

# TOBIN

## Proposed Rossinver Wastewater Treatment Plant and Ancillary Works

## Planning Statement and Description of the Proposed Development



**Comhairle Chontae Liatroma**  
**Leitrim County Council**

**BUILT ON KNOWLEDGE**

| Document Control Sheet |                            |
|------------------------|----------------------------|
| Document Reference     | 11896 – Planning Statement |
| Client:                | Leitrim County Council     |
| Project Reference      | 11896                      |

| Rev | Description    | Author | Date       | Reviewer | Date       | Approval | Date       |
|-----|----------------|--------|------------|----------|------------|----------|------------|
| A   | Planning Issue | BG     | 21/06/2024 | BG       | 21/06/2024 | BG       | 21/06/2024 |
|     |                |        |            |          |            |          |            |
|     |                |        |            |          |            |          |            |
|     |                |        |            |          |            |          |            |
|     |                |        |            |          |            |          |            |
|     |                |        |            |          |            |          |            |

**Disclaimer**  
 This Document is Copyright of Patrick J Tobin & Co. Ltd. trading as TOBIN. This document and its contents have been prepared for the sole use of our client. No liability is accepted by TOBIN for the use of this report, or its contents for any other use than for which it was prepared.



## Table of Contents

|     |  |    |
|-----|--|----|
| 1.  | Introduction .....   | 3  |
| 1.1 | Project Objectives.....  | 3  |
| 1.2 | Location .....   | 3  |
| 2.  | Project Description.....   | 5  |
| 2.1 | Overview .....   | 5  |
| 2.2 | Wastewater Treatment Plant .....                                   | 5  |
| 2.3 | Treated Effluent Discharge Pipe and Headwall.....                  | 6  |
| 2.4 | Conversion of a wastewater holding tank to a pumping station ..... | 6  |
| 2.5 | Rising Main Pipeline .....   | 7  |
| 2.6 | Gravity Sewer .....  | 7  |
| 2.7 | Access Road and Site Entrance.....                                 | 7  |
| 2.8 | Flood Storage Basin.....   | 7  |
| 3.  | Planning Context.....  | 8  |
| 3.1 | Leitrim County Development Plan 2023 -2029 .....                   | 8  |
| 3.2 | Planning History .....   | 10 |
| 4.  | Environmental Impacts .....  | 11 |
| 4.1 | EIA Screening.....   | 11 |
| 4.2 | Habitats .....   | 12 |
| 4.3 | Archaeology .....  | 13 |
| 4.4 | Noise.....   | 14 |
| 4.5 | Odour .....  | 14 |
| 4.6 | Visual Impact and Landscape .....                                  | 15 |
| 4.7 | Traffic .....  | 16 |
| 5.  | Drawings.....  | 17 |
| 6.  | Conclusions .....  | 18 |

## Appendices

Appendix A Construction Environmental Management Plan (CEMP)

Appendix B Flood Risk Assessment Report



## 1. INTRODUCTION

### 1.1 PROJECT OBJECTIVES

The objective of this proposed development is to provide a wastewater treatment plant for the village of Rossinver, Co. Leitrim.

At present the only area of the village that has a centralised sewerage system is the area comprising the two Gublaun Estates, to the north of the village.

The sewerage system serving the original six houses at Gublaun (Gublaun 1, on east side of the R282) was installed in 1995, and comprises a foul sewer, a septic tank, pump/sump, rising main and Puraflo peat filter (block construction).

The sewerage system serving the Gublaun 2 estate on the west side of the R282 was installed in 2000, and comprises a foul sewer, pump/sump, short rising main and peat filter (block construction). Problems associated with the Gublaun 1 system were evident from around 2010 onwards and the system was poorly maintained. A number of reports from 2012 onwards recommended that that system be decommissioned, and the load transferred to the Gublaun 2 system across the road. Works took place in 2015 to connect the two systems by gravity.

Operational problems also became evident with the Gublaun 2 system in 2016. In early 2018, a decision was made to tanker sewage away sewage to Manorhamilton WwTP, and since April 2018 the WwTP has not been operational. The tankering away of sewage to Manorhamilton WwTP is a temporary measure and Leitrim County Council are required to find a more sustainable wastewater treatment solution.

### 1.2 LOCATION

Rossinver, Co. Leitrim is located on the R282 in a scenic area in north Leitrim commonly referred to as the Leitrim Glens. The village is located 1.4km south of the south-eastern corner of Lough Melvin, a large lake located partly in the Republic of Ireland and partly in Northern Ireland. Rossinver is some 2.5km from the border with Northern Ireland, the closest town being Garrison, Co. Fermanagh, approximately 4km north-east. Rossinver does not have a defined centre but instead comprises various developments along the R282 over approximately 1.5km.

In 2024 a site was identified for a new wastewater treatment plant to serve the Gublaun Housing Estates and a small number of houses along the R282. Discussion took place with the landowner, who subsequently consented to the planning application on his lands.

The proposed development application site is located immediately west of the R282, and immediately north of the Gublaun 2 Housing Estate. The site for the proposed wastewater treatment plant is not currently connected to the R282 and the proposed development includes an access road to the site through private lands (owned by the same landowner).



The site location is shown on Planning Drawings 11896-2000, and in the image below.

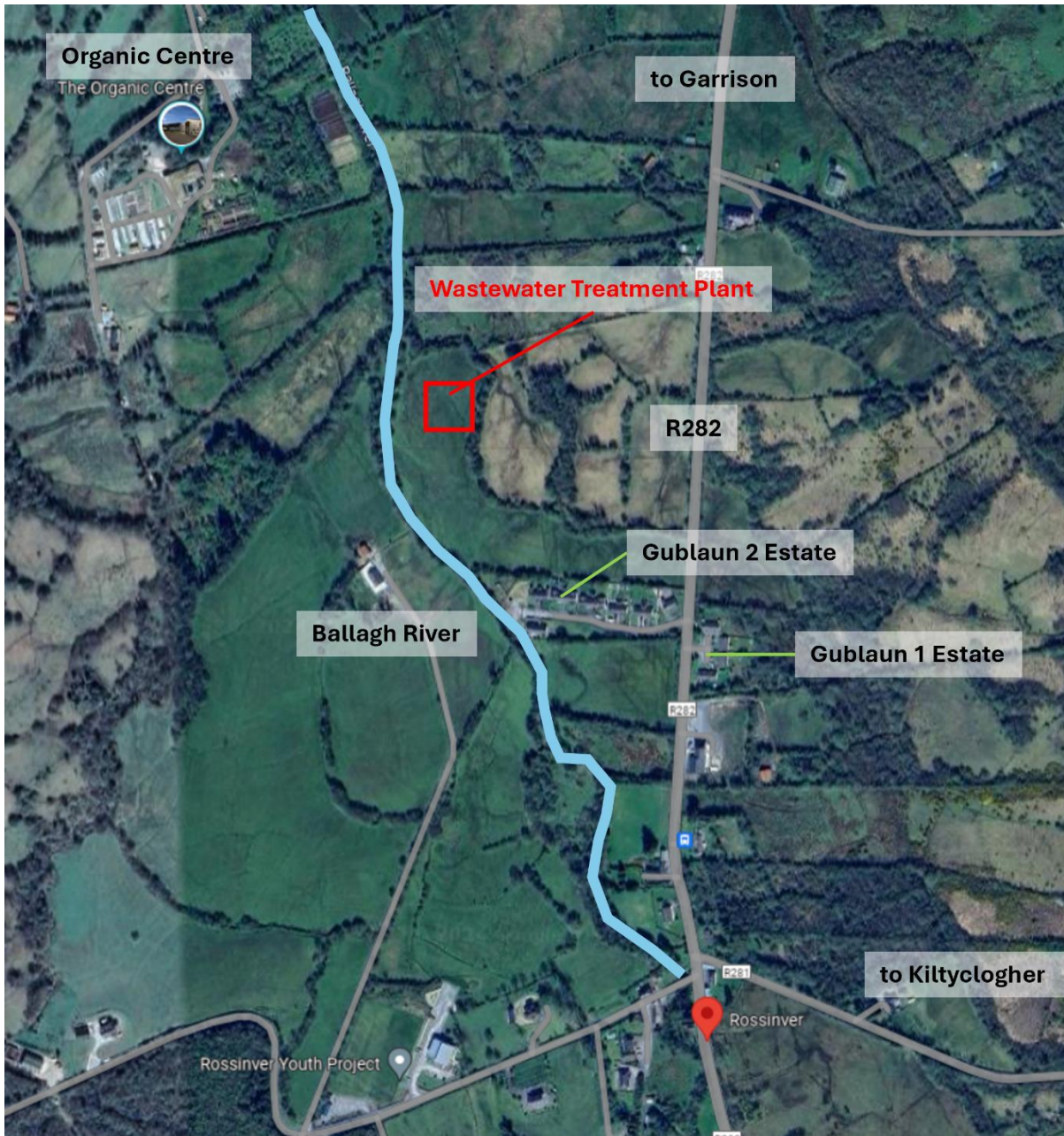


Figure 1-1: Site Location



## 2. PROJECT DESCRIPTION

### 2.1 OVERVIEW

The proposed development comprises the following elements:

- Wastewater Treatment Plant (100 population equivalent), including:
  - Primary settlement tank
  - 2 No. Rotating Biological Contactors (RBC)
  - Final settlement tank
  - Chemical storage tank
  - Sludge picket fence thickener
  - Control kiosk
  - Reed bed (nature based polishing filter)
  - Security fencing and gates
- Conversion of a wastewater holding tank to a pumping station
- Rising main pipeline from the pumping station to the wastewater treatment plant
- Gravity sewer on R282 and through Gublaun Estate (307m long)
- Access road from R282 to the wastewater treatment plant (3.5m wide)
- Flood storage basin

These elements are discussed in more detail below.

### 2.2 WASTEWATER TREATMENT PLANT

The main element of the proposed development is a wastewater treatment plant (WwTP) to provide tertiary treatment for wastewater arising from the Gublaun Estates and 7 existing houses along the R282 between the Gublaun Estate and the Kiltyclogher Road junction.

A design population equivalent (PE) of 100 has been used in the design of the wastewater treatment plant, calculated as follows:

- 6 houses in the Gublaun 1 estate      18 PE
- 13 houses in the Gublaun 2 estate    39 PE
- 7 existing houses along the R282      21 PE
- An additional 7 houses (future)      21 PE

This totals 99 PE, which has been rounded up to 100 PE.

The WwTP has been designed to provide a high level of treatment prior to discharge to the Ballagh River.

The required final effluent standards from Rossinver WwTP have been calculated based on the assimilative capacity of the Ballagh River and the need to maintain High Status in the river, as per the European Union Environmental Objectives (Surface Water) Regulations 2009. The low flow (95%ile flow) in the Ballagh River at the discharge point, based on data at Hydrometric Station Straud (35055) 600m downstream, has been estimated at 0.03m<sup>3</sup>/s and this was used to set appropriate discharge standards.

Given the fishery importance of Lough Melvin (into which the Ballagh River flows), it is proposed to impose stricter discharge limits than those based on the theoretical assimilative capacity of the Ballagh River. The proposed discharge standards for the Rossinver WwTP will therefore be as follows:



- BOD: 20mg/l
- Ammonia: 0.5mg/l
- Ortho-P: 0.3mg/l

These stringent discharge standards dictate the infrastructure proposed in the WwTP, which includes:

#### **Main tanks and process units**

- Primary settlement tank
- 2 No. Rotating Biological Contactors (RBC)
- Final settlement tank

#### **Other tanks and process units**

- Chemical storage tank (ferric sulphate), to achieve phosphorus removal
- Sludge picket fence thickener, to store waste sludge prior to removal from the site

#### **Ancillary works**

- Control kiosk
- Security fencing and gates
- Internal roads
- Surface water drainage and oil interceptor
- Treated effluent discharge pipe and headwall at Ballagh River

#### **Nature based polishing filter**

- Reed bed, comprising a sub-surface horizontal flow gravel-based basin planted with phragmites reeds.

The details for the above elements are shown on Planning Drawings 11896-2001 and 11896-2002.

## **2.3 TREATED EFFLUENT DISCHARGE PIPE AND HEADWALL**

The proposed development includes the construction of a treated effluent discharge pipe from the outlet of the reed bed to the Ballagh River, over a distance of 33m. This pipe will be 225mm in diameter and will terminate at a headwall on the banks of the Ballagh River with an invert level of 29mOD at the discharge point.

## **2.4 CONVERSION OF A WASTEWATER HOLDING TANK TO A PUMPING STATION**

At present wastewater from the two Gublaun estates drains to a holding tank at the western end of Gublaun 2 Estate, from where it is tankered away to Manorhamilton WwTP. This holding tank was previously the pump sump for the old Puraflo wastewater treatment system. It is proposed as part of this development to convert the holding tank back to a pumping station by installing pumps in the chamber, and by pumping wastewater to the WwTP via a 100mm diameter rising main as discussed below.



## 2.5 RISING MAIN PIPELINE

The proposed development includes a rising main pipeline from the repurposed pumping station (described above) to the wastewater treatment plant. This pipeline will be 100mm in diameter and will be constructed through private lands over a distance of 230m.

## 2.6 GRAVITY SEWER

The proposed development includes the construction of a gravity sewer along the R282 over a distance of 307m as far as the junction with the L2107.

This sewer will be 225mm in diameter and will include connections for the seven existing houses along this road. Connecting the foul drainage systems of these houses is not part of the proposed development and will be the responsibility of the householders. The proposed development does facilitate these connections by leaving connection points on the main gravity sewer.

## 2.7 ACCESS ROAD AND SITE ENTRANCE

The proposed development includes a new entrance off the R282. This entrance has been designed to the relevant standards and includes the necessary setback distances as shown on the planning drawings. Agricultural gates will be provided at the entrance as the proposed access road will be shared between Leitrim County Council and the private landowner.

The access road will be 305m in length and 3.5m wide. It will generally run along the northern/eastern boundary of the private lands. The finished surface will be unbound, and it will not be fenced. At the WwTP entrance, a branch of the access road will continue along the eastern boundary of the field to be used by the landowner to access the field to the north.

## 2.8 FLOOD STORAGE BASIN

As discussed in the Flood Risk Assessment (see Appendix B) the area immediately south of the proposed development has experienced historical flooding and a flood berm was constructed by Leitrim County Council in response to flooding in 2016.

A flood model was constructed as part of the Stage 3 Flood Risk Assessment (see Appendix A). This model is inconclusive in relation to the need to include compensatory flood storage. It has been decided to take a conservative approach and include a flood storage basin immediately to the north of the WwTP site.

This flood storage basin has a working volume of 299m<sup>3</sup> and is shown on Planning Drawing 11896-2000.





### 3. PLANNING CONTEXT

#### 3.1 LEITRIM COUNTY DEVELOPMENT PLAN 2023-2029

##### 3.1.1 Overview

The proposed development site lies within the functional area of Leitrim County Council. It is thus subject to the provisions of the Leitrim County Development Plan, 2023-2029. The 2023-2029 Plan came into effect on 21<sup>st</sup> March 2023 and replaced the Leitrim County Development Plan 2015-2023.

The County Development Plan sets out the Council's strategic land use objectives and policies for the overall development of the county up to 2029. The Plan seeks to improve, in a sustainable manner, the social, economic, cultural and environmental assets of the county.

##### 3.1.2 Written Statement

In Volume I (Written Statement), Rossinver is designated as a Tier 4 village, defined as:

*Villages [with] a more limited range of commercial and community services and facilities. These centres have limited capacity to accommodate and sustain a greater proportion of residential growth.*

As a result of this designation, only limited growth has been included for in the design of the proposed wastewater treatment plant (7 additional houses over and above the existing 26 houses).

Volume I also includes a specific Rural Settlement Objective in respect of Rossinver.

*RUR SET OBJ 7 The Planning Authority shall provide a detailed report within one year of this County Development Plan coming into effect identifying all potential sites within villages and possibly graigs that are considered suitable to accommodate low density housing proposals. Where there is an issue in relation to the provision of piped wastewater treatment in villages (Glenfarne, Kilclare and Rossinver) and in graigs, the Council will pursue the resolution of such constraints in conjunction with the Department of Housing, Local Government and Heritage and Irish Water, and seek to explore appropriate funding measures for same.*

The proposed development will assist in the resolution of the wastewater infrastructure constraint listed in respect of Rossinver.

##### 3.1.3 Settlement Plans

Volume II Settlement Plans lists specific objectives for all agglomerations in the county. Rossinver is covered in Section 18 of Volume II, and it is stated that Rossinver is served by a wastewater treatment plant with some capacity to accommodate additional loading. This is obviously a reference to the scenario that existed prior to wastewater being tankered away from Gublaun Estate.

In terms of flood risk in Rossinver, Section 18 states that:

*Based on available evidence, the SFRA has identified lands within the village boundary with a high probability of being liable to flooding. The affected land is located along the*



*Ballagh River and has been designated as Open Space and Amenity or Agriculture with Constrained Land Use.*

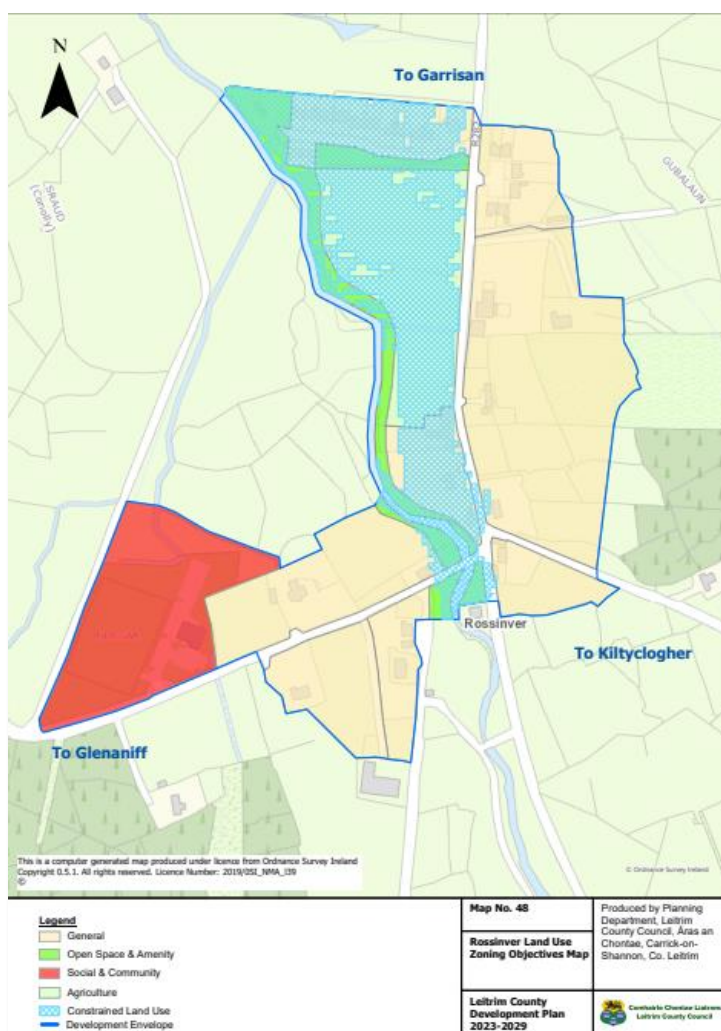
Arising from this flood risk, Development Objective RR4 is set out as follows:

*Ensure applications for development on lands identified as flood risk areas, shall be subject to a Specific Flood Risk Assessment and Justification Test, in accordance with the Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009), or any superseding guidelines and circulars.*

The Site-Specific Flood Risk Assessment included in Appendix B of this Planning Statement addresses this requirement.

### 3.1.4 Land Use Zoning

In terms of land use zoning, the Leitrim County Development Plan 2023-2029 includes land use zoning for the Rossinver area in Map 48 of Volume III and is reproduced below.



**Figure 3-1: Land Use Zoning**

The proposed site for the WwTP lies outside the designated Development Envelope for the village, while the pumping station site and the proposed gravity sewer lies within the Development Envelope but is subject to a Constrained Land Use zoning due to flood risk, as discussed above.



### 3.2 PLANNING HISTORY

At the time of writing, a review of the Leitrim County Council Planning Portal did not indicate any pending planning applications on or close to the lands that are the subject of this application.

The Leitrim County Council Planning Portal shows some historical applications in the immediate vicinity of the subject site, mainly on the lands south and east of the application site as shown below (historical applications shown as blue nodes).

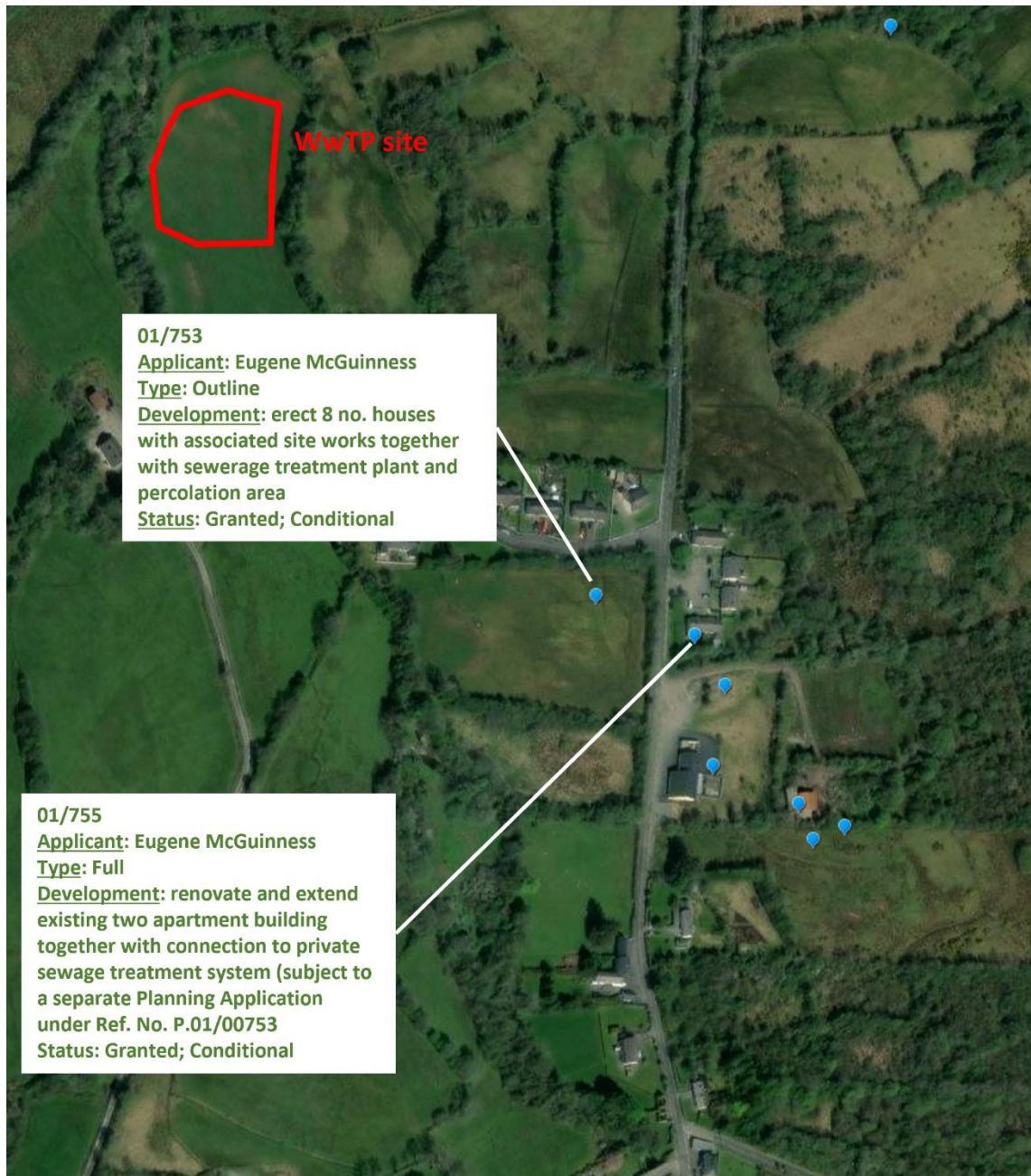


Figure 3-2: Planning History

## 4. ENVIRONMENTAL IMPACTS

### 4.1 EIA SCREENING

Environmental Impact Assessment Screening is done by reference to the criteria set out in Annex III of the EU Directive 2011/92/EU, as amended by Directive 2014/52/EU (“the EIA Directive”) and as transposed into Irish law by Schedule 7 of the Planning and Development Regulations 2001 as amended.

EIA Screening is the stage which ascertains whether there is a real likelihood of significant effects on the environment arising from the proposed development in which event EIA is required under the EIA Directive.

The EIA Screening takes account of the following regulations and guidance documents:

- Planning and Development Acts and Regulations 2000 – 2021;
- EU Directive 2011/92/EU, as amended by Directive 2014/52/EU (the EIA Directive);
- Department of Housing, Planning and Local Government (August 2018) Guidelines for Planning Authorities and An Bord Pleanála on Carrying out EIA (the 2018 Guidelines);
- Environmental Protection Agency (Draft - August 2017) Revised Guidelines on the Information to be contained in Environmental Impact Assessment Reports (the Draft EPA Guidelines);
- European Commission (2017) Environmental Impact assessment of Projects, Guidance on Screening (the EC 2017 Guidance);
- Guidelines issued by the Department of Housing, Planning and Local Government to Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018); and
- Office of the Planning Regulator (“OPR”) Practice Note PN02 on Environmental Impact Assessment Screening (June 2021).

Annex I lists developments for which EIA is mandatory and Annex II lists projects which require a determination of their likely significant effects. Criteria to determine whether a sub-threshold development should be subject to an EIA is set out in Annex III.

These annexes are broadly transposed into Irish legislation under a variety of Acts and Regulations. For the purpose of the proposed upgrade to the Portlaoise Waste Water Treatment Plant, the relevant legislation includes Part 10 of and Schedules 5 – 7A of the Planning and Development Regulations 2001, as amended.

Under Schedule 5 of the Planning and Development Act 2001, as amended, EIA is mandatory for Part 1 developments where thresholds are met or exceeded, but also for Part 2 developments where the national thresholds are met or exceeded. A screening determination is required for all sub-threshold developments for both Part 1, where not covered by Part 2, and for Part 2 developments.

The proposed development has been reviewed against Schedule 5, Part 1, Paragraph 13, Waste Water Treatment Plants with a capacity exceeding 150,000 population equivalent, as defined in Article 2, point (6), of Directive 91/271/EEC and does not meet or exceed the relevant thresholds or criteria, and as such, EIA is not mandatory.

The proposed development has been reviewed against Schedule 5 Part 2 with the following classes of development of relevance for consideration:



- Schedule 5, Part 2, 11 (c) Other Projects: Waste Water Treatment Plants with a capacity greater than 10,000 population equivalent as defined in Article 2, point (6), of Directive 91/271/EEC not included in Part 1 of this Schedule.
- Schedule 5, Part 2, Class 13 (a) Changes, Extensions, development and testing
  - Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would:-
    - Result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule, and
    - Result in an increase in size greater than –
      - 25 per cent, or
      - an amount equal to 50 per cent of the appropriate threshold, whichever is the greater.

Given that this is a new wastewater treatment works with a capacity less than 10,000 PE, a mandatory EIA is not required under Schedule 5, Part 2, 11 (c), and also *Schedule 5, Part 2, Class 13 (a) changes, extensions, development and testing* does not apply.

There is therefore no mandatory requirement for an EIA in respect of this project.

In relation to the requirement for a sub-threshold EIA, the criteria to determine whether a sub-threshold development should be subject to an EIA are set out under Schedule 7 of the Planning and Development Regulations 2001, as amended. Schedule 7A lists information to be provided for the purpose of an EIA Screening. Under Article 103 of the 2001 Planning and Development Regulations, as amended the planning authority can request the submission of an EIA Report, if it is of the view that sub-threshold development would likely result in significant effects on the environment.

## 4.2 HABITATS

The proposed development is situated in close proximity to two designated European sites; Lough Melvin SAC [IE000428] and Arroo Mountain SAC [IE001403] and is upstream of one European site; Donegal Bay SPA [IE004151].

The Appropriate Assessment (AA) process is an assessment of the potential for likely significant effects or negative effects of a plan or project, alone and/or in-combination with other plans or projects, on the conservation objectives of a European site(s). The Natura 2000 network is made up of European sites including Special Protection Areas (SPAs), established under the EU Birds Directive (2009/147/EC) (more generally referred to as the 'Birds Directive') and Special Areas of Conservation (SACs), established under the EU Habitats Directive (92/43/EEC) (more generally referred to as the 'Habitats Directive'). The Natura 2000 network helps provide for the protection and long-term persistence of Europe's most valuable and threatened species and habitats.

The Screening Stage of the AA process identifies any likely significant effects upon European sites from the proposed development alone or in-combination with other projects or plans. A series of questions are asked during the Screening Stage of the AA process to determine:

- whether a plan or project can be excluded from AA requirements because it is directly connected with, or necessary to, the management of a European site; and



- whether the project or plan will have a potentially significant effect on a European site, either alone and/or in-combination with other projects or plans, in view of the site's conservation objectives, or if residual uncertainty exists regarding potential impacts.

An AA Screening Report and Natura Impact Statement was prepared for the proposed development and accompanies this planning application.

### 4.3 ARCHAEOLOGY

A desktop assessment of protected monuments and structures was undertaken.

Archaeological monuments and protected structures are listed on:

[www.maps.archaeology.ie/historicenvironment](http://www.maps.archaeology.ie/historicenvironment). These monuments and protected structures are also listed in Volume IV of the Leitrim County Development Plan 2023-2029. This assessment concluded that there are no recorded archaeological monuments in the general vicinity of the development, and three protected structures in the general vicinity of the proposed development, as shown on the image below.



Figure 4-1: Protected Structures

All of these protected structures are remote from the main works area at the WwTP. The Rossinver Post Office is adjacent to the proposed 225mm diameter gravity sewer on the R282 and the appropriate construction mitigation measures will be employed to protect that structure.

#### 4.4 NOISE

During the operational phase there will be a slight increase in noise levels compared to the current situation resulting from new pumps and motors. The wastewater treatment units being proposed as part of this development will be designed to ensure the following maximum noise levels at the boundary of the site:

- Day time (08:00 to 22:00 hrs): 55 dB(A) (Leq, 60 minutes)
- Night-time (22:00 to 08:00 hrs): 45 dB(A) (Leq, 15 minutes)
- Minimisation of any tonal or impulsive noise between 08:00 hrs and 22:00 hrs
- No tonal or impulsive noise between 22:00 hrs and 08:00 hrs

While there will be an increase in noise during the construction phase, such impact will be temporary, and the contractor will be required to limit noise emissions from his activities to below the thresholds listed above.

#### 4.5 ODOUR

In terms of the potential for odour nuisance from the proposed development, the houses at the western end of Gublaun 2 estate are 195m distant from the WwTP site, while the Organic Centre is located approximately 290m to the north-west of the WwTP site. The closest occupied property is approximately 170m to the south-west, across the Ballagh River.

All of these properties are located greater than 50m from the WwTP, which is considered the appropriate separation distance (*Cordon Sanitaire*) as per the EPA's *Wastewater Treatment Manuals - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels* and is used here in the absence of an alternative standard.

Odour emissions will be managed carefully during the operational phase. No sludge dewatering or treatment will take place on the site, as sludge will be removed offsite for treatment.

The wastewater treatment units being proposed as part of this development will be designed such that no odour nuisance will be caused outside the site boundary.

In the design of the reed bed system, a horizontal sub-surface flow system has been chosen to mitigate potential odour issues. Sub-surface flow systems do not have a free water level and this greatly reduces the risk of odours.



## 4.6 VISUAL IMPACT AND LANDSCAPE

In Appendix VIII of the Leitrim County Development Plan, 2023-2029, landscape designations are listed for certain areas of the county. These are presented in Figure 5.1 of the Plan as shown below.

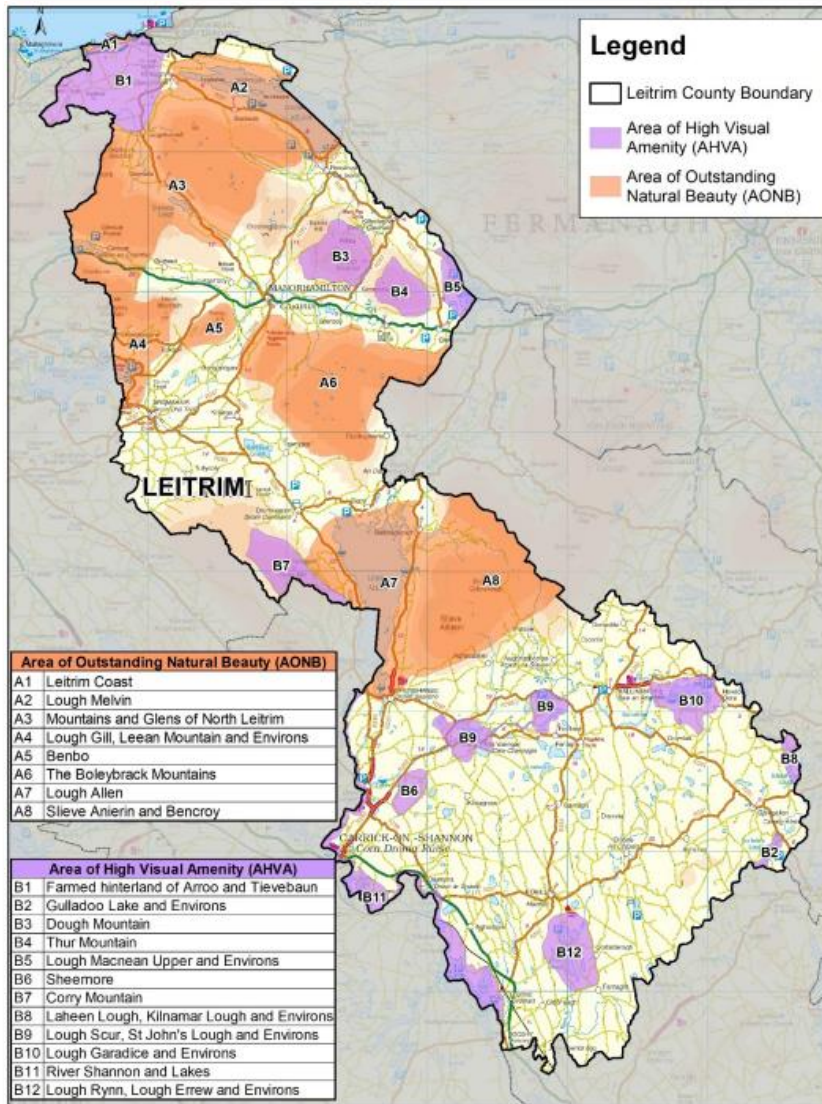


Figure 4-2: Landscape Designations (Leitrim County Development Plan 2023-2029)

The proposed development site lies close to but outside the Lough Melvin AONB (A2).

The site is well screened from Gublaun 2 Housing Estate to the south and is not visible from the R282. The main volumes of the proposed tanks are below ground, with the exception of the chemical storage tank. As stated under the heading of odour above, the houses at the western end of Gublaun 2 estate are over 195m away from the WwTP, while the Organic Centre is located approximately 290m to the north-west of the WwTP site. Both of these are already visually screened from the proposed WwTP site by existing hedgerows, as is the house 170m to the south-west, across the Ballagh River.

Planning Drawing 11896-2002 shows elevations of the proposed treatment units.



## 4.7 TRAFFIC

There will be a slight increase in traffic to the WwTP site, both during the construction phase and during the operational phase.

During the construction phase, works vehicles will access the site via the proposed access road off the R282. This impact will be temporary, and it is anticipated that the construction works will last of the order of 6 months.

During the operational phase, maintenance vehicles will access the site via the access road. This impact is significantly mitigated by the fact that wastewater sludge is not being dewatered or treated onsite but will be removed for treatment elsewhere.



## 5. DRAWINGS

The following drawings accompany this application:

| Drawing Number | Drawing Title                         |
|----------------|---------------------------------------|
| 11896-2000     | Site Location                         |
| 11896-2001     | Proposed Site Layout (Drawing 1 of 4) |
| 11896-2002     | Proposed Site Layout (Drawing 2 of 4) |
| 11896-2003     | Proposed Site Layout (Drawing 3 of 4) |
| 11896-2004     | Proposed Site Layout (Drawing 4 of 4) |
| 11896-2005     | Site Elevations                       |
| 11896-2006     | Elevations of Structures              |



## 6. CONCLUSIONS

The proposed development is required to address a wastewater infrastructure deficit in Rossinver, Co. Leitrim.

Operational problems with the WwTP serving Gublaun 1 and 2 Housing Estates arose in 2016 and in early 2018 tankering of sewage to Manorhamilton WwTP commenced. This is unsustainable and has a high cost and carbon footprint.

Agreement has been reached with a local landowner to locate a new wastewater treatment plant on lands to the north of Gublaun 2 Estate. This presents an opportunity to address the wastewater infrastructure deficit in Rossinver and to connect in a further 7 existing houses, with capacity for an additional 7 houses. Connecting the 7 existing houses will have a significant environmental benefit in decommissioning the onsite wastewater treatment systems in those houses.

The new WwTP has been designed to meet stringent discharge standards prior to discharge to the Ballagh River. In particular the orthophosphate discharge standard of 0.3mg/l will ensure that the water quality objectives of the Ballagh River and Lough Melvin are protected.

The proposed development has been assessed under the Habitats Directive and a Natura Impact Statement prepared.

The proposed development is consistent with the policies and development objectives of the Leitrim County Development Plan 2023-2029.



## Appendix A CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

# TOBIN

**Construction Environmental  
Management Plan (CEMP)**

**Rossinver Wastewater Treatment Plant  
and Ancillary Works**

**BUILT ON KNOWLEDGE**

## TABLE OF CONTENTS

|     |   |    |
|-----|---|----|
| 1.  | Introduction .....  | 1  |
| 1.1 | Purpose of the CEMP .....                                     | 1  |
| 1.2 | Scope of the CEMP .....                                       | 1  |
| 1.3 | 'Live' Document .....   | 1  |
| 1.4 | Implementation.....   | 1  |
| 1.5 | Environmental Awareness .....                                 | 2  |
| 2.  | Project Description.....                                      | 3  |
| 3.  | Construction Works Management.....                            | 4  |
| 3.1 | Construction Programme, Methods and Sequencing of Works ..... | 4  |
| 3.2 | Site Access .....   | 4  |
| 3.3 | Traffic Volumes and Project Activities .....                  | 4  |
| 3.4 | Staff Levels, Parking and Working Hours .....                 | 5  |
| 3.5 | Traffic Warning Signage and Speed Limits .....                | 5  |
| 3.6 | Material Deliveries .....                                     | 5  |
| 3.7 | Construction Equipment .....                                  | 5  |
| 3.8 | Routing of Construction Traffic .....                         | 5  |
| 3.9 | Timing of Material Deliveries.....                            | 5  |
| 4.  | Health, Safety and Environment .....                          | 7  |
| 4.1 | General Approach .....  | 7  |
| 4.2 | Traffic Management.....                                       | 7  |
| 4.3 | Dust and Exhaust Emissions.....                               | 7  |
| 4.4 | Noise .....   | 8  |
| 4.5 | Soils and Geology .....                                       | 9  |
| 4.6 | Water.....  | 10 |
| 4.7 | Biodiversity .....  | 12 |
| 4.8 | Archaeology .....   | 21 |

## 1. Introduction

This Construction Environmental Management Plan (CEMP) has been prepared on behalf of Leitrim County Council. It defines the project specific construction environmental measures that are to be implemented and the procedures to be followed for the proposed development at Rossinver, co. Leitrim.

It is intended that this CEMP will be reviewed and updated as appropriate once planning permission is granted, the construction team has been appointed and necessary consultations have occurred.

### 1.1 Purpose of the CEMP

The purpose of this document is to communicate the key environmental obligations that apply to all contractors, their sub-contractors and employees while carrying out any form of construction activity for the development.

### 1.2 Scope of the CEMP

This CEMP defines the approach to environmental management at the site during the construction phase. Compliance with the CEMP, the procedures, work practices and controls will be mandatory and will be adhered to by all site personnel and contractors employed during the construction phase. The CEMP will:

- Provide a basis for achieving and implementing the construction related mitigation measures identified in the Planning and Environmental Considerations Report and Natura Impact Statement;
- Comply with all conditions (if any) attached to the planning permission; and
- Promote best environmental on-site practices for the duration of the construction phase.

### 1.3 'Live' Document

This CEMP is considered a 'live' document and as such will be reviewed on a regular basis. The CEMP will be subject to continual review to address, for example:

- Any conditions stipulated in the planning permission;
- Any requirements/issues highlighted through consultations prior to works e.g., Leitrim County Council etc.;
- To ensure it reflects best practice at the time of construction; and
- To ensure it incorporates the findings of any pre-construction site investigations.

### 1.4 Implementation

In terms of overall environmental responsibility, everyone on site is responsible for ensuring that their actions constitute good environmental practice. All site personnel are charged with following good practice and encouraged to provide feedback and suggestions for improvements. All site personnel are also required to ensure compliance with the requirements of this CEMP.



## 1.5 Environmental Awareness

To ensure that environmental issues are communicated and properly addressed and controlled during the construction works, the CEMP and its contents will be communicated to all site personnel.





## 2. Project Description

The objective of this proposed development is to provide a wastewater treatment plant for the village of Rossinver, Co. Leitrim.

At present the only area of the village that has a centralised sewerage system is the area comprising the two Gublaun Estates, to the north of the village.

The sewerage system serving the original six houses at Gublaun (Gublaun 1, on east side of the R282) was installed in 1995, and comprises a foul sewer, a septic tank, pump/sump, rising main and Puraflo peat filter (block construction).

The sewerage system serving the Gublaun 2 estate on the west side of the R282 was installed in 2000, and comprises a foul sewer, pump/sump, short rising main and peat filter (block construction). Problems associated with the Gublaun 1 system were evident from around 2010 onwards and the system was poorly maintained. A number of reports from 2012 onwards recommended that that system be decommissioned, and the load transferred to the Gublaun 2 system across the road. Works took place in 2015 to connect the two systems by gravity.

Operational problems also became evident with the Gublaun 2 system in 2016. In early 2018, a decision was made to tanker sewage away sewage to Manorhamilton WwTP, and since April 2018 the WwTP has not been operational. The tankering away of sewage to Manorhamilton WwTP is a temporary measure and Leitrim County Council are required to find a more sustainable wastewater treatment solution.

The proposed development comprises the following elements:

- Wastewater Treatment Plant (100 population equivalent), including:
  - Primary settlement tank
  - 2 No. Rotating Biological Contactors (RBC)
  - Final settlement tank
  - Chemical storage tank
  - Sludge picket fence thickener
  - Control kiosk
  - Reed bed (nature based polishing filter)
  - Security fencing and gates
- Conversion of a wastewater holding tank to a pumping station
- Rising main pipeline from the pumping station to the wastewater treatment plant
- Gravity sewer on R282 and through Gublaun Estate (307m long)
- Access road from R282 to the wastewater treatment plant (3.5m wide)
- Flood storage basin



### 3. Construction Works Management

#### 3.1 Construction Programme, Methods and Sequencing of Works

A timeframe of approximately 26 weeks is the expected construction programme timeline for the proposed development in Rossinver.

The proposed development will be constructed in the following sequence:

- Construct access road from site entrance along northern field boundary. Road construction to consist of geomembrane, capping material, Unbound Granular Material (Clause 804) and finished in unbound gravel layer
- Install prefabricated pumping station adjacent to existing collection chamber at west end of Gublaun Estate
- Lay 75mm diameter PE rising main from prefabricated pumping station to proposed Wastewater Treatment Plant site
- Develop Wastewater Treatment Plant site, commencing with site development, civil works, prefabricated chambers and process units, mechanical and electrical installation. No in-situ concrete to be poured.
- Reed bed excavation/civil works, line base of reed bed, install gravel and pipework, plant phragmites
- Gravel surface the entire site
- Install fencing and screen planting around entire site
- Construct 225mm diameter gravity sewer from bridge at Barr Road junction to Gublaun Estate (307m) using open cut construction and road reinstatement
- Construct 225mm treated effluent outfall pipe to river (35m), and headwall at the river

#### 3.2 Site Access

The site access will be via the proposed access road off the R282.

#### 3.3 Traffic Volumes and Project Activities

Generated traffic resulting from the construction stage of the project has been calculated based on similar construction activities as is the indicative construction programme and methodology. Staffing levels, material deliveries, envisaged plant requirements, and the associated access and traffic and transport impacts, were also calculated based on similar project activities.

This proposed development will require an estimated 60 truck movements during the construction period (120 working days). This is equal to one movement every two days between 9am and 5pm.



### 3.4 Staff Levels, Parking and Working Hours

During the construction phase arrivals and departures to and from the site by workers are to be carried out in as few vehicle movements as possible to minimise impacts on the local road network.

Temporary parking will be provided within the site at the construction compound in order to eliminate parking on the local road network.

The site development works will be carried out between the hours of 9am to 5pm from Monday to Friday and 8am to 2pm on Saturdays. There will be no construction works carried out on Sundays or public holidays. In the unlikely event that works are required to be carried out outside of these regular hours, permission will be sought from Leitrim County Council prior to the works being carried out.

### 3.5 Traffic Warning Signage and Speed Limits

Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and contractors during induction training.

### 3.6 Material Deliveries

Delivery of materials during the project is envisaged to occur in three phases:

- Delivery of stone for construction of the access road
- Delivery of stone for fill in raising the general site level at the WwTP
- Delivery of prefabricated civil elements
- Delivery of prefabricated mechanical and electrical plant

The remaining deliveries associated with the proposed development are considered to result in minimal impacts on existing traffic levels. Proposed material sources and finalisation of haul routes will be determined on appointment of the principal contractor and relevant suppliers. Delivery of materials to the sites will be undertaken by maximum legal articulated lorries or smaller vehicles.

### 3.7 Construction Equipment

Construction equipment and vehicles required for each construction element / operation will be delivered to site by appropriate vehicles.

### 3.8 Routing of Construction Traffic

Materials will be delivered to site generally from the south along the R282.

The principal contractor shall be required, in the development of this CEMP, to identify the sources and proposed haul routes for all material supplies required.

### 3.9 Timing of Material Deliveries

The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not occur during peak traffic flows or run concurrently with other deliveries/activities.



To reduce impacts on local communities and residents adjacent to the site, it is proposed that:

- The contractor will liaise with the management of other construction projects and the local authority to co-ordinate deliveries;
- The contractor will schedule deliveries in such a way that construction activities and deliveries activities do not occur during peak traffic flows or run concurrently e.g., avoiding pouring of concrete on the same day as material deliveries to avoid conflict;
- The contractor will interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as funerals;
- HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practical; and
- Construction activities will be undertaken based on a six-day working week, with deliveries being restricted to 9am to 5pm on weekdays and 8am to 2pm on Saturdays.

It is likely that some deliveries will be required to be undertaken outside these hours; however, such deliveries will be agreed in advance with Leitrim County Council.



## 4. Health, Safety and Environment

### 4.1 General Approach

All contractors shall be requested to provide a best practice working environment for all employees involved in the design, construction, and operation of the development. This will include a responsibility to consider all relevant statutory laws and guidelines. In the case of an emergency, the following procedures shall be followed:

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

### 4.2 Traffic Management

The proposed project will utilise the R282 Regional Road for all construction and operation activity.

Construction and operational traffic volumes associated with the proposed development are low in number and relate primarily to the delivery and offloading of materials and plant. The implementation of an approved CSTMP will minimise the potential for traffic and transport impacts during construction activities and the residual impact will be minor.

### 4.3 Dust and Exhaust Emissions

There will be some dust and exhaust emissions from construction activities during the construction phase. These impacts will be temporary in duration and are not considered likely to give rise to significant impacts following the implementation of mitigation measures. Dust or pollutants generated from the proposed development will typically arise from:

- Movement of construction vehicles;
- Culverting of the drainage ditch;
- Laying of internal gravel access tracks;
- Tree and vegetation removal;
- Movement and placement of stockpiles (excavated soils / fill materials); and
- Wind generated dust from stockpiles and exposed unconsolidated soils.

As the plant and equipment required for the construction of the development will include small scale construction machinery (ranging from quads to agricultural tractors, tracked excavators and cranes), machine emissions are not expected to be any greater than those used in the construction of domestic and agricultural buildings.



## 4.4 Noise

In order to minimise the noise effects of the proposed development, a schedule of noise control measures has been formulated.

With regard to construction activities, best practice control measures from construction sites within BS 5228 (2009 +A1 2014) *Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2* will be used to control noise and vibration impacts. The contractor will ensure that all best practice noise and vibration control methods will be used as necessary in order to ensure impacts to nearby residential NSLs are not significant.

Noise-related mitigation method for the main construction site are described below and will be implemented for the project in accordance with best practice. These methods include:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- During construction, the contractor will manage the works to comply with noise limits outlined in BS 5228-1:2009+A1 2014 Part 1 – Noise.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- Limiting the hours during which site activities which are likely to create high levels of noise or vibration are permitted.
- Monitoring levels of noise and vibration during critical periods and at sensitive locations;
- Establishing channels of communication between the contractor/developer, the local authority, and residents so that receptors are aware of the likely duration of activities likely to generate higher noise or vibration.
- The contractor appointing a Site Environmental Manager (SEM) responsible for matters relating to noise and vibration.

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These will include:

- Selection of plant with low inherent potential for generation of noise and/ or vibration.
- Erection of barriers as necessary around items such as generators or high duty compressors.
- Situate any noisy plant as far away from sensitive properties as permitted by site constraints.



## 4.5 Soils and Geology

During the construction stage best practice construction methods as set out in CIRIA Guidance C741 “Environmental Good Practice on Site” will be implemented in order to prevent alteration and/or contamination of the soils and geology. This will include proper site management during construction, to ensure that all necessary measures are taken to prevent run-off/pollutants from entering any watercourse in the vicinity.

### Pollution control measures

The following standard practice pollution control measures will also be incorporated during there construction phase:

- On completion of the works, all apparatus, plant, tools, offices, sheds, surplus materials, rubbish, and temporary erections or works of any kind will be removed from the site.
- Storage locations for excavated materials, equipment, hydrocarbons (including fuels for machinery) will be designated prior to commencement of works. Excavated materials will not be stored within 20m of any ditches, dry or wet, watercourses or wetland areas. Site compounds must also be located at least 20m from an aquatic feature.
- A spill method statement will be drawn up which all personnel must adhere to.
- A 24-hour, seven-day week Emergency Response protocol will be drawn up and implemented. This must be implementable in the unlikely event of an accidental spillage of chemicals, hydrocarbons, or release of sediment to the surface or ground water system.
- All fuel will be stored in a bunded area. There will be no refuelling outside of bunded areas.
- All machinery will be regularly maintained and checked for leaks. Services will not be undertaken within 50m of aquatic features, including dry drainage ditches. Servicing must be undertaken on level, hard surfaced designated areas where possible.
- An adequate supply of spill kits and hydrocarbon adsorbent packs will be available at labelled stations throughout the site with all vehicles onsite carrying spill kits. All relevant personnel will be fully trained in the use of the equipment. Any used spill kits will be disposed of appropriately off-site.
- All concrete will be mixed off site and imported into the site. All concrete bowsers will be washed down at a dedicated concrete washout onsite at least 50m from a drainage ditch or watercourse. Concrete washings must not be disposed of onsite to any surface or ground water feature. All washings will be removed offsite and treated at a licensed facility.
- No chemicals that are deleterious to aquatic organisms are to be used in cleaning works. All raw, uncured waste concrete must be cured at a designated location, 50m from any aquatic feature or dry drainage ditch.
- All mitigation measures put in place must be inspected daily or weekly, as required during construction works.
- All equipment and machinery must be cleaned prior to entry into the site. This is to avoid transfer of invasive species, on personal equipment and machinery which may have been



used elsewhere, to the receiving catchment. Reference must be made to IFI biosecurity protocols<sup>1</sup>.

Best practice on-site erosion control measures will also be incorporated to reduce the potential for sediment and suspended solids in runoff to surface water in this area. Measures will include the following where appropriate:

- Reduce availability of sediment for erosion - the single most effective method of reducing the volume of sediment created by construction is the immediate capping of all roads with high quality, hard wearing crushed washed aggregate such as limestone laid to a transverse grade. Once water drains transverse across a road constructed from hard wearing aggregate, as opposed to longitudinally on low class aggregate, the level of suspended solids is reduced by an order of magnitude.
- Construction work within 1:1000 year flood zones will not occur during the winter months unless agreed with the Local Authority.
- Working near a watercourse –A buffer zone will be established to protect any surface water channels from disturbance from construction work. Where the construction works cross water features, particular care will be taken to ensure that disturbed material does not enter.
- Working near watercourses during intense rainfall event (>5mm /hour) will be avoided and work will cease entirely near watercourses when it is evident that there is a threat of pollution occurring.

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

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

## 4.6 Water

During the construction stage, best practice construction methods as set out in CIRIA c741 “*Environmental good practice on site guide*” will be implemented in order to prevent water (both surface water & groundwater) pollution. This will include proper site management during construction, to ensure that all necessary measures are taken to prevent run-off/pollutants from entering any watercourse in the vicinity. There will also be no direct discharge of suspended solids or any other deleterious matter to watercourses.

The following standard practice pollution control measures will also be adhered to during the construction phase:

<sup>1</sup> <http://www.fisheriesireland.ie/Biosecurity/biosecurity.html>





- On completion of the works, all apparatus, plant, tools, offices, sheds, surplus materials, rubbish, and temporary erections or works of any kind will be removed from the site.
- Any works directly affecting watercourses or riparian habitats will be submitted for assessment to Inland Fisheries Ireland (IFI) and approval in the form of a detailed method statement.
- All works must follow the guidance set out in the Guidance document entitled: CIRIA guidance note Control of Water Pollution from Construction Sites (CIRIA, 2001).
- Storage locations for excavated materials, equipment, hydrocarbons (including fuels for machinery) will be designated prior to commencement of works. Excavated materials will not be stored within 10m of any ditches, dry or wet, watercourses or wetland areas. Site compounds must also be located at least 20m from an aquatic feature.
- Fuels, oils, greases, hydrocarbons, and hydraulic fluids will be stored in 110% bunded compounds well away from the surface water drains. In addition, they must be adequately secured to avoid/minimise risk of vandalism.
- A spill method statement will be drawn up which all personnel must adhere to.
- A 24-hour, seven-day week Emergency Response protocol will be drawn up and implemented. This must be implementable in the unlikely event of an accidental spillage of chemicals, hydrocarbons, or release of sediment to the surface or ground water system.
- Refuelling of machinery will be carried out on level, hard surfaced designated areas where possible. In the event that refuelling is required outside of these areas, fuel will be transported in a mobile double skinned tank and a spill tray will be employed during refuelling operations.
- All machinery will be regularly maintained and checked for leaks. Services will not be undertaken within 50m of aquatic features. Servicing must be undertaken on level, hard surfaced designated areas.
- An adequate supply of spill kits and hydrocarbon adsorbent packs will be available at labelled stations throughout the site with all vehicles on-site carrying spill kits. All relevant personnel will be fully trained in the use of the equipment. Any used spill kits will be disposed of appropriately off-site.
- All concrete will be mixed off-site and imported into the site. All concrete bowsers will be washed down at a dedicated concrete washout on-site at least 50m from a drainage ditch or watercourse. Concrete washings will not be disposed of on-site to any surface or ground water feature. All washings will be removed off-site and treated at a licensed facility.
- Silt fences to be installed along the access track and any stockpile during the construction phase.
- All equipment and machinery must be cleaned prior to entry as bio security measure. This is to avoid transfer of invasive species on equipment and machinery which may have been used elsewhere to the receiving catchment. Reference will be made to IFI bio security protocol.

Silt fences are to be located at the toe of stockpiles (where appropriate) to mitigate runoff during rainfall events. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.



## 4.7 Biodiversity

Biodiversity mitigation measures to be employed are detailed below.

### 4.7.1 Ecological Clerk of Works

An Ecological Clerk of Works (ECoW) will be appointed to the project. The ECoW will review the CEMP and the mitigation measures therein, in consultation with the appointed contractor prior to commencement of works. The appointed contractor will be responsible for adherence to and implementation of the mitigation measures. The ECoW will be responsible for the monitoring of adherence and implementation and keeping records of same. The ECoW will have full stop-works powers. IFI and NPWS require that contact be made prior to commencement of works. The ECoW will provide on-site training to staff.

It is proposed that the ECoW will monitor water quality at the development site. Water monitoring will take place on a regular basis throughout the construction phase, with daily visual checks, and weekly checks using hand held devices for Hydrocarbon, pH, Turbidity and Dissolved Oxygen. Frequency and parameters to be confirmed by the ECoW in consultation with IFI, NPWS and the appointed contractor.

ECoW to provide training to staff to ensure understanding of mitigation required.

### 4.7.2 Protection of Aquatic Species and Amphibians

#### Amphibians

Though not envisaged, if work to existing drains is required, a preconstruction survey should be undertaken by the ECoW to determine the presence/absence of amphibians. Drains within the footprint of the proposed works will be surveyed for frogs/frog spawn prior to commencement of works.

If present works should not take place during January to March and the ECoW will advise the Contractor on appropriate mitigation measures, e.g. signage or cordoning off the area.

If pausing works is not possible, the ECoW or other suitably experienced ecologist will determine if a derogation licence is required from the NPWS and, having obtained any relevant licences, will translocate the frog spawn or eggs outside of the site, to predetermined receptor sites.

The ECoW will instruct the Contractor to provide signage and temporary fencing at all such receptor sites. These receptor sites should remain fenced for the duration of construction.

#### Salmonids

Due to the proximity of Salmonid spawning habitat adjacent to the development, loud construction activity such as piling (if required) should take place outside of smolt stage, which occurs in spring, and spawning season, which generally occurs November to March. Migratory movement usually occurs in the hours of darkness; if restricting works to those dates is not possible due to operational requirements piling will only take place during daylight hours, using ramp up procedures to give Salmonids “warning” of works. Dates will be confirmed in consultation with IFI.



Bank and in-river works will be carried out at low water, outside of spawning periods for salmon, i.e. during the summer months, generally July to September, so as not to impact on the spawning season of Salmon, a key feature of the SAC. Every river has its own nuances and dates will be confirmed with IFI.

If water levels are not low enough a temporary diversion of water will be required.

- A temporary coffer dam made up of sand bags will be placed in the river around the work area for pipe installation. The dam will be risen to a height above high water mark and it will extend around the entire perimeter of the area. The river will continue to flow along the remaining width.
- A water pump will then be used to pump all water out from the area enclosed by the coffer dam. The removed water will be pumped up to the adjacent field and discharged, this then means that all silts and possible contaminants are removed from the water as it filters back down into the river.
- The area for pipe installation will now be dry and enclosed within the coffer dam and this will become the works area.
- Some excavation works will be necessary in order to level off the river bed however major excavations are not envisaged. Following leveling of the river bed, precast headwall will be installed, pipe laid and back filled with clean stone.
- A silt trap will be created within the works area in order to prevent fine material from escaping to the river.

Once works are complete the coffer dam is removed and the river allowed to flow as normal. The riverbank will be reseeded and allowed to recover.

- The area to be dammed off will be small and due to the flowing water it is unlikely that any fish, lamprey or amphibians will be contained within the area. If this does occur a dip /fish capture licence will be required for their translocation. An ECoW or qualified ecologist will carry out a dip net sampling within the area prior to any works commencing to assess the number of fish and amphibians that may be present.
- Half of the water within the area will be pumped out or until indicated by the ECoW.
- The dip netting will then be carried out within all suitable habitat and all captured fish and amphibians will be placed in a suitable aerated container for translocation, most likely directly back to the Ballagh River.
- The remainder of the water will be pumped out and the area will be searched for any remaining fish or amphibians to be translocated.
- After the ECoW has approved, the pipe and headwall can be installed.



All works will comply with Inland Fisheries Ireland (2016). *Guidelines on the protection of fisheries during construction works in and adjacent to waters.*

CIRIA guidelines Control of water pollution from linear construction projects. Technical guidance' (C648)

<https://www.thenbs.com/PublicationIndex/documents/details?Pub=CIRIA&DocID=279111>

### **Protection of Water Quality**

Due to the presence of the Ballagh River located adjacent to the proposed development and the hydrological connectivity to it and Lough Melvin SAC, the implementation of mitigation measures for sediment and pollution control is necessary to avoid degrading salmonid and freshwater habitats. Any works directly affecting watercourses or riparian habitats will be submitted for consultation and assessment to IFI in the form of a detailed method statement for approval.

There will be no direct discharge of suspended solids or any other deleterious matter to drains (wet or dry) or watercourses.

The following mitigation measures are prescribed to ensure the prevention of water quality impacts due to runoff and pollution during the construction works:

All works will adhere to IFI 'Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters' (IFI, 2016) and all works must comply with the guidance set out in the guidance document entitled: 'Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532)' (CIRIA, 2001).

Prior to construction:

#### **Site management**

The compound location will be a dedicated area of hard standing. The compound will be developed for the safe storage of materials, including a bunded refuelling station, drip trays, impermeable sheeting and spill kits. Silt fencing will be established around the compound area. Site compounds will also be located at least 20m from any watercourse.

During construction the site will be serviced by portaloos. These will be serviced regularly by a licensed contractor.

Designated routes and parking areas are proposed.

Speed limit of 15km p/hr.

Vehicles carrying loose soil, aggregate and workings will be sheeted at all times.

Appropriately designed vehicles for materials handling will be used.

All construction plant and equipment will be maintained in good working order and not left running when not in use.

Regular inspection and cleaning of local roads and site boundaries to check for dust deposits, and removal as required.

Erosion control is the first line of defence followed by sedimentation controls.

The site substrate will be stabilised around the boundary to prevent any surface run off. This will be done by retaining existing vegetation as at least a 5m buffer around the site.

Silt fencing will then be installed.



Silt fences will be constructed using a permeable filter fabric Hy-Tex Terrastop Premium silt fence or similar and installed as per manufacturers guidelines. 3 layers of silt fencing proposed: the one closest to drains/watercourse to be installed first using sandbags, thereby protecting the system from run off during installation of 2nd layer, which is dug in. 3rd layer also established by digging in or using sandbags, as appropriate. Silt fencing to be strictly monitored for tears or breaches especially after periods of wet weather. (Sand to use washed non-calcareous sand (washing to occur off site).

On completion of the works, all apparatus, plant, tools, offices, sheds, surplus materials, rubbish, and temporary erections or works of any kind will be removed from the sites.

Procedures will be set in place to respond to any emergency incidents which may occur on the Site. All appropriate staff will be trained and made aware of the pollution and spill contingency procedures set in place. In the event of an incident the NPWS, IFI and the Environment Protection Agency will be notified immediately.

### Excavation

During excavation material will be loaded directly into a tipping lorry for immediate reuse or stockpiling in designated area. Excavated materials will not be stored within 10m of any drainage ditches, (dry or wet), or wetland areas and 20m of any watercourses.

Excavation works will not be carried out during or following heavy rainfall. Dewatering of excavations shall be avoided where possible. If required, this will be achieved by pumping excess water to settlement tanks or filtration systems located at the construction site, where the water will be retained for a sufficient length of time to allow particles to settle. Silt de-watering bags shall be used when water is being discharged. This discharged water will be within prescribed water quality limits (i.e.  $\leq 25\text{mg/L}$  Total Suspended Solids [TSS] in accordance with the Freshwater Fish Directive [2006/44/EC] and Salmonid Waters Regulations [1988])

There will not be any soil removal from the site, all soil will be reused and stockpiled if required in the construction compound.

Disturbed soils will be stabilised as soon as practicable, either temporarily or permanently as required, e.g. sowing, impermeable mats.

### Materials

Stockpiles of materials will be located in a designated area.

Surface areas of stockpiles will be kept to a minimum to reduce area of surfaces exposed to wind pickup.

Where appropriate, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas.

Stockpiles will be covered during periods of heavy rainfall e.g. impermeable mats (plastic sheeting).

During dry or windy weather, material stockpiles and exposed surfaces will be covered.

Silt fencing will be established at the toe of stockpiles and around the compound area.

Disturbed soils will be stabilised as soon as practicable by sowing.

Silt fencing will remain until soils are stabilised.



### Drainage and surface water

Drains to be protected with geotextile bund, fixed with sandbags to prevent surface water runoff into the openings.

Existing surface water drainage will remain untouched and will be protected and isolated using the proposed buffer zone and silt fencing during works to ensure no runoff into the receiving environment.

During utility and drainage works, silt traps will be created using sandbags when connecting to the facility infrastructure to ensure no sediment is released down the pipes. Any sediment will be removed manually and relocated on site.

Storm water flowing onto and through the site, will be controlled. Storm water drains will be created and directed to settlement lagoon and released as required in a controlled manner.

Constructing settlement lagoon: Silt fencing will be established around the site for the lagoons. The lagoons will be dug out and lined with an impermeable layer, the excavated earth will be used to create a bund around the silt lagoon.

Settlement lagoons will be used to treat water; this will be appropriately sized to treat each phase of development individually and has been designed to cope with a 1 in 10 year storm event of 14hour duration. If dewatering is required the water will be pumped to a settlement lagoon to allow sediment to settle before water is reused or discharged. Settlement lagoons will be monitored at least twice daily and discharged when water is within the prescribed water quality limits (i.e.  $\leq 25\text{mg/L TSS}$ )

A self-contained vehicle wash will be connected to the settlement lagoon where water will be treated prior to release. A designated area will be allocated for the washing of other equipment; the dirty water from same will be contained and redirected to the settlement lagoon.

During construction the site will be serviced by portaloos. These will be serviced regularly by a licensed contractor.

The ECoW will monitor the system, to ensure water discharges meet the baseline levels. Ongoing monitoring may indicate the need for additional sediment controls. Location, quantity and method of installation will be agreed in consultation with the ECoW and site manager and statutory agencies as required.

### Hazardous materials

Refuelling of plant/machinery will be undertaken in designated areas on an impermeable surface within the compound area.

Refuelling will always be carried out in a controlled manner with absorbent materials available to clean up any spillages. Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated hard surface, bunded areas within this compound, where possible, and not on-site. This will be carried out a minimum of 50m from any watercourse within the site. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations in order to contain any spillages that may occur.

Fuels, oils, greases, hydrocarbons, and hydraulic fluids will be stored in 110% bunded compounds at least 50m from the surface water drains. Chemicals will have individual separate



bunds and storage areas. In addition, they will be adequately secured to avoid/minimise risk of vandalism.

A spill method statement will be written up which all personnel must adhere to.

A 24-hour, seven-day week Emergency Response protocol will be written up and implemented. This will be implementable in the unlikely event of an accidental spillage of chemicals, hydrocarbons, or release of sediment to the surface or ground water system.

All machinery will be regularly maintained and checked for leaks. Services will not be undertaken within 50m of aquatic features. Servicing will be undertaken on level, hard surfaced designated areas. Any faulty machinery/equipment will be repaired/replaced immediately.

An adequate supply of spill kits and hydrocarbon adsorbent packs will be available at labelled stations throughout the sites and all construction vehicles on-site will carry spill kits. All machine operators and site staff will be fully trained in the use of this equipment will be fully trained in the use of the equipment. Any used spill kits will be disposed of appropriately off-site.

Pouring concrete will not be carried out during periods of heavy rainfall.

Premix concrete lorries will deliver all concrete to site, which will be pumped directly into the required area. Vehicles will leave immediately after delivery.

Strictly no washing of concrete premix lorries will be permitted on site. All concrete browsers will be washed down at a dedicated concrete washout off site, at least 50m from any drainage ditch or watercourse. Concrete washings must not be disposed of onsite to any surface or ground water feature. All washings will be removed offsite and treated at a licensed facility. No chemicals that are deleterious to aquatic organisms are to be used in cleaning works. All raw, uncured waste concrete must be cured at a same designated location stated above to ensure it is 50m or more from the surface water conduit

#### Dust and Air Pollution Control

Potential impacts during the construction stage arising from dust emissions and air pollution will be minimised through the provision of mitigation measures which include:

Minimisation of extent of working areas

Stockpiles of materials will be located in a designated area.

Surface areas of stockpiles will be kept to a minimum to reduce area of surfaces exposed to wind pickup.

Where appropriate, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas.

Stockpiles will be covered during periods of heavy rainfall e.g. impermeable mats (plastic sheeting).

During dry or windy weather, material stockpiles and exposed surfaces will be covered.

Silt fencing will be established at the toe of stockpiles and around the compound area.

Designated routes and parking areas are proposed.

Speed limit of 15km/hr.

Vehicles carrying loose soil, aggregate and workings will be sheeted at all times.

Appropriately designed vehicles for materials handling will be used.



Regular inspection and cleaning of local roads and site boundaries to check for dust deposits, and removal as required. Use of dust suppression measures (e.g., sweeps / covers/ water bowsers) on stockpiles and the road surface during periods of extended dry weather.

All machines shall be suitably maintained to ensure that emissions of engine-generated pollutants shall be kept to a minimum in accordance with 'Measures Against the Emission of Gaseous and Particulate Pollutants from Internal Combustion Engines to be Installed in Non-Road Mobile Machinery' (2002/88/EC) and 'Emissions of Pollutants from Diesel Engines' (2005/21/EC).

Vehicles will not be left running unnecessarily and low emission fuels will be used where possible.

### 4.7.3 Otter

ECoW to provide training to staff to ensure understanding of mitigation required

Preconstruction survey to determine presence or absence of Otter, and if present whether it is a maternal holt or not.

Habitat area to be signposted and cordoned off, and perimeter fencing / screening installed to protect habitat. Silt fencing will also be placed along this area.

NRA (2009) guidance to be followed:

*"Pre-construction otter surveys should be undertaken prior to the commencement of any works in order to identify any changes in otter activity, holt locations. It is important to ensure that no new holts have been created in the intervening period.*

*Where more than 36 months has elapsed between the time of a statutory approval of a development and the initiation of the construction phase, an appropriate level of resurvey will be required - because the baseline data may have altered during the intervening period. This will allow adjustments to be made to the mitigation strategy specified in the CEMP, where appropriate.*

*No works should be undertaken within 150m of any holts at which breeding females or cubs are present. Following consultation with NPWS, works closer to such breeding holts may take place - provided appropriate mitigation measures are in place, e.g. screening and/or restricted working hours on site.*

*No wheeled or tracked vehicles (of any kind) should be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence."*

Night working should be suspended in areas where otters are thought to be active.

A derogation licence is required if for any unforeseen reasons the otter holt has to be disturbed or destroyed.

In-design mitigation

Buffer: WwTP has been set back from the habitat.

All construction pits and trenches will be covered outside of construction hours to avoid animals such as Otters becoming trapped within and injured and/or killed.

Machinery and equipment will be made safe or cordoned off with temporary fencing at the end of the working day.





Fencing and screening will offer protection for all mobile fauna in the area.

The mitigation measures listed above will provide adequate protection for otter in terms of construction phase water quality effects.

#### 4.7.4 Birds

Hedge/tree cutting should only be carried out during the period from September 1 to March 1 as it is an offence, under Section 40 of the Wildlife Act 1976, to cut or destroy any vegetation growing in land not then cultivated, or vegetation growing in any hedge or ditch during the period March 1 to August 31.

If it is not possible to adhere to the Wildlife act restrictions a preconstruction survey will be undertaken by ECoW /a suitably qualified ecologist prior to removal of vegetation (this should include earthworks as some birds may nest in grass within the site.)

Where surveys determine no nests are present, works must proceed within 72 hours or further surveys will be required.

If a nest is found, it should be clearly marked and a buffer zone established around it and left until fledglings have left.

Alternatively, if the nest has to be removed a derogation licence will be required from NPWS.

#### 4.7.5 Fauna

All construction pits and trenches will be covered outside of construction hours to avoid animals such as badgers becoming trapped within and injured and/or killed.

Machinery and equipment should be made safe or cordoned off with temporary fencing at the end of the working day.

Screening will offer protection for all mobile fauna in the area.

The area for the flood storage compensation will be designed to ensure animals cannot become trapped inside, e.g. sloping sides and will be seeded as soon as possible to reduce risk of runoff from around the area.

#### 4.7.6 Management of Invasive Species, Disease and Pathogens

In order to comply with Regulations 49 and 50 of the European Communities (Birds and Natural Habitat) Regulations (2011), the appointed Contractor will ensure biosecurity measures are implemented throughout the construction phase to ensure the introduction and translocation of invasive species is prevented. Every effort will be made to ensure imported material is clear of contaminants and comes from a known reliable source.

The following biosecurity measures are prescribed:

Biosecurity measures will comply with the IFI Biosecurity Protocols including: 'IFI Biosecurity Protocol for Field Survey Work' (IFI, 2010) and CAISIE guidelines 2022 *Control of Aquatic Invasive Species and the restoration of Natural Communities in Ireland* ([www.caisie.ie](http://www.caisie.ie))

Any plant or machines to be used in the aquatic area will be washed down at a designated offsite location prior to mobilising.

A 'Check, Clean, Dry' protocol will be undertaken with all equipment, machinery and vehicles entering and leaving the proposed development site All machinery, equipment, footwear should



be inspected for attached plant or animal material before entering or leaving. If found, it should be removed before entering the area, and disposed of carefully and should not be discarded in or around the site.. All machinery, equipment, and footwear should be cleaned and disinfected (e.g. 1% solution of Virkon® Aquatic or another proprietary disinfectant product) at the water's edge or as soon as possible before/after entering / leaving. If no disinfectant is available, all equipment and clothing should be allowed to dry fully, for at least 48 hours before returning to a watercourse (IFI, 2022) to prevent the risk of pathogen translocation

No construction works will occur outside the proposed development site boundary.

No invasive plant species were recorded within the proposed development site. However, in the event that proposed construction works are delayed more than 12 months, a pre-construction invasive species survey will be undertaken.

In the event that an invasive plant species, listed in Part 1 of the Third Schedule of S.I No. 477/2011 – European Communities (Birds and Natural Habitats) Regulations 2011 is recorded during the pre-construction invasive species survey, a site-specific Invasive Species Management Plan (ISMP) will be prepared.

Treatment of invasive species on site (if required) will be undertaken by a specialist invasive species contractor, with appropriate licensing with regards to removal of materials and use of herbicides if required.

Some minor material waste will be generated as a result of the proposed development. This waste will be removed to a licenced facility or will be reinstated into the landscaping where possible. All waste will be removed from the site and disposed of by an approved waste contractor in accordance with prevailing waste management regulations.



## 4.8 Archaeology

The following mitigations are proposed to protect the archaeological environment.

- It is recommended that a programme of archaeological testing of the subject site be carried out well in advance of construction. 'Test excavation is that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development. It may also be referred to as archaeological testing' (DAHGI 1999a, 27).
- A suitably qualified archaeologist should be appointed to advise the design team on archaeological matters, liaise with the relevant authorities, prepare an archaeological licence application and method statement, and complete the archaeological testing work. Testing should be carried out under licence to the National Monuments Service at the DHLGH. The application for such a licence requires a detailed method statement, outlining the procedures to be adopted to monitor, record, and recover material of archaeological interest during such work.
- Should archaeological material be uncovered at any location, the feature will be summarily investigated to determine the form, age, nature, depth, and extent of the feature. The feature will be planned, photographed, and recorded to best professional standards.
- Adequate funds to cover excavation, post-excavation analysis, and any testing or conservation work required should be made available if required. Upon completion of the works dissemination of the results will take the form of a stratigraphic report and full report to publishable standard lodged with the licensing section (NMS) and the Planning Section (NMS) and the National Museum of Ireland. A summary of the report will also be submitted to the Excavations Bulletin within six weeks of the end of fieldwork. Should results warrant it, wider dissemination in the form of a full publication may be recommended.
- In addition, the report on the results of the test excavation and an impact statement will be submitted to the planning authority to inform the archaeological site strategy. Where archaeological material is identified, the developer will submit an archaeological mitigation strategy and a detailed method statement for written agreement with the planning authority detailing proposed mitigation including, preservation in situ by way of avoidance or redesign, and/or archaeological excavation under a Section 26 licence in advance of development.
- The agreed archaeological mitigation (preservation in situ/full excavation) shall take place under licence prior to the commencement of development. The developer shall make provision for excavation, post excavation, interpretation, and publication of the results. A preliminary report detailing the findings of the agreed resolution shall be submitted to the planning authority within four weeks of the licence expiry and a full and final report shall be submitted to the planning authority within 1 year of the licence expiry date.

The above recommendations are subject to approval by the National Monuments Service at the DHLGH and other relevant authorities.



## Appendix B FLOOD RISK ASSESSMENT REPORT

# TOBIN

## Rossinver Wastewater Treatment Plant, Rossinver, Co. Leitrim Flood Risk Assessment



Comhairle | Leitrim  
Chontae | County  
Liatroma | Council

BUILT ON KNOWLEDGE

## Table of Contents

|     |  |    |
|-----|--|----|
| 1.  | Introduction .....   | 1  |
| 2.  | Flood Risk Management Guidance.....                            | 3  |
| 2.1 | The Planning System and Flood Risk Management Guidelines ..... | 3  |
| 2.2 | The Flood Risk Management Climate Adaption Plan .....          | 5  |
| 2.3 | Leitrim County Development Plan (2018 – 2024) .....            | 6  |
| 3.  | Initial Flood Risk Assessment.....                             | 11 |
| 3.1 | Past Flood Events.....   | 11 |
| 3.2 | OPW Preliminary Flood Risk Assessment (PFRA) Study .....       | 12 |
| 3.3 | National Indicative Fluvial Mapping (NIFM).....                | 14 |
| 3.4 | Catchment Flood Risk Assessment and Management Study.....      | 16 |
| 3.5 | OPW Drainage Districts and Arterial Drainage Schemes .....     | 17 |
| 3.6 | Geological Survey Ireland Mapping.....                         | 18 |
| 4.  | Site Specific Hydraulic Analysis .....                         | 20 |
| 4.1 | Flow Estimation .....  | 20 |
| 4.2 | Hydraulic Model Construction.....                              | 22 |
| 4.3 | Hydraulic Model Results.....                                   | 23 |
| 5.  | Detailed Flood Risk Assesment .....                            | 24 |
| 5.1 | Fluvial Flooding.....  | 24 |
| 5.2 | Coastal Flooding.....  | 24 |
| 5.3 | Pluvial Flooding.....  | 24 |
| 5.4 | Groundwater Flooding.....                                      | 25 |
| 5.5 | The Justification Test.....                                    | 25 |
| 6.  | Conclusions .....  | 26 |

## Appendices

Appendix A Topographic Survey

Appendix B Site Layout

## List of Tables

Table 2.1: Decision Matrix for Determining the Appropriateness of a Development.....3



|  |    |
|--|----|
| Table 2.2: Climate Change Adaptation Allowances for Future Flood Risk Scenarios..... | 5  |
| Table 4-1: Summary of Catchment Descriptors.....                                     | 21 |
| Table 4-2: Estimated Flows.....  | 21 |

## List of Figures

|  |    |
|--|----|
| Figure 1-1: Site Location.....   | 2  |
| Figure 1-2: Site Layout .....  | 2  |
| Figure 2-1: Criteria of the Justification Test .....                             | 4  |
| Figure 3-1: Past Flood Events .....  | 11 |
| Figure 3-2: Indicative Flood Mapping [extract from PFRA Map 379] .....           | 12 |
| Figure 3-3: PFRA Flood Extents.....  | 13 |
| Figure 3-4: National Indicative Fluvial Mapping - Existing Scenario.....         | 14 |
| Figure 3-5: National Indicative Fluvial Mapping - Mid-Range Future Scenario..... | 15 |
| Figure 3-6: GSI mapping of Groundwater and Surface water flooding.....           | 18 |
| Figure 3-7: GSI Mapping of Karst Features.....                                   | 19 |
| Figure 4-1: Catchment Delineation .....  | 20 |
| Figure 4-2: Model Configuration.....   | 22 |
| Figure 4-3: Modelled Flood Extents .....   | 23 |

## 1. INTRODUCTION

TOBIN were appointed by Leitrim County Council to undertake a Flood Risk Assessment (FRA) for a proposed Wastewater Treatment Plant (see Figure 1-2) at Rossinver, Co. Leitrim.

The total site boundary includes the wayleave requirements for the proposed plant. However, it is the area where the proposed wastewater treatment plant will be constructed that is the subject of this FRA report as it will be the only area where there will be permanent alterations made. As such, the access road and proposed site area are herein referred to as the “subject site”.

The subject site is located approximately 550m north of Rossinver Town. The subject site is bound in all directions by greenfield sites. There are residential properties to the south of the subject site, and access to the site will be provided via the R282 Road, located on the eastern boundary of the subject site.

The Planning System and Flood Risk Management (PSFRM) Guidelines categorise types of development into three vulnerability classes based on their sensitivity to flooding. As per Table 2.1 for the classification of vulnerability of different types of development in the PSFRM Guidelines, “essential infrastructure” (waste water treatment plants) are categorized as “highly vulnerable” development and as such are considered appropriate in Flood Zone C (Low probability of flooding i.e., 0.1% AEP), “local transport infrastructure” are categorized as “less vulnerable” development and as such are considered appropriate in Flood Zone B (Medium probability of flooding i.e., 1% AEP).

The closest hydraulic feature to the subject site is the Ballagh River located approximately 30m west of the subject site at its closet point. It originates in its headwaters at Sandy Lough, approximately 5.5km southwest of the subject site. The river flows past the subject site in a northerly direction before discharging into the Melvin Lough approximately 800m north of the subject site

The purpose of this Stage 3 FRA report is to identify, quantify, and communicate the risks of flooding, if any, to the proposed development.







Figure 1-1: Site Location

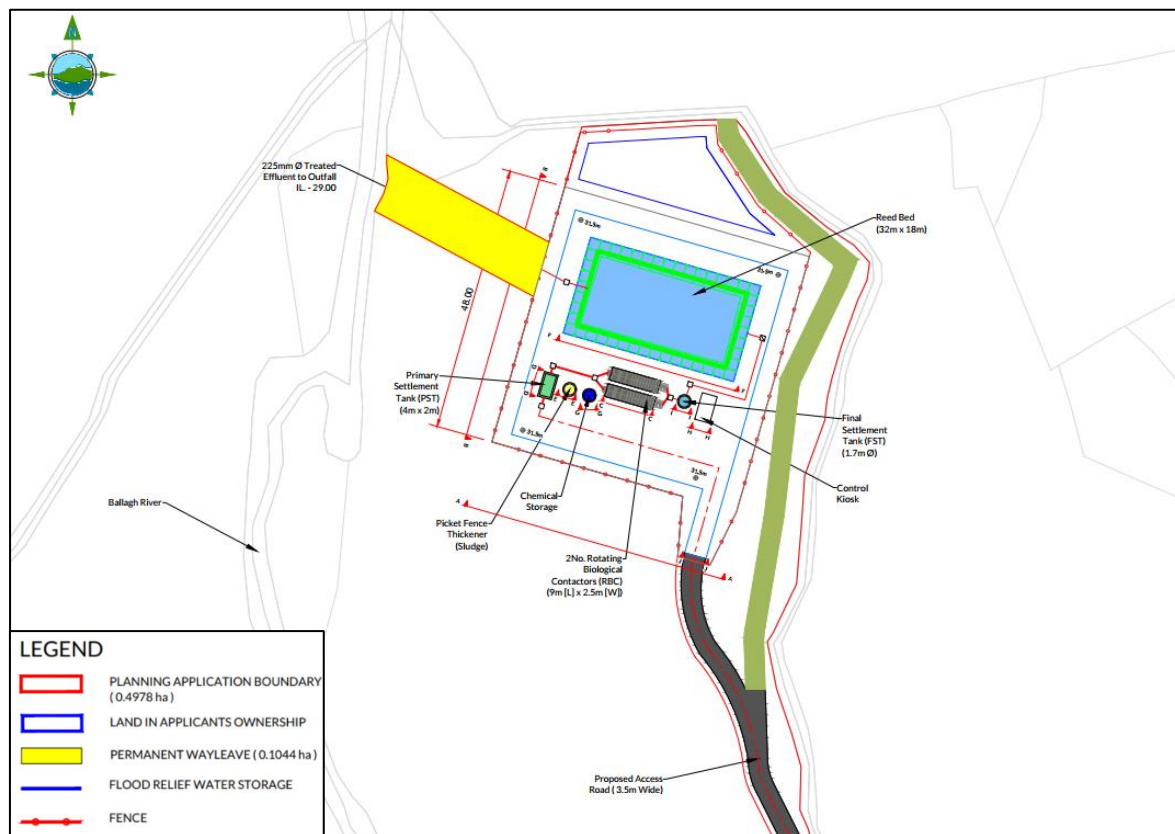


Figure 1-2: Site Layout



## 2. FLOOD RISK MANAGEMENT GUIDANCE

This Stage 3 Flood Risk Assessment was carried out in accordance with the following flood risk management guidance documents:

- The Planning System and Flood Risk Management Guidelines for Planning Authorities
- Flood Risk Management Climate Change Sectoral Adaptation Plan
- Leitrim County Development Plan (2023 – 2029)

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

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

#### 2.1.1 Flood Zones and Vulnerability Classes

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

The PSFRM Guidelines also categorise different types of development into three vulnerability classes based on their sensitivity to flooding. The PSFRM guidelines state that wastewater treatment plants are classified as “essential infrastructure”. The proposed wastewater treatment plant is therefore appropriate in Flood Zone C (low probability of flooding i.e., 0.1% AEP).

Table 2.1 shows a decision matrix that indicates which types of development are appropriate in each flood zone and when the Justification Test (see Section 2.1.2) must be satisfied. The annual exceedance probabilities used to define each flood zone are also provided.

**Table 2.1: Decision Matrix for Determining the Appropriateness of a Development**

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



## 2.1.2 Justification Test

Any proposed development being considered in an inappropriate flood zone (as determined by Table 2.1) must satisfy the criteria of the Justification Test outlined in Figure 2-1(taken from the PSFRM Guidelines).

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

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

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

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

Note: See section 5.27 in relation to major development on zoned lands where sequential approach has not been applied in the operative development plan.

Refer to section 5.28 in relation to minor and infill developments.

Figure 2-1: Criteria of the Justification Test

## 2.2 THE FLOOD RISK MANAGEMENT CLIMATE ADAPTION PLAN

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

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

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

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

Table 2.2 indicates the allowances that should be added to estimates of extreme rainfall depths, peak flood flows, and mean sea levels for the future scenarios.

**Table 2.2: Climate Change Adaptation Allowances for Future Flood Risk Scenarios**

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

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



## 2.3 LEITRIM COUNTY DEVELOPMENT PLAN (2018 – 2024)

The Current Leitrim County Development Plan 2023-2029 was adopted by members of the Leitrim County Council on the 7<sup>th</sup> February 2023, providing a strategic framework for planning and sustainable development in Leitrim County 2023 to 2029.

Section 9.8 outlines Leitrim County Council's strategy for the management of flooding. The plan contains robust policies and objectives in relation to Flood risk Management, which are designed to ensure that proposed development in areas at risk of flooding shall conform to the DoECLG Guidelines or any subsequent amendments during the lifetime of the County Development Plan.

The policies and objectives towards flood risk management set out in the CDP are as follows:

### **FRM POL 1**

To adopt a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk. In accordance with the Planning System and Flood Risk Management – Guidelines for Planning Authorities, the avoidance of development in areas where flood risk has been identified shall be the primary response.

### **FRM POL 2**

To ensure that a flood risk assessment is carried out for any development proposal, in accordance with the Planning System and Flood Risk Management (DoEHLG/OPW 2009) and Circular PL2/2014. This assessment shall be appropriate to the scale and nature of risk to the potential development.

### **FRM POL 3**

To consult with the OPW in relation to proposed developments in the vicinity of drainage channels and rivers for which the OPW are responsible, and to retain a strip on either side of such channels where required, to facilitate maintenance access thereto. In addition, to promote the sustainable management and uses of water bodies and avoid culverting or realignment of these features.

### **FRM POL 4**

To protect and enhance the county's floodplains and wetlands as 'Green Infrastructure' which provides space for storage and conveyance of floodwater, enabling flood risk to be more effectively managed and reducing the need to provide flood defences in the future, subject to normal planning and environmental criteria.

### **FRM POL 5**

To protect the integrity of any formal flood risk management infrastructure, thereby ensuring that any new development does not negatively impact any existing defence infrastructure or compromise any proposed new defence infrastructure.

### **FRM POL 6**

To ensure that where flood risk management works take place that the natural, cultural and built heritage, rivers, streams and watercourses are protected and enhanced to the maximum extent possible.



**FRM POL 7**

To ensure each flood risk management activity is examined to determine actions required to embed and provide for effective climate change adaptation as set out in the OPW Climate Change Sectoral Adaptation Plan Flood Risk Management applicable at the time.

**FRM POL 8**

To consult, where necessary, with Inland Fisheries Ireland, the National Parks and Wildlife Service and other relevant agencies in the provision of flood alleviation measures in the county

**FRM POL 9**

To ensure that in assessing applications for developments, that consideration is had to the impact on the quality of surface waters having regard to targets and measures set out in the River Basin Management Plan for Ireland 2018-2021 and any subsequent local or regional plans.

**FRM POL 10**

Development proposals will need to be accompanied by a Development Management Justification Test when required by the Guidelines. Where only a small proportion of a site is at risk of flooding, the sequential approach shall be applied in site planning, in order to seek to ensure that no encroachment onto or loss of the flood plain occurs and/or that only water compatible development such as 'Open Space' would be permitted for the lands which are identified as being at risk of flooding within that site.

**FRM POL 11**

To require proposals for development to comply with requirements of the Planning System and Flood Risk Assessment Guidelines including providing detailed design specifications as may be required to assess the impact of development.

- a) Extensions of existing uses or minor development within flood risk areas shall not: obstruct important flow paths; introduce a number of people into flood risk areas; entail the storage of hazardous substances; have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities; or increase the risk of flooding elsewhere.
- b) Applications for development within Flood Zones A or B, and on lands subject to the mid-range future scenario floods extents, as published by the Office of Public Works, shall be subject to site specific flood risk assessment. Such assessments shall consider climate change impacts and adaptation measures and shall provide details of structural and non-structural flood risk management measures, to include, but not be limited to specifications of the following

***Floor Levels***

In areas of limited flood depth, the specification of the threshold and floor levels of new structures shall be raised above expected flood levels to reduce the risk of flood losses to a building, by raising floor heights within the building structure using a suspended floor arrangement or raised internal concrete platforms.



When designing an extension or modification to an existing building, an appropriate flood risk reduction measure shall be specified to ensure the threshold levels into the building are above the design flood level. However, care must also be taken to ensure access for all is provided in compliance with Part M of the Building Regulations.

Where threshold levels cannot be raised to the street for streetscape, conservation or other reasons, the design shall specify a mixing of uses vertically in buildings – with less vulnerable uses located at ground floor level, along with other measures for dealing with residual flood risk.

### ***Internal Layout***

Internal layout of internal space shall be designed and specified to reduce the impact of flooding [for example, living accommodation, essential services, storage space for provisions and equipment shall be designed to be located above the predicted flood level]. In addition, designs and specifications shall ensure that, wherever reasonably practicable, the siting of living accommodation (particularly sleeping areas) shall be above flood level.

With the exception of single storey extensions to existing properties, new single storey accommodation shall not be deemed appropriate where predicted flood levels are above design floor levels. In all cases, specifications for safe access, refuge and evacuation shall be incorporated into the design of the development.

### ***Flood-Resistant Construction***

Developments in flood vulnerable zones shall specify the use of flood-resistant construction aimed at preventing water from entering buildings – to mitigate the damage floodwater caused to buildings.

Developments shall specify the use of flood resistant construction prepared using specialist technical input to the design and specification of the external building envelope – with measures to resist hydrostatic pressure (commonly referred to as “tanking”) specified for the outside of the building fabric.

The design of the flood resistant construction shall specify the need to protect the main entry points for floodwater into buildings – including doors and windows (including gaps in sealant around frames), vents, air-bricks and gaps around conduits or pipes passing through external building fabric.

The design of the flood resistant construction shall also specify the need to protect against flood water entry through sanitary appliances as a result of backflow through the drainage system.

### ***Flood-Resilient Construction***

Developments in flood vulnerable zones that are at risk of occasional inundation shall incorporate design and specification for flood resilient construction which accepts that floodwater will enter buildings and provides for this in the design and specification of internal building services and finishes. These measures limit damage caused by floodwater and allow relatively quick recovery. This can be achieved by specifying wall and floor materials such as ceramic tiling that can be cleaned and dried relatively easily,



provided that the substrate materials (e.g. blockwork) are also resilient. Electrics, appliances and kitchen fittings shall also be specified to be raised above floor level, and one-way valves shall be incorporated into drainage pipes.

### ***Emergency Response Planning***

In addition to considering physical design issues for developments in flood vulnerable zones, the developer shall specify that the planning of new development also takes account of the need for effective emergency response planning for flood events in areas of new development.

Applications for developments in flood vulnerable zones shall provide details that the following measures will be put in place and maintained:

- provision of flood warnings, evacuation plans and ensuring public awareness of flood risks to people where they live and work
- coordination of responses and discussion with relevant emergency services i.e. Local Authorities, Fire and Rescue, Civil Defence and An Garda Síochána through the SFRA; and
- awareness of risks and evacuation procedures and the need for family flood plans.

### ***Access and Egress During Flood Events***

Applications for developments in flood vulnerable zones shall include details of arrangements for access and egress during flood events. Such details shall specify that:

- flood escape routes have been kept to publicly accessible land;
  - such routes will have signage and other flood awareness measures in place, to inform local communities what to do in case of flooding;
  - this information will be provided in a welcome pack to new occupants.
- c) In Flood Zone C, where the probability of flooding is low (less than 0.1%), sitespecific Flood Risk Assessment may be required and the developer should satisfy themselves that the probability of flooding is appropriate to the development being proposed. The County Development Plan SFRA datasets and the most up to date information on flood risk, including that relating to climate scenarios, should be consulted by prospective applicants for developments in this regard and will be made available to lower-tier Development Management processes in the Council.

### **FRM POL 12**

To require that Strategic Flood Risk Assessments and site-specific Flood Risk Assessments shall provide information on the implications of climate change with regard to flood risk in relevant locations. The Flood Risk Management – Climate Change Sectoral Adaptation Plan (2019) shall be consulted with to this effect.





**FRM POL 13**

To require the submission of site-specific Flood Risk Assessments for developments undertaken within Flood Zones A & B and on lands subject to the mid-range future scenario floods extents, as published by the Office of Public Works. These Flood Risk Assessments shall consider climate change impacts and adaptation measures including details of structural and non-structural flood risk management measures, such as those relating to floor levels, internal layout, flood-resistant construction, flood-resilient construction, emergency response planning and access and egress during flood events

**FRM POL 14**

To require the undertaking of site-specific flood risk assessments for applications for development on land identified as benefitting land which may be prone to flooding.

**FRM POL 15**

To ensure that new developments proposed in Arterial Drainage Schemes and Drainage Districts do not result in a significant negative impact on the integrity, function and management of these areas.

**FRM POL 16**

Any potential future variations to and review of the Plan shall consider, as appropriate any new and/or emerging data relating to flood risk.

**FRM OBJ 1**

To implement and comply fully with the recommendations of the Strategic Flood Risk Assessment prepared as part of this Plan.

**FRM OBJ 2**

To implement in conjunction with the Office of Public Works the recommendations contained in the Flood Risk Management Plans (FRMP's), including planned investment measures for managing and reducing flood risk, subject to obtaining the necessary planning consent and undertaking the required environmental assessments.



### 3. INITIAL FLOOD RISK ASSESSMENT

#### 3.1 PAST FLOOD EVENTS

The OPW's National Flood Information Portal<sup>1</sup> provides past flood event mapping with records of flooding reports, meeting minutes, photos, and/or hydrometric data. Based on the flood map shown in Figure 3-1, there is one historical flood event recorded in the vicinity of the subject site. The past flood event is located approximately 420m south of the subject site. The flooding was caused by the Ballagh River on the 7<sup>th</sup> December 2015. Due to the events distance to the subject site, it is not expected to be hydraulically linked to the site.

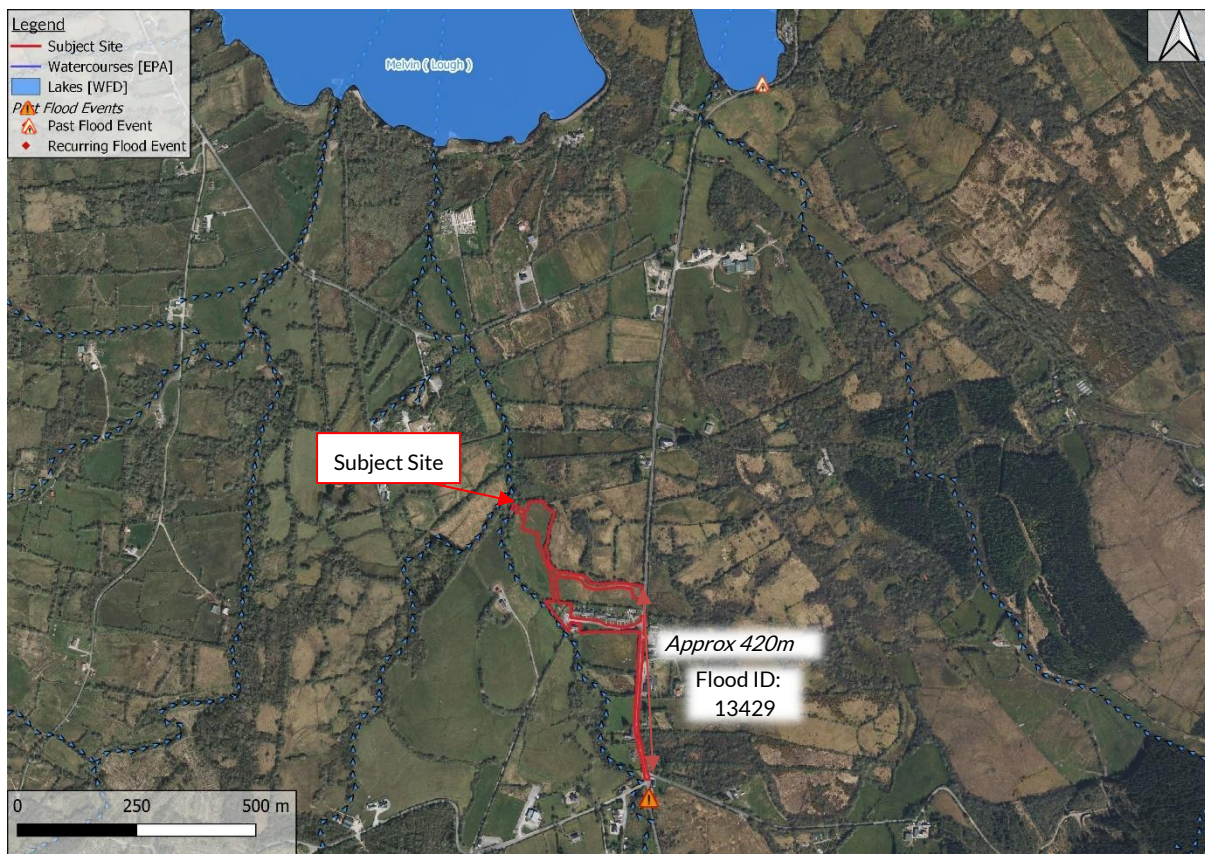


Figure 3-1: Past Flood Events

<sup>1</sup> floodinfo.ie



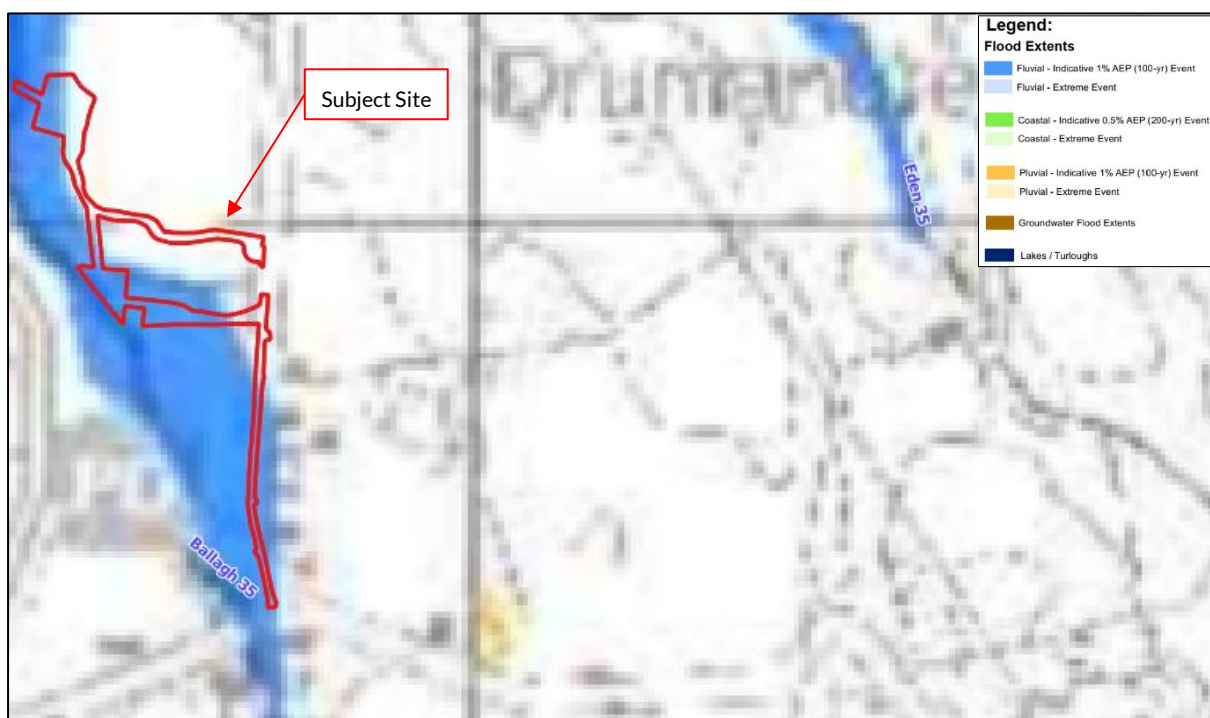
### 3.2 OPW PRELIMINARY FLOOD RISK ASSESSMENT (PFRA) STUDY

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

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

Figure 3-2 provides an overview of the fluvial, coastal, pluviial, and groundwater indicative flood extents in the vicinity of the subject site.

As per Figure 3-2, the subject site is not predicted to be liable to coastal or groundwater flooding during extreme events.

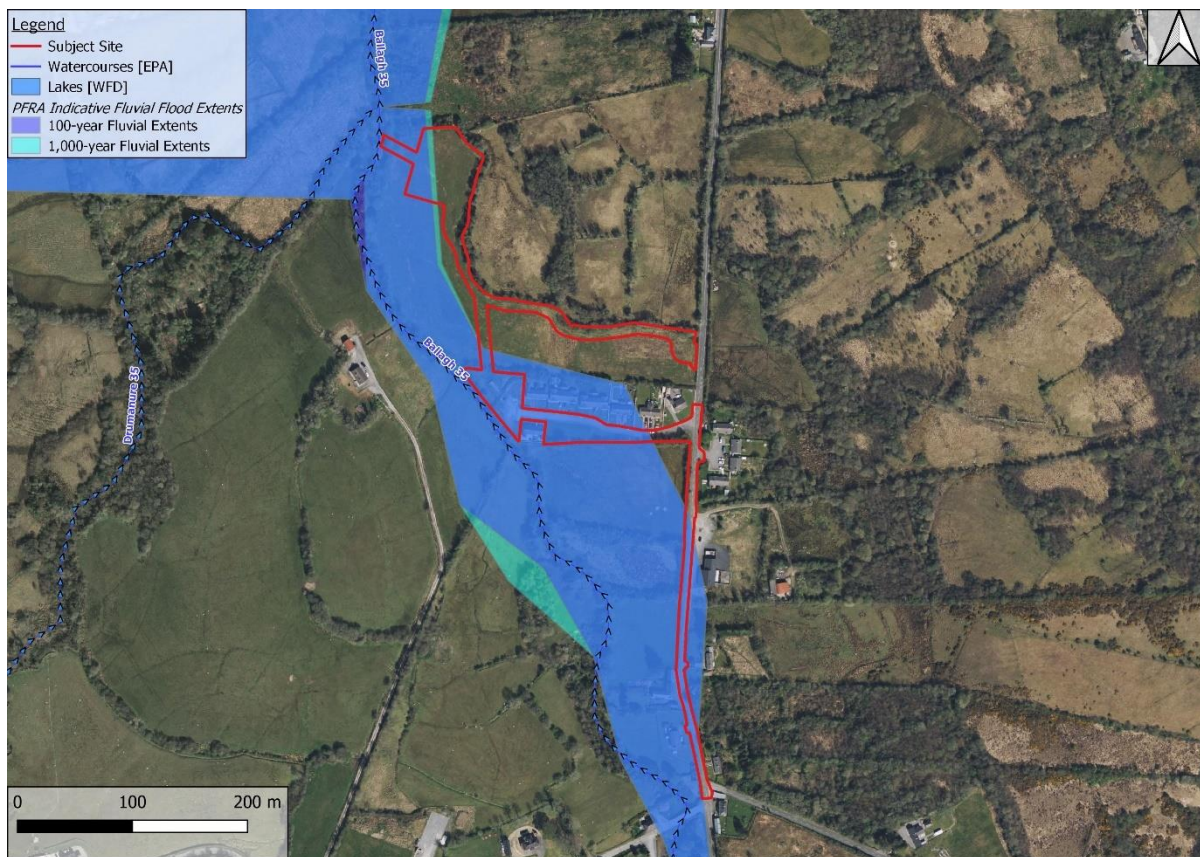


**Figure 3-2: Indicative Flood Mapping [extract from PFRA Map 379]**

Figure 3-3 below shows that approximately 60% of the subject site is inundated by fluvial flooding in the PFRA mapping. The flooding is located on the western side of the subject site.

There is one area of pluviial flooding noted to the east of the subject site, on the proposed access road in an extreme event (1 in 1000-year (0.1% AEP)).





**Figure 3-3: PFRA Flood Extents**

There are no pluvial, coastal or groundwater flood extents within the subject site.

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

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

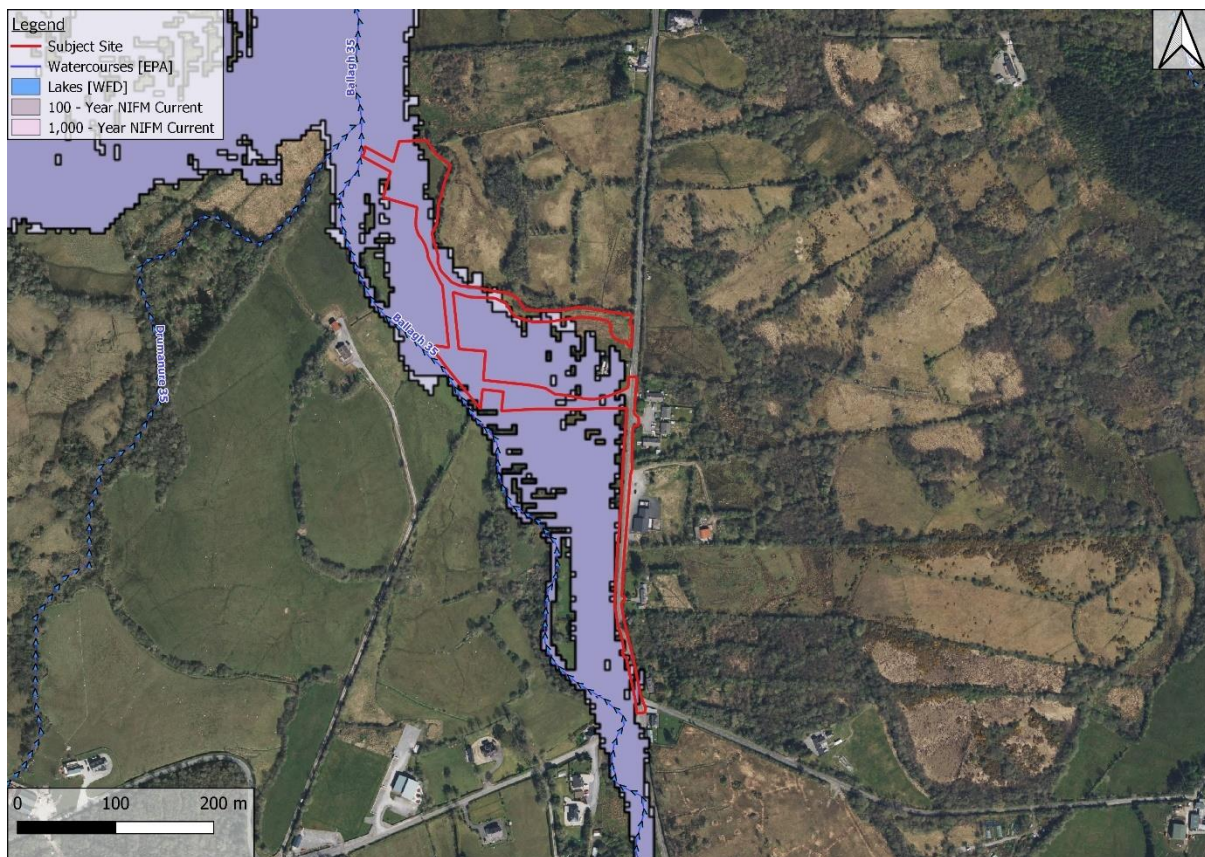


### 3.3 NATIONAL INDICATIVE FLUVIAL MAPPING (NIFM)

In 2020, the OPW produced the second-generation indicative fluvial flood mapping, improving upon the first generation PFRA and producing higher quality flood maps<sup>2</sup>.

The NIFM Flood Mapping Technical Data notes that “Cross sectional surveys have not been used to define the dimensions of river channels and structures within the 2D model. Channels have been represented in the 2D model by assuming their channel capacity is equivalent to the estimation of [the index flood flow]”<sup>3</sup>. The 2D model uses a Digital Terrain Model with a grid scale of 5m.

Figure 3-4 provides an overview of the 1% and 0.1% AEP indicative fluvial flood mapping of the Ballagh River.



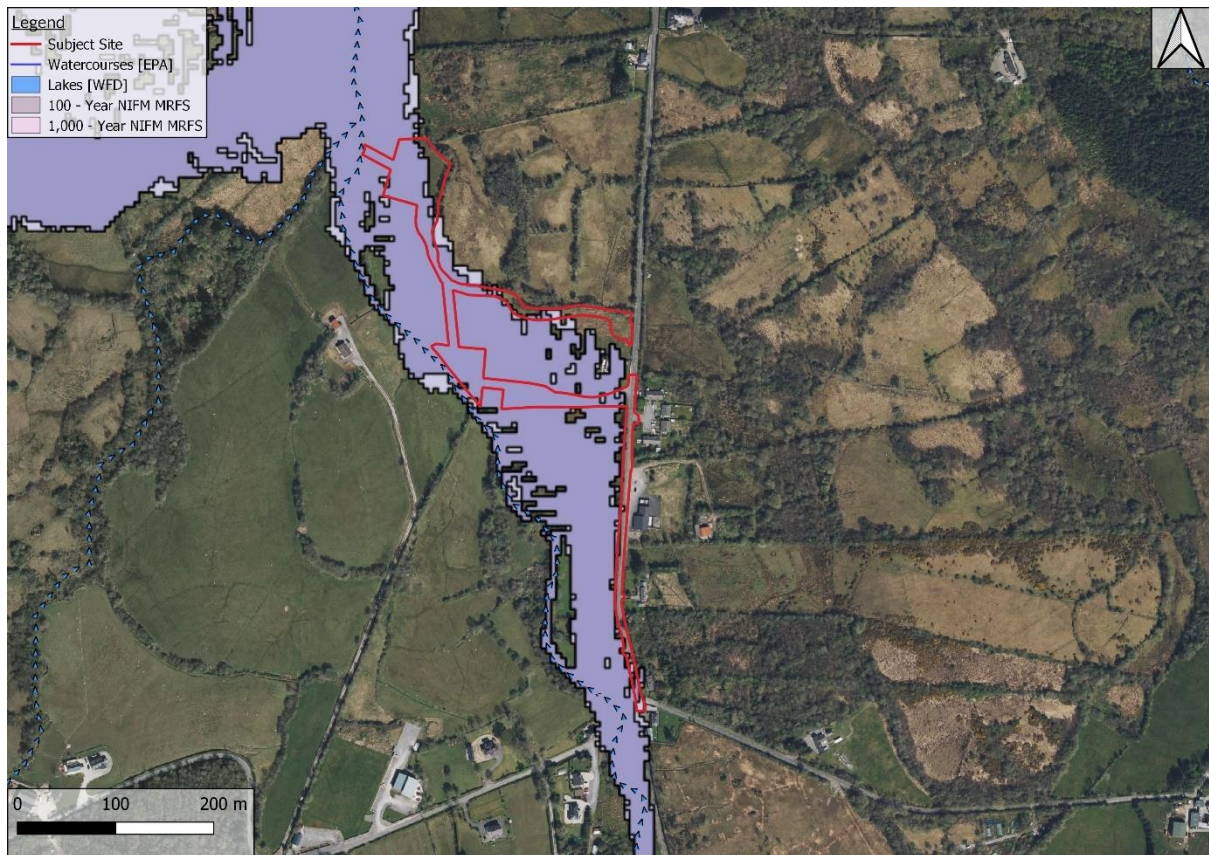
**Figure 3-4: National Indicative Fluvial Mapping - Existing Scenario**

The NIFM update also included an assessment of the likely impact of climate change on flood risk in the area. The flood extents for the Mid-Range Future Scenario are shown in Figure 3-5

<sup>2</sup> National Indicative Fluvial Mapping; Applying and Updating FSU Data to Support Revised Flood Risk Mapping for Ireland, Brown et al., Irish National Hydrology Conference 2019

<sup>3</sup> [https://www.floodinfo.ie/map/nifm\\_user\\_guidance\\_notes/](https://www.floodinfo.ie/map/nifm_user_guidance_notes/)





**Figure 3-5: National Indicative Fluvial Mapping - Mid-Range Future Scenario**

As per Figure 3-4 and Figure 3-5, a large area of the subject site is liable to fluvial flooding in a 1 in 100-year (1% AEP) current event, with a slight increase in inundation in a 1 in 1000-year (0.1% AEP) current event. The flooding occurs on the western side of the site. In a MRFS event the flood extents are only slightly increased in the 1 in 100-year and 1000-year (1% and 0.1% AEP) events, however, it is expected that the flood depths on the site will increase.

### 3.4 CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

In 2015, the OPW produced flood maps as part of the Catchment Flood Risk Assessment and Management (CFRAM) Study. The flood extents in these maps are based on detailed modelling of Areas for Further Assessment identified by the National Preliminary Flood Risk Assessment<sup>4</sup>. The watercourses in the vicinity of the subject site were not modelled as part of the CFRAM Study.

---

<sup>4</sup> [https://www.floodinfo.ie/about\\_frm/](https://www.floodinfo.ie/about_frm/)



### 3.5 OPW DRAINAGE DISTRICTS AND ARTERIAL DRAINAGE SCHEMES

The OPW Drainage Districts were carried out by the commissioners of Public Works under a number of drainage and navigation acts from 1842 to the 1930s to improve land for agriculture and to mitigate flooding.<sup>5</sup> The local authorities are charged with the responsibility to maintain Drainage Districts.

Benefited lands are areas that were previously subject to poor drainage and/or flooding but that have benefited from the implementation of Arterial Drainage Schemes carried out under the Arterial Drainage Act 1945.

The subject site has not benefited from any arterial drainage scheme and is not located in a Drainage District.

---

<sup>5</sup> [www.floodinfo.ie](http://www.floodinfo.ie)

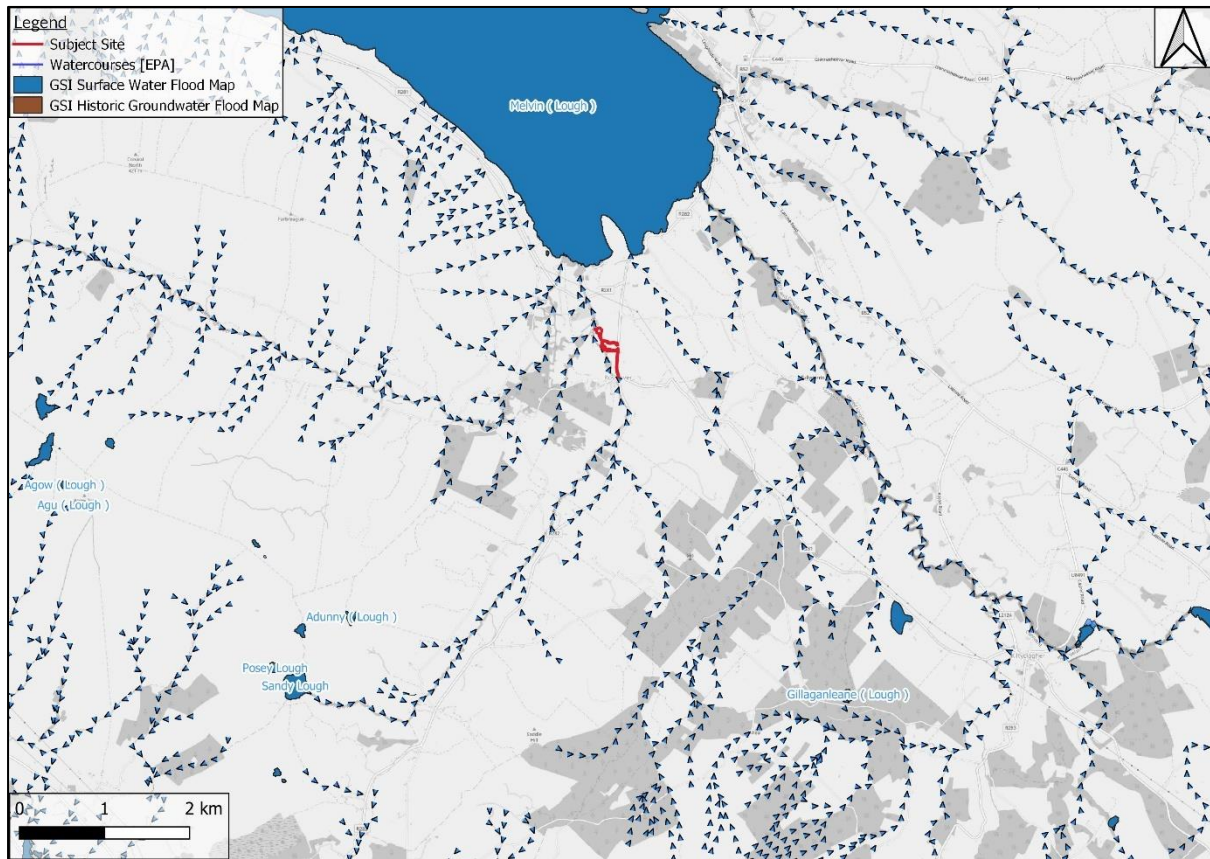




### 3.6 GEOLOGICAL SURVEY IRELAND MAPPING

Based on a review of the OPW’s Preliminary Flood Risk Assessment (PFRA) mapping (see Figure 3-2) there is no noted risk of groundwater flooding to the subject site.

GSI Groundwater Flooding Probability Maps<sup>6</sup> for the subject site were reviewed. There are no groundwater flood extents noted within 10km of the subject site.



**Figure 3-6: GSI mapping of Groundwater and Surface water flooding**

The closest surface water flooding is approximately 750m north of the subject site, assumed to be as a result of flooding from the Melvin Lake and will not have any effect on the sites hydrology.

Geological Survey Ireland (GSI) subsurface mapping of karst features<sup>7</sup> in the area show that there are no karst features located in the vicinity of the subject site. The closest karst feature to the subject site is a spring located 2km south of the subject site.

<sup>6</sup>FloodInfo.ie | National Flood Information Portal, Available at: <https://www.floodinfo.ie/map/floodmaps/>

<sup>7</sup>GSI Groundwater Data Viewer, Available at: <https://dcnr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef>



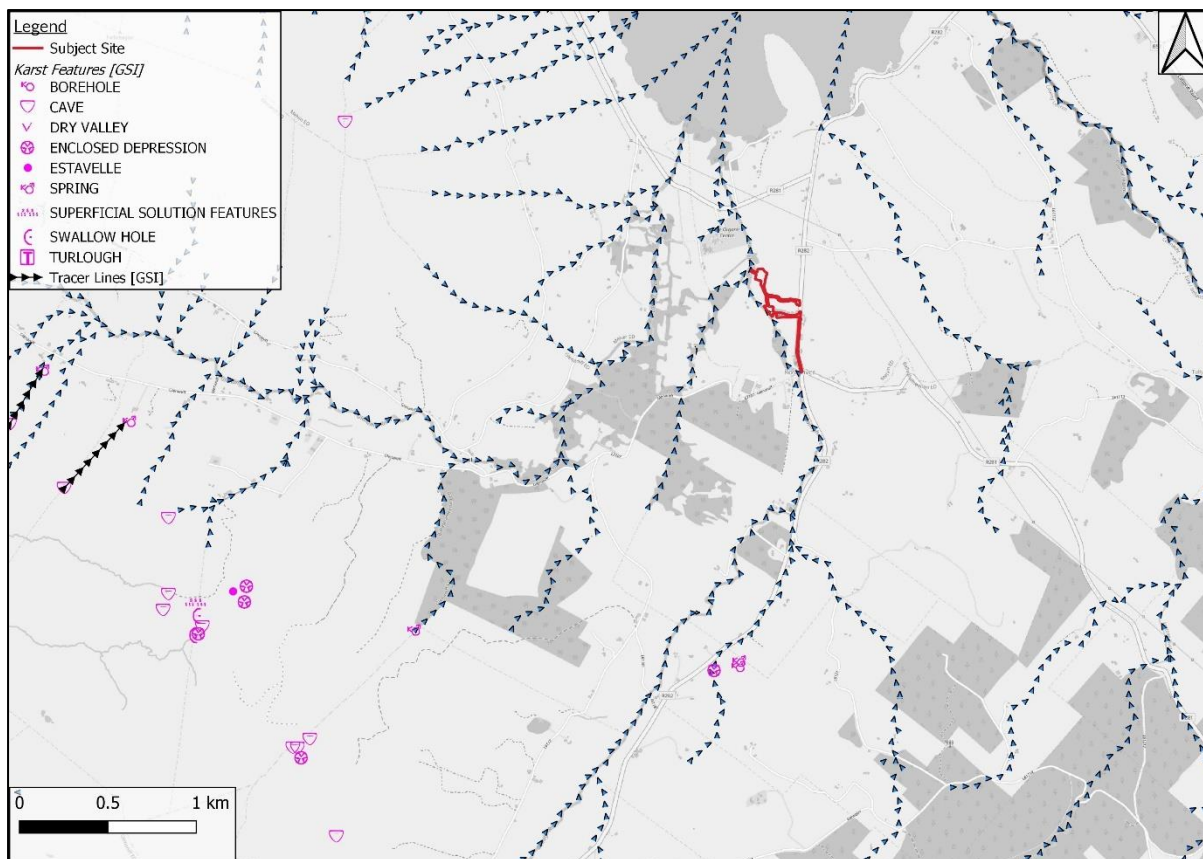


Figure 3-7: GSI Mapping of Karst Features



## 4. SITE SPECIFIC HYDAULIC ANALYSIS

### 4.1 FLOW ESTIMATION

The Ballagh River is located approximately 30m west of the subject site. Its headwaters are located approximately 5.5km southwest of the subject site, at Sandy Lough. The river then drains into Melvin Lough approximately 800m north of the subject site. Figure 4-1 outlines the catchments for the Ballagh River.



**Figure 4-1: Catchment Delineation**

Extreme flows within the catchment were estimated based on the catchment descriptors in Table 4-1.

Table 4-1: Summary of Catchment Descriptors

| Descriptor     | Units              | Value         | Source    |
|----------------|--------------------|---------------|-----------|
| Watercourse    | -                  | Ballagh River | EPA       |
| Catchment Area | km <sup>2</sup>    | 13.491        | FSU/TOBIN |
|                |                    |               |           |
| FSU            | -                  | YES           | FSU       |
| FEH            | -                  | YES           | FEH       |
| IH124          | -                  | YES           | IHI24     |
|                |                    |               |           |
| BFISOIL        | -                  | 0.537         | FSU       |
| SAAR           | mm                 | 1,587.370     | FSU/MET   |
| FARL           | -                  | 0.978         | FSU/TOBIN |
| DRAIN D        | km/km <sup>2</sup> | 1.159         | FSU       |
| S1085          | m/km               | 27.426        | FSU/DEM   |
| ARTDRAIN2      | -                  | 0.000         | FSU       |
| URBEXT         | -                  | 0.000         | FSU       |

Generated EV1 growth factors as defined by the FSU website were applied to the estimation of  $Q_{bar}$  for the subject watercourse to predict the 100 and 1 in 1,000-year flows, respectively. Table 4-2 below outlines the calculated flow rates using the applicable methodology.

Table 4-2: Estimated Flows

| Description               | Units             | Ballagh (IH124) |
|---------------------------|-------------------|-----------------|
| $Q_{bar, adopted}$        | m <sup>3</sup> /s | 13.13           |
| Growth Factor 10-yr       | -                 | 1.53            |
| Growth Factor 100-yr      | -                 | 2.2             |
| Growth Factor 1000-yr     | -                 | 2.86            |
| 1 in 100-year Flow        | m <sup>3</sup> /s | 28.92           |
| 1 in 1,000-year Flow      | m <sup>3</sup> /s | 34.71           |
| 1 in 100-year MRFS Flow   | m <sup>3</sup> /s | 37.6            |
| 1 in 1,000-year MRFS Flow | m <sup>3</sup> /s | 45.12           |



## 4.2 HYDRAULIC MODEL CONSTRUCTION

A 1D site-specific hydraulic model of the site area was developed using the latest version (6.0) of Jacob’s Flood Modeller software. Flood Modeller is designed to perform one-dimensional and two-dimensional hydraulic calculations for a full network of natural and constructed channels. The three primary inputs into the Flood Modeller model are summarised below:

- Geometric Data: Cross-sectional survey of watercourse and bridges
- Inflow Data: 100- and 1,000-year design flows, with climate change
- Boundary Condition: Normal Depth downstream boundary
- Site-specific topographical survey

In accordance with the Climate Change Sectorial Adaption Plan, the proposed development was assessed against a Mid-Range-Future-Scenario (MRFS) which includes a 20% increase in flow.

Conservative roughness value of 0.04 to the channel and floodplain, respectively, based on a review of site photography and channel conditions.

The model was used to run two unsteady flow scenarios: the 100- and 1 in 1,000-year flood events with climate change. These events were simulated over a 4-day duration with adaptive computational timesteps. The results of the hydraulic modelling are given in Section 4.3.

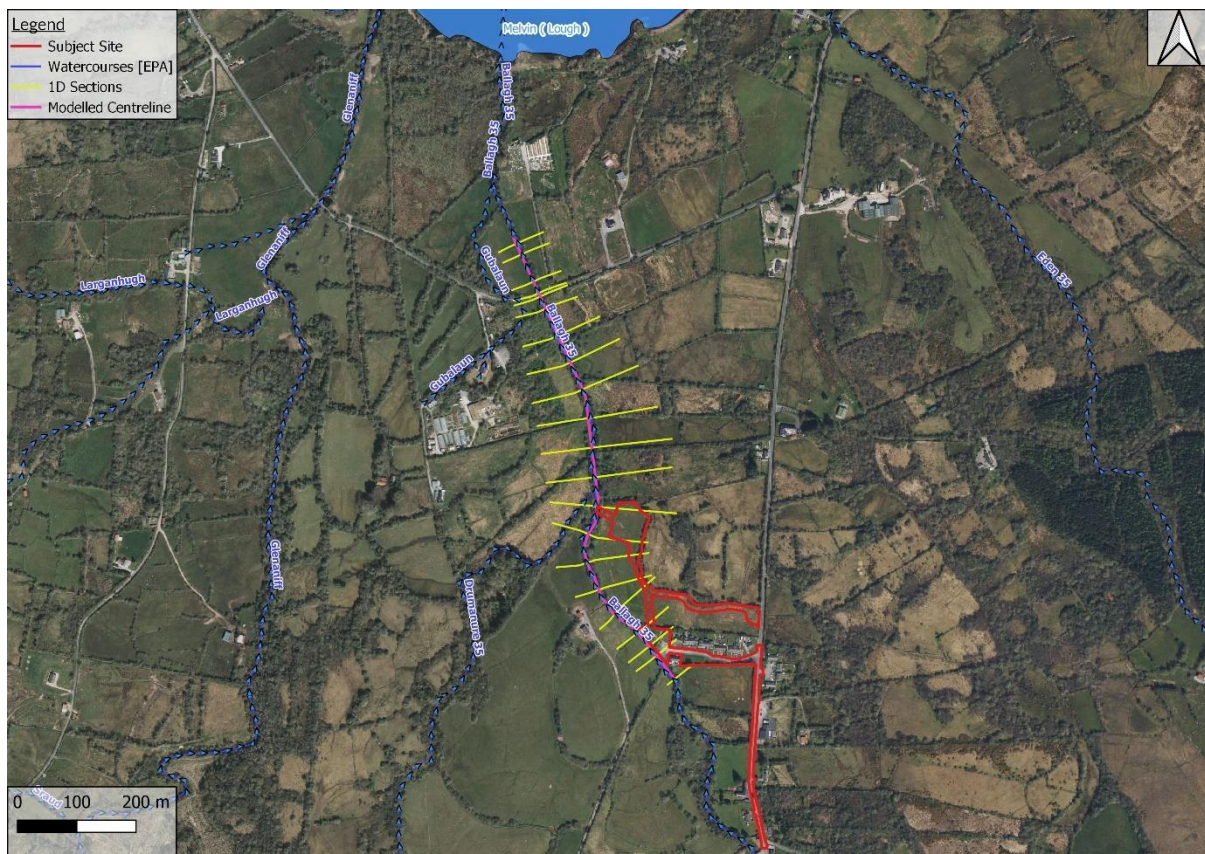


Figure 4-2: Model Configuration

### 4.3 HYDRAULIC MODEL RESULTS

The model was run for two scenarios, the 1-in-100- and 1 in 1,000-year MRFS scenarios. Figure 4-3 outlines the modelled flood extents. The 1 in 100-year event corresponds to Flood Zone A and the 1 in 1,000-year event corresponds to Flood Zone B.

The northern end of where the proposed treatment plant will be located is in Flood Zone A with a slightly larger portion in Flood Zone B (see Figure 4-3).

The flood depths within the subject site vary but are typically less than 0.25m. The elevation of the flood waters in the 1000-year MRFS event is predicted to approximately 30.266mOD adjacent to the proposed treatment plant. The proposed elevations at the site will be at a minimum of 31.50mOD, therefore the risk of flooding to any vulnerable elements of the development has been removed. It is also proposed to provide compensatory storage at the northern end of the site to accommodate for any loss of floodplain caused by the regrading of existing site elevations.

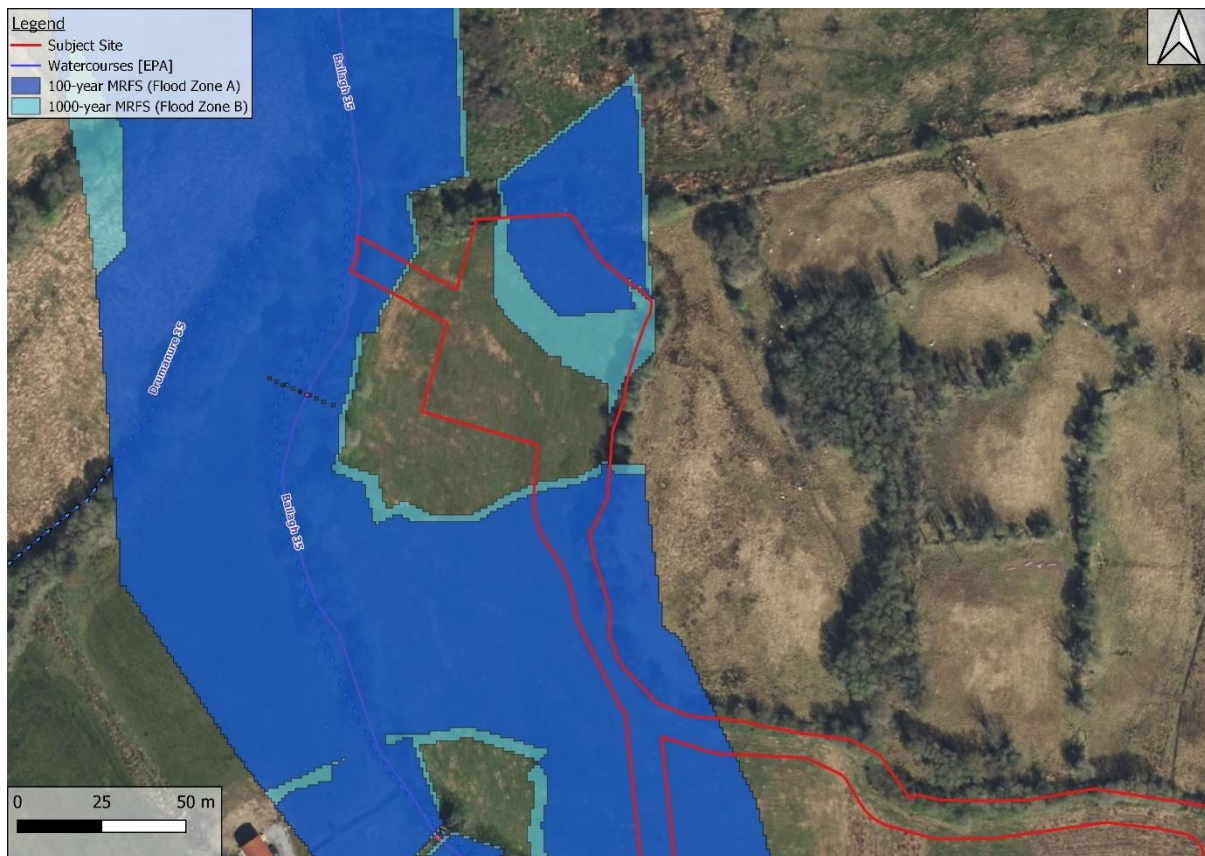


Figure 4-3: Modelled Flood Extents



## 5. DETAILED FLOOD RISK ASSESMENT

With reference to the PSFRM guidelines, the proposed development is comprised of 'highly vulnerable' (essential infrastructure) elements.

Therefore, "essential infrastructure" is considered appropriate in Flood Zone C (Low probability of flooding i.e., 0.1% AEP), and local transport infrastructure are considered appropriate in Flood Zone B (Medium probability of flooding i.e., 1% AEP),

### 5.1 FLUVIAL FLOODING

The subject site is identified as being at risk of fluvial flooding by the available NIFM mapping. A site-specific hydraulic model was developed to assess the fluvial flood risk to the proposed development.

A review of the available mapping showed that the subject site was at risk of fluvial flooding during the 1 in 100-year and 1 in 1,000-year flood events. The main source of flood risk came from the adjacent Ballagh River.

The site-specific hydraulic model was run for two scenarios, the 1-in-100- and 1 in 1,000-year MRFS scenarios. Figure 4-3 outlines the modelled flood extents. The 1 in 100-year event correspondes to Flood Zone A and the 1 in 1,000-year event correspondes to Flood Zone B.

The northern end of where the proposed treatment plant will be located is in Flood Zone A with a slightly larger portion in Flood Zone B (see Figure 4-3).

The flood depths within the subject site vary but are typically less than 0.25m. The elevation of the flood waters in the 1000-year MRFS event is predicted to approximately 30.266mOD adjacent to the proposed treatment plant. The proposed elevations at the site will be at a minimum of 31.50mOD, therefore the risk of flooding to any vulnerable elements of the development has been removed. It is also proposed to provide compensatory storage at the northern end of the site to accomadate for any loss of floodplain caused by the regrading of existing site elevations.

### 5.2 COASTAL FLOODING

The subject site is located approximately 50km inland from the sea and therefore it is estimated that the risk of coastal flooding associated with the development is minimal.

### 5.3 PLUVIAL FLOODING

The PFRA indicative mapping indicates that there is one area of pluvial flooding within the subject site.

Surface water arising on the proposed mixed-use development will be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates.

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



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

## 5.4 GROUNDWATER FLOODING

Based on a review of Geological Survey Ireland (GSI) subsurface mapping of karst features (Figure 3-7), predicted groundwater flooding in the area (Figure 3-6), and the PFRA study (Figure 3-2), there is no evidence to suggest liability to groundwater flooding at the proposed development site.

## 5.5 THE JUSTIFICATION TEST

With reference to the PSFRM Guidelines, aspects of the proposed development are considered “highly vulnerable” in terms of its sensitivity to flooding, appropriate for construction in Flood Zone C, where the probability of flooding is less than 1 in 1,000-year (0.1% AEP) event.

Based on the findings of this Flood Risk Assessment, a portion of the site is located within fluvial Flood Zone A and B.

As such, the site has been assessed against the criteria of the Justification Test:

1. The subject site is immediately north of the Gublaun estate on the west side of the R282. In choosing this location, an appropriate buffer distance of 50m was adopted from existing housing.
2. The proposed development has been subject to this Flood Risk Assessment.
  - (i) The site-specific hydraulic model showed that the proposed development will not increase flood risk elsewhere. The compensatory storage provided will mitigate any effect the proposed development will have on flood storage. The surface water arising within the hardstanding areas of the proposed development will also be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates.
  - (ii) The proposed development has located all vulnerable elements outside the modelled flood extents. The FFLs of the proposed development are above the maximum modelled flood levels.
  - (iii) Residual risks to the subject site and to the proposed development during an extreme flood event can be managed to an acceptable level through a dedicated storm water drainage system and effective landscaping and topography. An emergency management plan will be prepared to ensure the development is empty during a flood event.
  - (iv) The proposed development is compatible with the wider planning objectives of the area, which promotes sustainable growth and development. To provide centralized sewerage collection and treatment infrastructure for the village, thereby reducing the discharge of uncontrolled and partially treated effluent to the aquatic environment.





## 6. CONCLUSIONS

TOBIN were appointed by Leitrim County Council to undertake a Flood Risk Assessment (FRA) for a proposed Wastewater Treatment Plant (see Figure 1-2) at Rossinver, Co. Leitrim.

The PSFRM Guidelines also categorise different types of development into three vulnerability classes based on their sensitivity to flooding. The guidelines classify wastewater treatment plants as “highly vulnerable” and are therefore considered appropriate in Flood Zone C (less frequently than 0.1% AEP event), and local transport infrastructure as “less vulnerable” and are therefore considered appropriate in Flood Zone B (less than 1% AEP).

### Fluvial Flooding

The subject site is identified as being at risk of fluvial flooding by the available NIFM mapping. A site-specific hydraulic model was developed to assess the fluvial flood risk to the proposed development.

A review of the available mapping showed that the subject site was at risk of fluvial flooding during the 1 in 100-year and 1 in 1,000-year flood events. The main source of flood risk came from the adjacent Ballagh River.

The site-specific hydraulic model was run for two scenarios, the 1-in-100- and 1 in 1,000-year MRFS scenarios.

The northern end of where the proposed treatment plant will be located is in Flood Zone A with a slightly larger portion in Flood Zone B, with flood depths within the subject site less than 0.25m. The elevation of the flood waters in the 1000-year MRFS event is predicted to approximately 30.266mOD adjacent to the proposed treatment plant.

The proposed elevations at the site will be at a minimum of 31.50mOD, therefore the risk of flooding to any vulnerable elements of the development has been removed. A freeboard of at the least 1.23mOD will be provided. It is also proposed to provide compensatory storage at the northern end of the site to accommodate for any loss of floodplain caused by the regrading of existing site elevations.

Therefore, the fluvial flood risk to the proposed development is minimal.

### Coastal Flooding

The subject site is not at risk of coastal flooding due to its distance inland from coastal waters.

### Pluvial Flooding

The PFRA indicative mapping indicates that there is one area of pluvial flooding within the subject site.

Surface water arising on the proposed mixed-use development will be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates.

The landscaping and topography of the developed site will provide safe exceedance flow paths and prevent surface water ponding to minimise residual risks associated with an



extreme flood event or a scenario where the stormwater drainage system becomes blocked.

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

#### Groundwater Flooding

There is no evidence to suggest groundwater as a potential source of flood risk to the proposed subject site.

#### Justification Test

The proposed development satisfies the criteria set out in the Justification Test. Therefore, the proposed development passes the Justification Test.

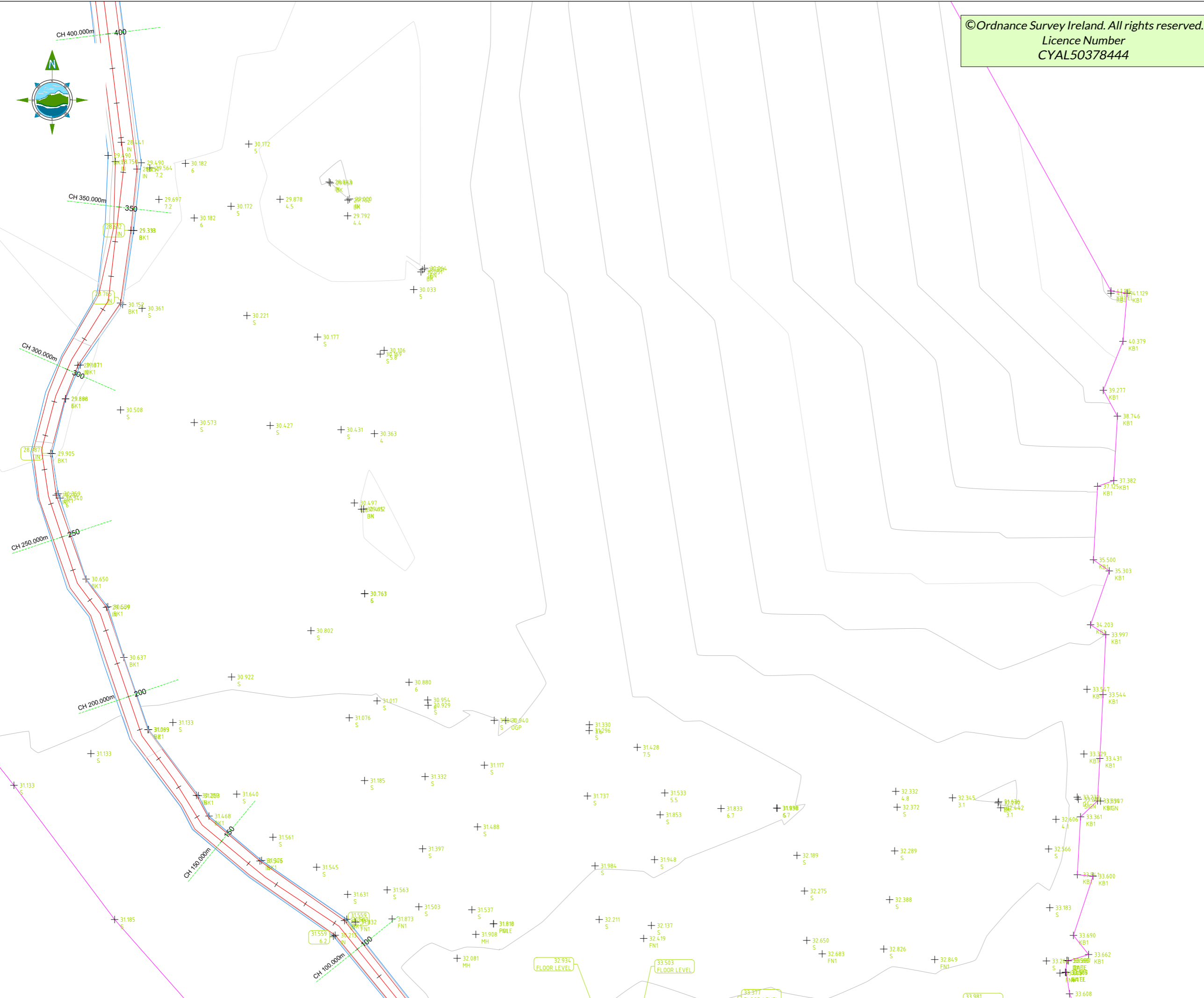
The proposed development was designed in accordance with the sequential approach as outlined in the PSFRM Guidelines and all vulnerable elements are located outside areas identified as being at risk of flooding. The proposed FFLs of the development are above the modelled flood levels.

Portions of the subject site are located in Flood Zone A and B. However, it is proposed to raise ground levels within the site to fully remove the risk of flooding to vulnerable elements of the development. Compensation storage will also be provided. As a result, it is anticipated the proposed development will not have a negative impact on flood risk elsewhere.

## Appendix A TOPOGRAPHIC SURVEY



©Ordnance Survey Ireland. All rights reserved.  
Licence Number  
CYAL50378444



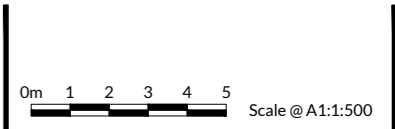
|      |        |             |    |      |
|------|--------|-------------|----|------|
| Rev. | Date   | Description | By | Chkd |
| A    | MAY'24 | PRELIMINARY | JM | BG   |

Client:  

**Comhairle Chontae Leitrim**  
 Leitrim County Council

Project:  
**Rossinver WwTP**

Title:  
**Topographical Survey**



|                  |             |          |
|------------------|-------------|----------|
| Prepared by:     | Checked     | Date     |
| JM               | BG          | May 2024 |
| Project Director | K.McKEANNA  |          |
| Drawing Status   | PRELIMINARY |          |

**TOBIN** CONSULTING ENGINEERS

Consulting Civil and Structural Engineers, Fairgreen House, Fairgreen Road, Galway, Ireland.

tel: +353 (0)91-565211  
 fax: +353 (0)91-565398  
 e-mail: galway@tobin.ie  
 www.tobin.ie

Drawing No. **11896-8000** Issue **A**

## Appendix B SITE LAYOUT





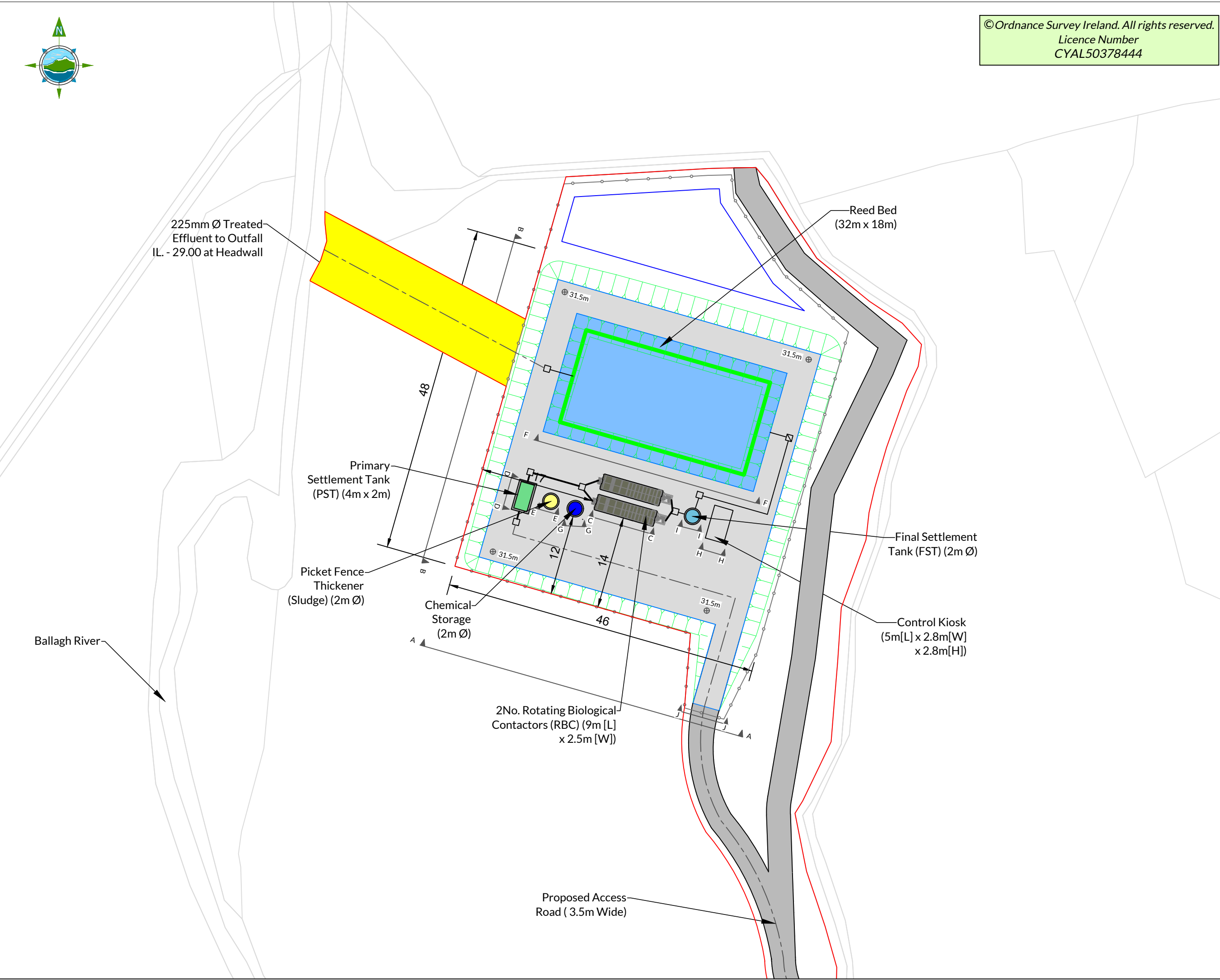
© Ordnance Survey Ireland. All rights reserved.  
Licence Number  
CYAL50378444

**NOTES:**  
1. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.


**LEGEND**

- PLANNING APPLICATION BOUNDARY
- PERMANENT WAYLEAVE
- FLOOD STORAGE BASIN
- FENCE
- SEWER LINE

OS TILE REFERENCE -  
0777  
0813



| Rev | Date     | Description | By | Chkd. |
|-----|----------|-------------|----|-------|
| A   | 24-06-24 | PLANNING    | KS | KG    |

Client: **Leitrim County Council**  
  
 Project: **Upgrade of Rossinver WWTP**

Title: **Proposed Site Layout (Drawing 1 of 4)**

Scale @ A3: 1:500  
 Prepared by: KS    Checked by: KG    Date: 24-06-2024

Drawing Status: **PLANNING**

**TOBIN**  
  
 Tel: +353 (0)91 565 211  
 Email: info@tobin.ie  
 www.tobin.ie

Drawing No.: **11896-2001**    Revision: **A**

