; and
- Significance of environmental issues.

Basis for Assessment

The impact assessment examines the existing environmental conditions within the study area for each element of assessment and then determines the potential impacts associated with the Proposed Project during its construction and operational phases.

The study area considered within this EIAR differed for each environmental aspect and extended to incorporate all areas where there was potential for significant impact (i.e. any sensitive areas which could be affected by this development were included in the study area). Further information on the extent of the study area considered for each topic is addressed in the relevant corresponding EIAR chapter.

Impact Assessment and Mitigation

The preparation of the EIAR was an iterative process, linking into the design development process. The approach adopted in the impact assessment and preparation of the EIAR was based on the recommendations in the Guidelines on information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

The proposed design was developed and the potential impacts of the proposal on the receiving environment were identified. Mitigation measures have been considered where necessary and as will be implemented as requirements of the scheme.

Significance of Environmental Issues

The glossaries contained in the Guidelines on the information to be contained in EIAR (EPA, 2022) describes an impact as ‘change resulting from the implementation of project.’

The following factors were considered when determining the significance of the impact (both positive and negative) of the Proposed Project on the receiving environment:

- The quality and sensitivity of the existing/baseline receiving environment;
- The relative importance of the environment in terms of national, regional, county, or local importance;
- The degree to which the quality of the environment is enhanced or impaired;
- The scale of change in terms of land area, number of people impacted, number and population of species affected, including the scale of change resulting from cumulative impacts;
- The consequence of that impact/change occurring;
- The certainty/risk of the impact/change occurring;
- Whether the impact is temporary or permanent; and
- The degree of mitigation that can be achieved.

The criteria outlined in the EPA guidelines have also been followed when quantifying the duration and magnitude of impacts. The quality of the impact is described as ‘negative’, ‘neutral’ or ‘positive’. Particular consideration is also given to whether significant impacts are ‘Direct’ or ‘Indirect’. Further information on the specific methodologies utilised for the assessment of each environmental aspect are included in the relevant EIAR chapters.

Where no impact or a positive impact was predicted to occur, the design of the Proposed Project remained unchanged. Where significant adverse impacts are predicted, mitigation measures are proposed to avoid or minimise impacts. Where feasible, these measures were then incorporated into the design of the Proposed Project.

The Proposed Project presented in the planning application (including the environmental mitigation measures) will be further progressed and refined during the detailed design and construction stages. This includes any mitigation measures contained in such planning permission, as may be granted.

The detailed design and construction will develop the Proposed Project in a manner such that there is no material change in terms of a significant adverse effect on the environment. Opportunities may be identified to further reduce the significance of an adverse effect/impact and, in some cases, improve the residual effect/impact through modifications to the Proposed Project. Such modifications may be identified through detailed design or construction in order to allow for innovations in construction methods, available technology or changes in the existing situation.

Any modification to the Proposed Project will only be possible where there will be no significant change, or where there will be an improvement, in environmental impacts. The final Proposed Project design and construction will have to comply with all relevant statutory approvals.

1.2.4 Consultation Process

Information on all consultation undertaken on the Proposed Project, including a summary of the comments and feedback received, is outlined in Chapter 4 of this EIAR.

1.2.5 EIAR and Design Team

The design team is led by DBFL Consulting Engineers on behalf of KCC.

This EIAR has been prepared by DBFL and various specialist sub-consultants on behalf of KCC which includes the relevant specialists and their qualifications. The list below presents the experts who contributed to the preparation of the report:

Table 1-1 - Experts who contributed to the preparation of the EIAR

Discipline	Company & Author
Biodiversity	Altamar Marine & Environmental Consultancy <i>Bryan Deegan</i> <i>MCIEEM, M.Sc, BSc</i>
Water Environment	DBFL Consulting Engineers <i>John Carr</i> <i>BEng, MSc, C. Eng, MIEI</i>
Land & Soils	DBFL Consulting Engineers <i>John Carr</i> <i>BEng, MSc, C. Eng, MIEI</i>

Landscape & Visual	Cunnane Stratton Reynolds <i>Evelyn Sikora</i> <i>BA MA MILI</i>
Cultural Heritage	Byrne Mullins Associates <i>Martin Byrne</i> <i>BA MA Dip. EIA Mgmt MIAI</i>
Population and Human Health	McCutcheon Halley Planning Consultancy <i>Majella O'Callaghan</i> <i>BA (Hons) Geography and Economics, MSc Urban and Regional Planning and Diploma in Project Management</i> <i>Orla O'Sullivan</i> <i>BSc Hons Architectural Technology, MPlan Planning and Sustainable Development</i>
Air Quality	Aona Environmental <i>Olivia Maguire</i> <i>B.Sc, M.Sc,</i> <i>Mervyn Keegan</i> <i>BSc, M.Sc, MIEMA</i>
Noise and Vibration	Aona Environmental <i>Mervyn Keegan</i> <i>BSc, M.Sc, MIEMA</i>
Material Assets	DBFL Consulting Engineers <i>John Carr</i> <i>BEng, MSc, C. Eng, MIEI</i>
Traffic and Transportation	DBFL Consulting Engineers <i>Mark Kelly</i> <i>BAI, MSc, MA, PGDipPM, CEng</i>

1.3 Background to the Scheme

1.3.1 *Scheme Objectives*

The objective of this project is the identification, design, and submission (for planning consent) of a Flood Relief Scheme, that is technically, socially, environmentally, and economically acceptable, to alleviate the risk of flooding to the community of Ballyhale. Kilkenny County Council is the Contracting Authority and the Client for the Project. The Office of Public Works is providing funding.

1.3.2 *Need for the Scheme*

Ballyhale is within the catchment of the Little Arrigle River which is a tributary of the River Nore. A tributary of the Little Arrigle River called (for the purposes of this assessment) the Ballyhale River flows through the town of Ballyhale. The Ballyhale River enters the village near the church and splits into two channels either side of the church. A number of culverts/bridges are present on the watercourse along its route through the village. After passing through the village the Ballyhale River flows in a north easterly direction for approximately 1km before its confluence with the Little Arrigle River.

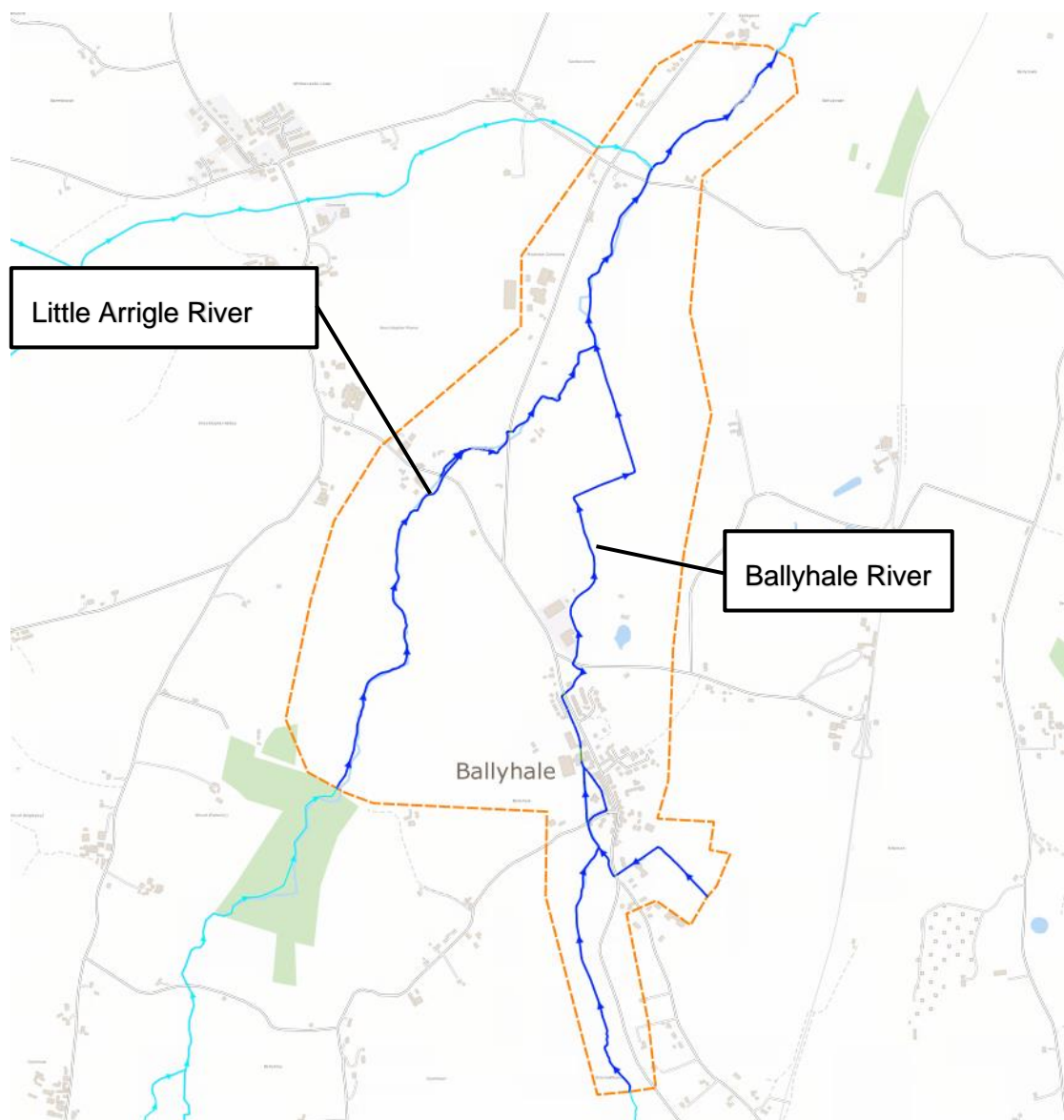


Figure 1-2 Local Watercourses

The Office of Public Works (OPW) commissioned the South Eastern CFRAM study to determine locations in Ireland which may be at risk of flooding. The CFRAM was a regional scale study of Flood Risk which predates the current assessment. This study concluded in 2017 and determined that properties in Ballyhale are at risk of flooding for the current day 1% Annual Exceedance Probability (AEP) event. This led to Ballyhale being approved for funding for a Flood Relief Scheme which involved a detailed study of flooding and constraints in Ballyhale.

Kilkenny County Council have appointed DBFL Consulting Engineers to progress the detailed study and develop a sustainable flood relief scheme for Ballyhale.

The study has confirmed that that properties in Ballyhale are at risk of flooding and found that a total of 27 properties were at risk of flooding during the 1% Annual Exceedance Probability flood event.

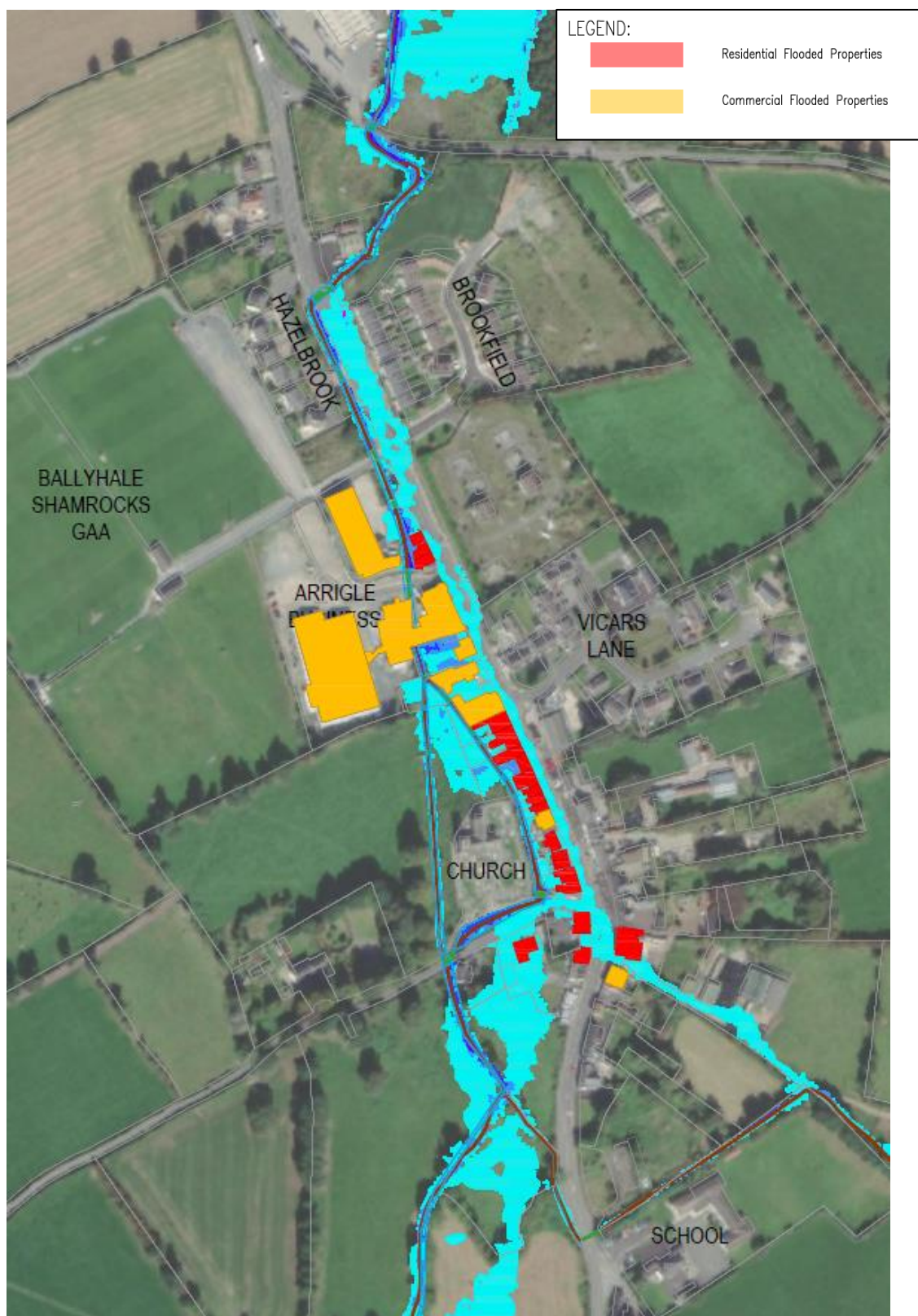


Figure 1-3 Properties subject to Flood Damage Q100 Event

Ballyhale has previously been affected by flooding with significant flood events noted in 1947 and 2000.

This EIAR and supporting Project Documents detail the scheme development and relevant Technical and Environmental Studies undertaken for the proposed scheme.

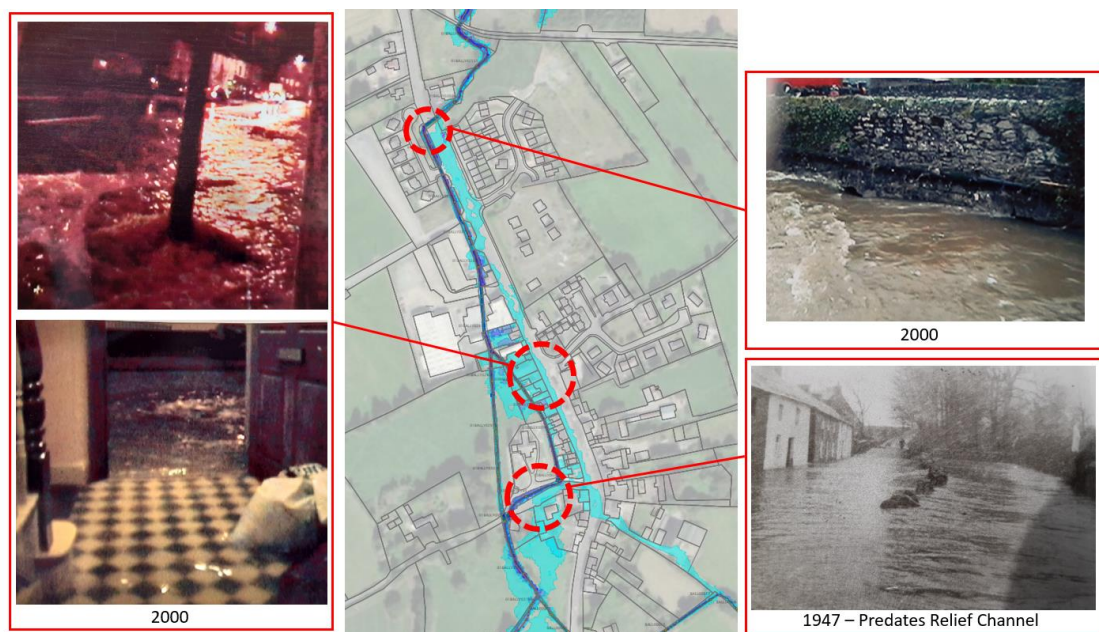


Figure 1-4: Photos of Previous Flood Events in Ballyhale

1.4 What Happens Next

KCC has submitted the relevant documents including this EIAR to An Bord Pleanála for consent. Copies have also been circulated to the relevant prescribed bodies.

The formal adjudication period for the Proposed Project commences when the planning application is lodged to the Board. The planning application will be placed on display for public inspection for a statutory period of at least six weeks from the date of lodgement of the application. Any person may make a submission or observations to An Bord Pleanála, 64 Marlborough Street, Dublin 1 in relation to the application during this period.

A copy of the consent application and each document accompanying the application (including this EIAR) may be inspected, free of charge, during normal office or opening hours at the following location:

- Kilkenny County Council, County Hall, John Street, Kilkenny, R95 A39T; and
- An Bord Pleanála, 64 Marlborough Street, Rotunda, Dublin 1, D01 V902.

All planning documents are also available for download from the KCC website.

The EIAR is also available for inspection at the EIA Portal. This is a central point for notification to the public on all applications for development consent that are subject to an EIA, including development, works or activities, made across the country and under the various legislative codes. The EIA Portal also provides access to these applications and provides a link to the relevant information and documents associated with the application held by the relevant authorities responsible for approving such applications.

Submissions or observations on the application may be made only to An Bord Pleanála and must be accompanied by the appropriate fee of €50 (except for certain prescribed bodies).

1.5 Difficulties Encountered During the Study

Difficulties encountered in the preparation of the EIAR are outlined in each chapter as they relate to the various environmental topics.

The Proposed Project area as with all environments, is ever changing and evolving. In instances where difficulties arise determining what represents baseline conditions, a worst-case scenario is assessed.

1.6 References

- European Union (2017) Environmental Impact Assessment of Projects- Guidance on Screening
- European Union (2017) Environmental Impact Assessment of Projects - Guidance on Scoping
- European Union (2017) Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report
- European Union (2018) The European Union (Planning and Development) (Environmental Impact Assessment) Regulations;
- European Union (1999) European Communities (Environmental Impact Assessment) (Amendment) Regulations (S.I. No. 93 of 1999);
- Irish Statute (2000) The Planning and Development Act (No. 30 of 2000), as amended;
- Irish Statute (2001) Planning and Development Regulations (S.I. No. 600 of 2001) as amended;
- European Commission, (2001) Guidance on EIA – Scoping;
- EPA (2022) Guidelines on preparation of Environmental Impact Assessment Reports;
- Department of the Environment, Community and Local Government (DoECLG), (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment;
- TII (2004) Environmental Assessment and Construction Guidelines;
- EPA (2002) Guidelines on the Information to be contained in Environmental Impact Statements;
- EPA (2003) Advice Notes on Current Practice in the Preparation of Environmental Impact Statements;
- EPA (2015) Draft Revised Guidelines on the Information to be contained in Environmental Impact Statements;
- EPA (2015) Draft Revised Advice Notes on Current Practice in the Preparation of Environmental Impact Statements;
- EPA (2015) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports;
- Department of Housing Planning and Local Government (2018) EIA Portal. Available from:

<https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal>

- Kilkenny County Council – County Development Plan
- South Eastern CFRAM Study - UoM15 Preliminary Options Report
- NATIONAL 'CFRAM' PROGRAMME
- Technical Methodology Note - Option Appraisal and the Multi-Criteria Analysis (MCA) Framework
- NATIONAL 'CFRAM' PROGRAMME - Technical Methodology Note - Cost-Benefit Analysis (CBA)