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Our Ref: ***11896-04-04 (01)*** 14th May 2025

The Secretary,
An Bord Pleanála,
64 Marlborough Street,
Dublin 1
D01V902

Re: Proposed Development of Rossinver Wastewater Treatment Plant and Ancillary Works, Co. Leitrim
Section 177AE Planning Application (ABP-320024-24)

Dear Sir/Madam,

We refer to your letter of 17th April 2025 requesting additional information on the above application. We have addressed each of the items raised in turn below.

1. Demonstration of Consideration of an Alternative Site

The submitted consent application has been accompanied by a detailed site specific Flood Risk Assessment Report. This included the development of a hydraulic model by TOBIN. 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) of the submitted site specific Flood Risk Assessment Report. The key process units on the site, including all process tanks, lie outside Flood Zones A and B.

Page 23 of the submitted report states:

> *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.*

Such an approach is considered fully consistent with that recommended in the *Planning System and Flood Risk Management Guidelines*.

Essential infrastructure (which includes water and sewage treatment) has been identified as highly vulnerable development in Table 3.1 (Classification of vulnerability of different types of development) in the *Planning System and Flood Risk Management Guidelines*. Such development is required to undergo a Justification Test if the site is located within Flood Zone A or B. This has been undertaken on page 25 of the submitted report.

To recap, the Development Management Justification Test concluded the following:

> *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.*

The proposed development has located all vulnerable elements outside the modelled flood extents. The Finished Floor Levels of the proposed development are above the maximum modelled flood levels.

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 not occupied during a flood event.

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

The proposed development satisfies the criteria set out in the Justification Test and the proposed development passes the Justification Test. The need to consider an alternative site with a reduced likelihood of flooding was not therefore considered further.

It is also considered that such an approach is consistent with Objective RR 4 (Rossinver Written Statement contained in the Leitrim County Development Plan 2023-2029) which seeks to 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 currently proposed for the development has been deemed to be suitable as it provides sufficient land available to incorporate a Nature Based Solution in the treatment process, which is a requirement of InterReg funding. This extent of land to incorporate a Nature Based Solution was not available elsewhere in Rossinver including the sites examined on the eastern side of the R282 previously by Leitrim County Council. To discount the likely funding of the proposed development in such considerations by Leitrim County Council would have been senseless.

Finally, the current design of the system offers a significant improvement on the *Do Nothing Scenario* during an extreme flood event. The scheme design also allows for the interception of flows from seven no. existing properties along the R282. In the current scenario, the flows from the properties on the western wide of the R282 would continue to drain to existing septic tanks, which would be inundated in an extreme flood event.

2. Revised Drawings Showing a Topographical Survey of the Site

We have included as Appendix A, Drawings 11896-2010 and 11896-2011.

Drawing 11896-2010 shows a section through the site with flood and other key levels indicated. This section is taken through all of the main process elements excluding the reed bed and includes:

- The treated effluent outfall to the river
- Existing ground levels (30.45mOD on the west of the site and 30.38mOD on the east)
- The base level of the main below ground process units (primary settlement tanks, RBCs)
- The proposed general ground level (31.50mOD)
- The 1 in 1000 MRFS flood level of 30.266mOD

Drawing 11896-2011 is a layout plan showing the extent of Flood Zone A (dark blue) and Flood Zone B (light blue), as derived from the flood model. As is evident from the drawing, the key process units on the site, including all process tanks, all lie outside these flood zones. It should be noted that the extents of Flood Zone A (dark blue) and Flood Zone B (light blue) shown on the drawing are those that apply to the current lands, before the site is raised to 31.50mOD as per the development proposals.

The 1 in 1000 MRFS level is 30.266mOD and we have set the general site level at 31.500mOD so that all floor levels of buildings/kiosks and electrical equipment are above this flood level (with an appropriate freeboard), as per the Flood Resistant principles set out in *The Planning System and Flood Risk Management*. It is not practical to have all below ground pipes and tanks above the 1 in 1000 MRFS level.

For example, if the base of all tanks were to be maintained above the 1 in 1000 MRFS level of 30.266mOD, all infrastructure would need to be raised by about 1.0m, which would see the general site level raised to 32.50mOD and the highest structure (chemical dosing tank) would then be at 34.50mOD which is approx. 4.5m above existing ground levels. That would have a significant visual impact in this rural setting.

Having below ground pipework lower than the 1 in 1000 MRFS level is not an issue as the 1 in 1000 MRFS flood is an extreme event and would be temporary in nature. It is also acceptable to have the lowest portion of the underground tanks below this level as these below ground tanks (settlement tanks and RBCs) will always contain liquid and will therefore be adequately protected against flotation.

3. Details of How the Plant Would Operate in a Flood Event

As shown on Drawing 11896-2011 the key process units on the site, including all process tanks, all lie outside Flood Zones A and B.

The drawing shows that part of the proposed reed bed lies in Flood Zones A and B. In the scenario where the reed bed is inundated, this would not affect the operation and performance of the WwTP. The reed bed was included as a polishing filter for phosphorus. The WwTP however also includes chemical phosphorus removal (eg. ferric sulphate dosing) and the chemical dose rate can be increased during such events to achieve the same level of phosphorus removal that is achieved with the reed bed in operation as a polishing filter.

The plant is automated and unmanned and there is no risk to operator safety during a flood event, given that the proposed site ground level of 31.50mOD is approx. 1.2m above the 1 in 1000 year MRFS flood level. All kiosk floor levels and all electrical equipment will be above the flood level. In an extreme flood event, the site can still be accessed by a works vehicle.

In an extreme flood event (1 in 1000 year MRFS flood), the treated effluent outfall to the river would be inundated and would not operate. In this scenario it is proposed to provide an automated overpumping facility. Treated effluent would gravitate to the treated effluent sump / overpumping chamber (location shown on Drawing 11896-2011) and would be pumped from there to the river. A water level monitor would be fitted in this sump and would be set to automatically close the gravity outlet from the sump and trigger overpumping to the river via a flexible above ground pipe. At the same time the system would send a text message to the operator to indicate that the system has switched to overpumping, but the system would not require manual intervention as it would switch over automatically.

4. Updated Natura Impact Statement

We have enclosed in Appendix B an updated Natura Impact Statement that takes account of this control philosophy during an extreme flood event.

We trust that the details enclosed are adequate for your consideration of this application,

Yours sincerely,

_____

Brian Gallagher

for TOBIN Consulting Engineers (Agent)

encl. Appendix A Supplementary Drawings

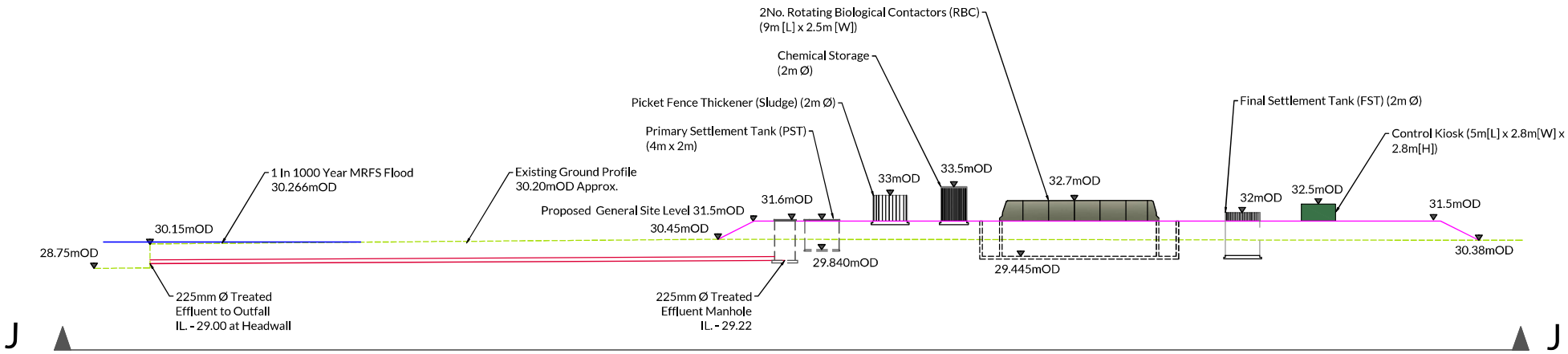
Appendix B Updated Natura Impact Statement

Appendix A Drawing 11896-2010 Section Through Site

Drawing 11896-2011 Layout Plan Showing Flood Extents

NOTES:

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



J Section J-J

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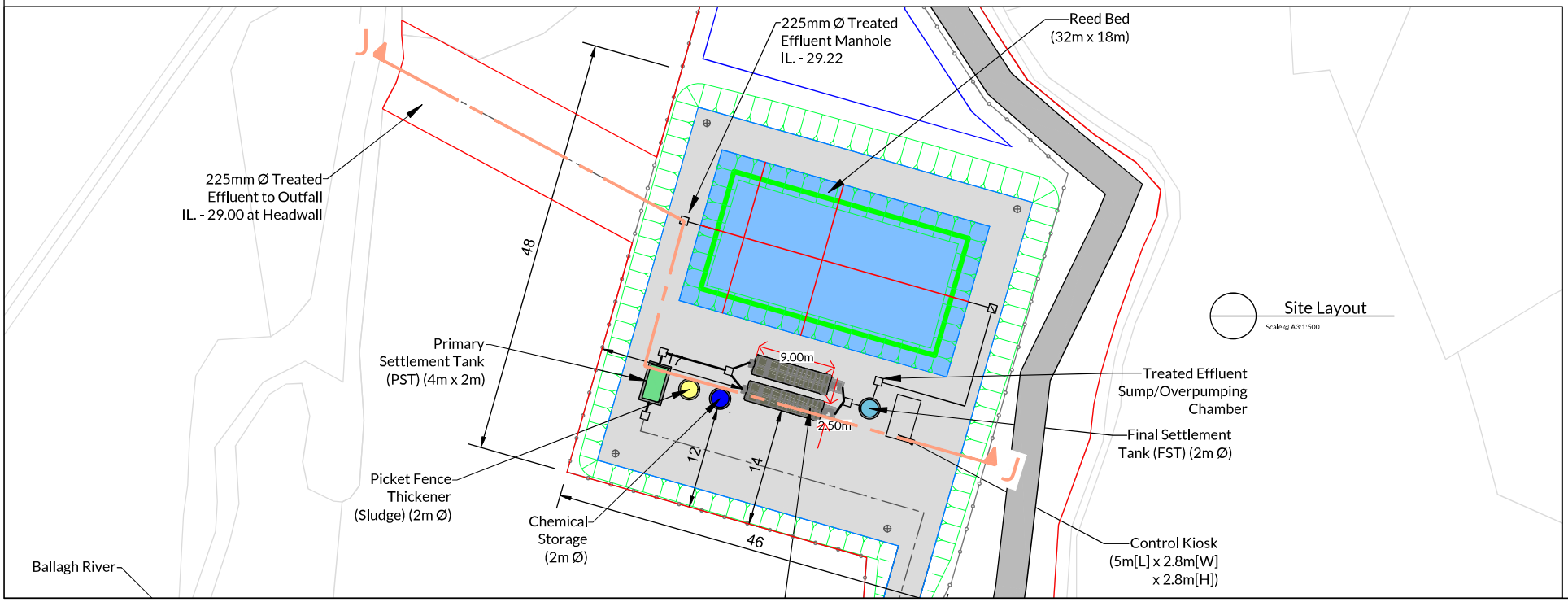

Site Layout

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Rev	Date	Description	By	Chkd.
A	09-05-25	PLANNING	KS	KG

Client: Leitrim County Council
Comhairle Chontae Liatroma
Leitrim County Council

Project: Upgrade of Rossinver WWTP

Title: Section Through Site

Scale @ A3: 1:200

Prepared by:	Checked by:	Date:
JM	KG	09-05-2025

Drawing Status: PLANNING

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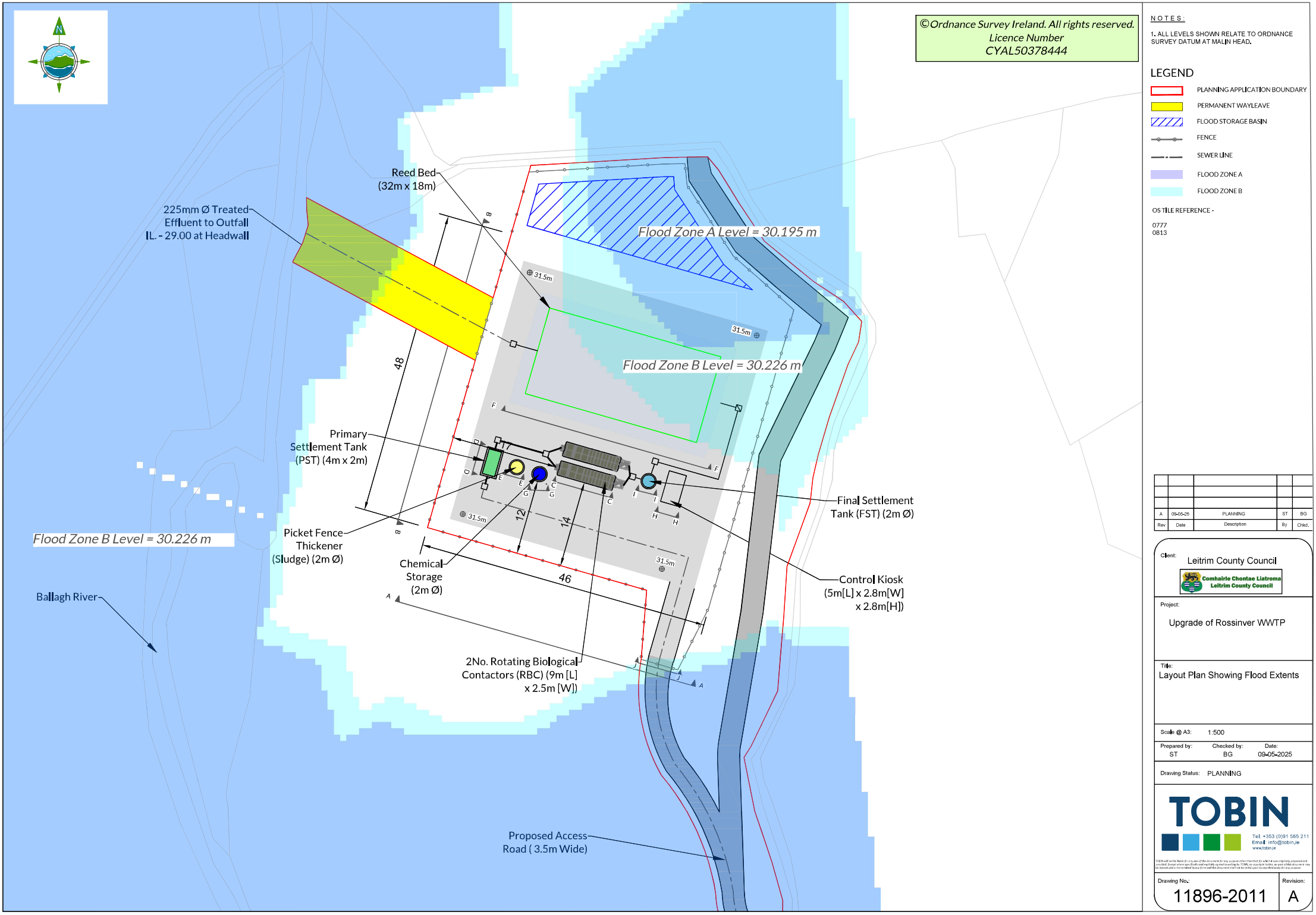
Drawing No.: 11896-2010

Revision: A



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
- FLOOD ZONE A
- FLOOD ZONE B

OS TILE REFERENCE -

0777
0813

Rev	Date	Description	By	Chkd.
A	09-05-25	PLANNING	ST	BG

Client: Leitrim County Council
Comhairle Chontae Liatroma
Leitrim County Council

Project: Upgrade of Rossinver WWTP

Title: Layout Plan Showing Flood Extents

Scale @ A3: 1:500

Prepared by:	Checked by:	Date:
ST	BG	09-05-2025

Drawing Status: PLANNING

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Drawing No.:	Revision:
11896-2011	A

Appendix B Updated Natura Impact Statement

APPROPRIATE ASSESSMENT

NATURA IMPACT STATEMENT

IN ACCORDANCE WITH THE REQUIREMENTS OF

ARTICLE 6(3) OF THE EU HABITATS DIRECTIVE

Wastewater Treatment Plant

Rossinver. Co. Leitrim

Compiled by
Jessica Devlin BSc. MSc.

for

Patrick J TOBIN & Co. Ltd
on behalf of
Leitrim County Council

JESSICA DEVLIN
PROJECT MANAGEMENT &
ENVIRONMENTAL SERVICES

25 June 2024
Amended 12 May 2025

Contents

Report produced by:
Jessica Devlin, BSc. Geology (Hons), MSc. Applied Environmental Science. Project Management & Environmental Services, 5 Pheasant Park, Donegal Town, Co. Donegal, Ireland.

1.0 Introduction

This Natura Impact Statement (NIS) report has been prepared by Jessica Devlin for Patrick J TOBIN & Co. Ltd. on behalf of Leitrim County Council for the purpose of a Planning Permission Application pertaining to the development of a Waste Water Treatment Plant and Reed bed in Rossinver, Co. Leitrim, Ireland.

This report has been compiled to provide the competent authority (An Bord Pleanála (ABP)) with adequate information to make an Appropriate Assessment (AA) of the Project under Article 6(3) of the Habitat Directive. The NIS will assist ABP in determining whether or not the proposed development will adversely affect the integrity of any Natura 2000 sites, either alone or in combination with other plans and projects, taking into account their conservation objectives. The report should be read in conjunction with the Screening for Appropriate Assessment Report (Devlin, 2024).

The purpose of this NIS is to provide an examination, analysis and evaluation of the potential impacts of the proposed development on Natura 2000 sites and to present findings and conclusions with respect to the proposed development in light of the best scientific knowledge in the field.

It considers the implications of the proposed development, on its own and in combination with other plans or projects, for Natura 2000 sites in view of the conservation objectives of those sites. It includes a scientific examination of evidence and data to identify and assess the implications of the proposed development for any Natura 2000 sites in view of the conservation objectives of those sites. It considers whether the proposed development, by itself and in combination with other plans or projects, would adversely affect the integrity of Natura 2000 sites. In reaching a conclusion in this regard consideration is given to any mitigation measures necessary to avoid or reduce any potential negative impacts.

1.1 Appropriate Assessment

The introduction of the EU Birds Directive and the Habitats Directive in 1979 and 1992 respectively, made member states legally obliged to establish a Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species. This comprises Special Areas of Conservation (SACs, including candidate SACs), and Special Protection Areas (SPAs, including proposed SPAs). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

Articles 6(3) and 6(4) of the Habitat Directive 92/43/EEC require an Appropriate Assessment of plans and projects to prevent significant adverse effects on Natura 2000 sites. The Assessment must determine whether the plan or project is likely to have significant effects on the site and whether these effects will adversely affect the integrity of the site in terms of its nature conservation objectives.

The assessment can be broken down into 4 main stages:

Stage 1 - Screening: Results of preliminary impact identification and assessment of significance of impacts.

Stage 2 - Appropriate Assessment: Assessment of the impact on the integrity of the site(s) and assessment of mitigation measures (NIS Report).

Stage 3 - Assessment of alternative solutions.

Stage 4 - Imperative Reasons of Overriding Public Interest (IROPI): IROPI test and assessment of compensatory measures.

2.0 Statement of Authority

Jessica Devlin
Jessica graduated from the National University of Ireland, Galway in 1997 with a BSc. honours degree in Geology and obtained a MSc. in Applied Environmental Science from Queens University Belfast in 2001. She attained a National Certificate in Eco-Tourism, from Sligo Institute of Technology in 2005 and in 2014 completed Geographical Information Systems for Environmental Investigations, University College Dublin.

Over the years, Jessica has gained a wide range of experience in research, consultancy and project management with particular emphasis on sustainable development in freshwater, marine and coastal environments.

As field scientist with the Queens University Marine Station in Portaferry, Jessica carried out habitat surveys with respect to the decline of Salmonid populations in Northern Ireland Rivers. She progressed to research assistant with Queens University and the Department of Agriculture & Rural Development. As project manager for the Donegal County Council - Marine & Water Leisure Programme, she managed projects on sustainable development of the marine leisure product. Jessica also worked with the University College Cork Coastal and Marine Research Centre in partnership with Donegal County Council and the University of Ulster, as manager of the Donegal element of a North West Europe Interreg Project called IMCORE (Innovative Management of Europe's Changing Coastal Resource). For the past 11 years Jessica has been self-employed working as a project manager and environmental consultant, specialising in freshwater, marine, coastal and environmental projects. Her client base is wide reaching from state agencies to community groups, individuals, angling clubs and private developers.

3.0 Methodology

- Liaison with TOBIN Ltd. Brian Gallagher
- Site visit and surveys on 30 May 2024.
- Desk research (list not exhaustive, see section 11 for full detail).
    - Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents and Article 17 data.
    - OPW CFRAMS floodmaps.ie
    - Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie.
    - Information on www.catchments.ie and www.epa.ie with regard to water quality.
    - Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie.
    - Northern Ireland Environmental Agency (NIEA) map viewer

This report has been prepared using the following guidance. A full list of research sources and references can be seen in section 11.

- Dept. of Environment Heritage and Local Government (2009) Appropriate Assessment of plans and projects, Guidance for planning authorities.
- European Commission Environment DG (2001) Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC November 2001.
- *Guidelines for Ecological Impact Assessment in the UK and Ireland* (Chartered Institute of Ecology and Environmental Assessment, 2018 and as updated September 2019).

4.0 Project proposals

There is no wastewater treatment plant in Rossinver village at present. The existing sewage system is located in an area of the village that has a centralised sewerage scheme, comprising of two Gublaun housing estates located in the north of the village see figure 4.1. The first 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 peat filter (block construction). The second 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 the 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. However, operational problems also became evident with the Gublaun 2 system in 2016. A site inspection in April 2018 found that sewage was overflowing from the pump-sump and running directly to the Ballagh River. It was not clear whether this was caused by overloading (from the connection of the Gublaun 1 estate) or from a failure of the pumping station following a flooding event in 2016. Since 2018, the sewage has been removed via a tanker to Manorhamilton WwTP, and since April 2018 the WwTP has not been operational.

Figure 4.1 Existing Sewage System Site (Gublaun 1 on the east and Gublaun 2 on the west)

In 2019 detailed proposals for a new WwTP in another location across the road did not come to fruition due to funding constraints.

Leitrim County Council has recently secured funding through the PeacePlus programme and planning permission is now being sought for a new WwTP, to serve approximately 100 persons. An additional nature based solution is also proposed to include a horizontal reed bed. The site for the proposed new WwTP is comprised of one plot of land to the north of the Gublaun estate, see figures 4.2 and 4.3. The collection chamber to which the wastewater from Gublaun Estate drains (and is tankered away) will be converted to use

as a sump by installing a submersible pump. The horizontal reed bed is being designed as a horizontal sub-surface flow (i.e. no visible water surface) gravel-based reed bed, planted with phragmites.

The project will also include extending a foul sewer south from Gublaun Housing Estate along the R282 for 310m to the bridge close to the junction of the R281. Connection points will be left to enable householders to connect to the system see figures 4.4 and 4.5.

The site is within the flood plain of the Ballagh River; compensatory storage to offset the volume of flood storage being lost as part of the proposed development is proposed, this required modelling and a Stage 3 Flood Risk Assessment (FRA), see Appendix B to the planning statement.

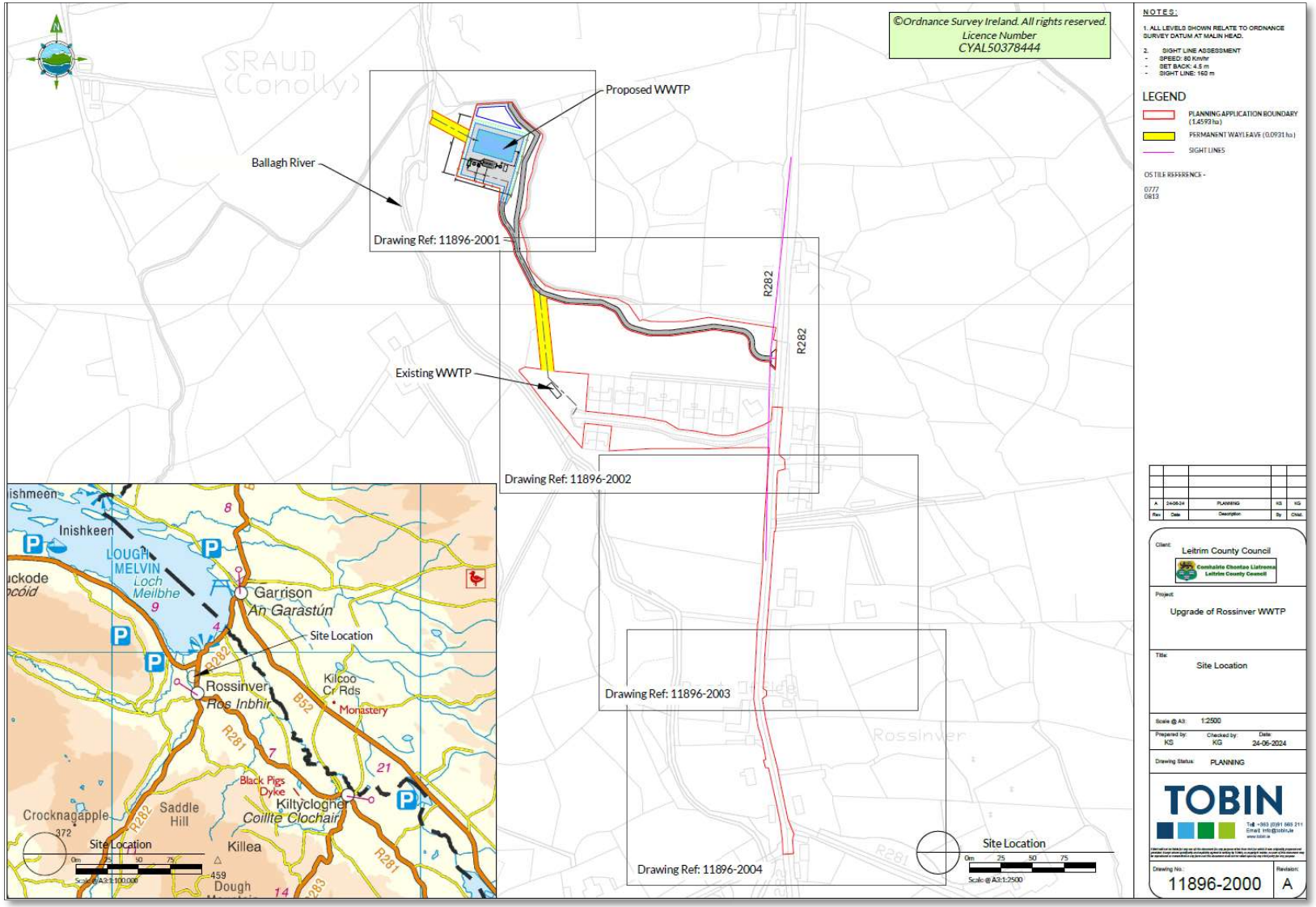

Figure 4.2. Extract from site drawings of project proposals as supplied by TOBIN Ltd. (not to scale), see planning drawing ref 11896-2001.

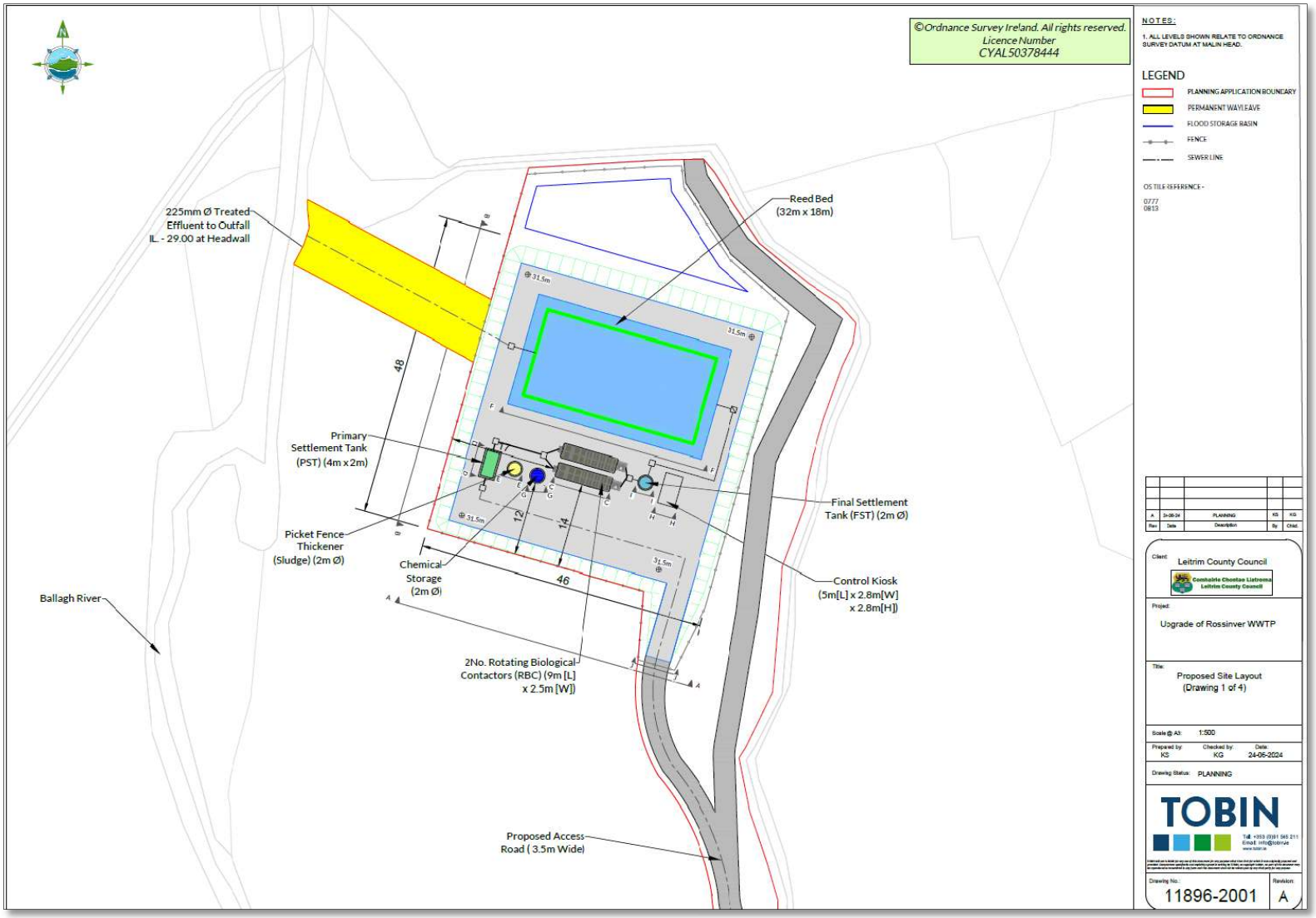

Figure 4.3 Wastewater Treatment Plant with outfall pipe and flood compensation storage area (not to scale), see planning drawing ref 11896 2002.

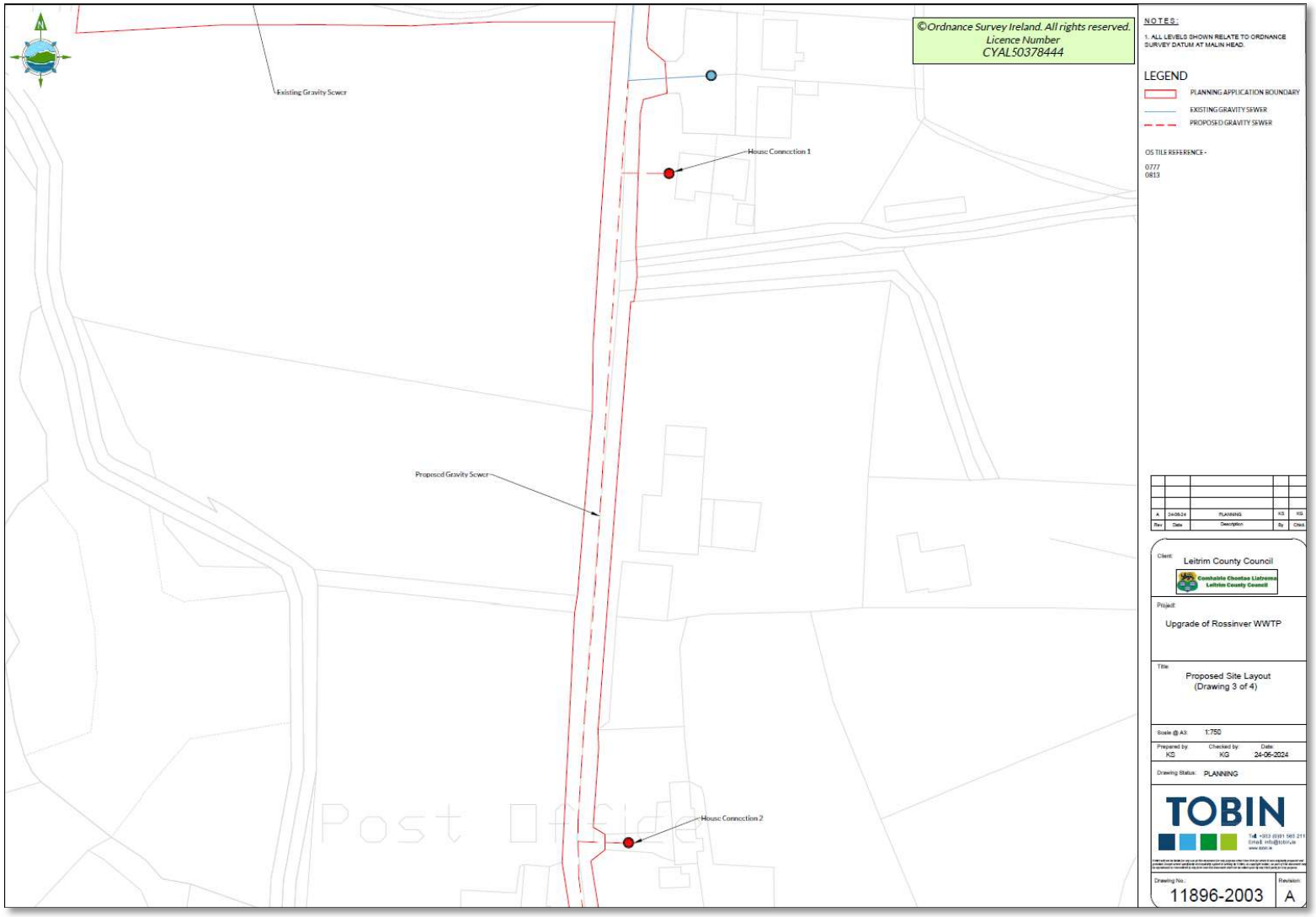

Figure 4.4 Proposed gravity sewer route to proposed pumping station at Gublaun estate (not to scale), see planning drawing ref 11896-2003.

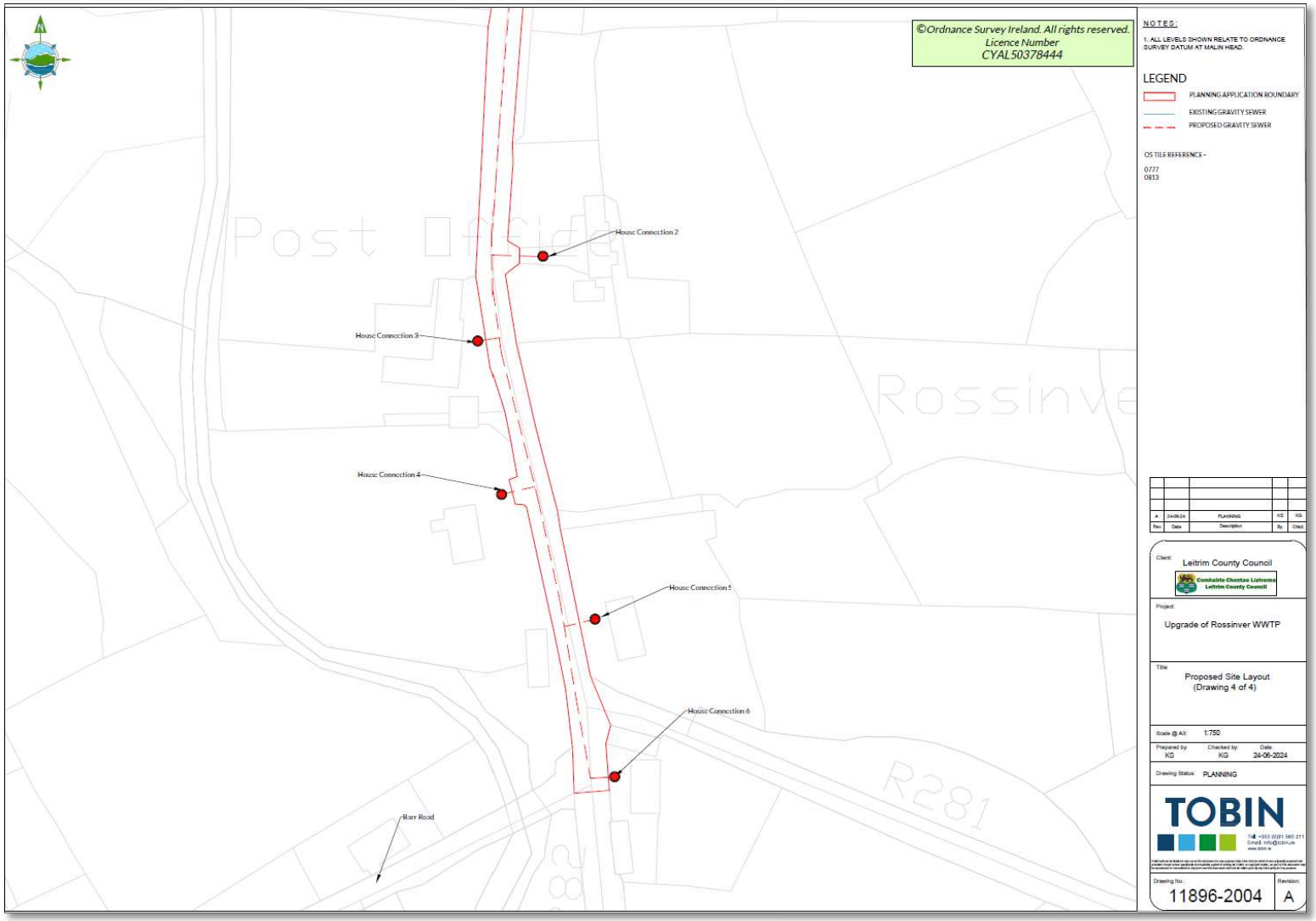

Figure 4.5 Proposed gravity sewer route to proposed pumping station at Gublaun estate (not to scale), see planning drawing ref 11896-2004.

4.1 Method statement standard construction

A detailed method statement of how works / construction will be carried out will be prepared when a contractor is appointed to the project. Construction will consist of:

- Construct access road from R282 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;
- Conversion of a wastewater holding tank to a pumping station at west end of Gublaun Estate;
- 150mm diameter rising main from pumping station to the new proposed WwTP;
- Lay 75mm diameter PE rising main from prefabricated pumping station to proposed Wastewater Treatment Plant site;
- Flood storage basin;
- Raise WwTP site level, using flood compensation excavation material, site development, civil works;
- Develop Wastewater Treatment Plant site, prefabricated chambers and process units, mechanical and electrical installation. No in-situ concrete to be poured.
    - New wastewater treatment will consist of:
        - Inlet works/screens
        - Primary settlement tank
        - 2 x Rotating Biological Contactors
        - Final Settlement Tank
        - Sludge storage tank
        - Ferric sulphate storage tank
        - Other ancillary works (manholes, site services, kiosks)

- 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.

No watercourses will be crossed on the site

All existing material will be reused.

No ground vegetation is envisioned to be cleared offsite. All trees will remain, with the exception of the entrance to the site.

Noise levels will be monitored using standard noise meters.

The development will be elevated above flood levels (taking account of Climate Change) Compensatory Flood Storage will be developed to the north of the WwTP, and the materials excavated from this area will be reused to elevate the site.

The site includes some soft landscaped areas where rainwater will percolate to ground. Runoff from the internal roads on the site will connect to surface water drainage pipes which will connect to an hydrocarbon/silt interceptor. The discharge from this interceptor will connect to the proposed flood storage basin to the north of the site. There will be no piped outlet from this to any watercourse and water will simply percolate through the base of this basin.

4.2 Proposed Operational Phase

Once construction works are complete, operational phase activities will be minimal and will include occasional maintenance works within the proposed development site. These include replacement of faulty or damaged structures and related hardware.

In 2019/2020 TOBIN consulted extensively with the Environment Department in Leitrim County Council to arrive at stringent Emission Limit Values for the WwTP to protect water quality in Lough Melvin (which is nutrient sensitive, especially for phosphorus).

There is no current Waste Water Disposal Licence (WWDL) or Certificate of Authorisation (CoA) for the Rossinver agglomeration. An application for a Certificate of Authorisation will be made for the new plant. The treated effluent will have to comply with the ELVs set in any future CoA for the plant. These are to be based on the proposed design ELVS for the upgraded plant, which are:

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

The requirement to achieve an ortho-P level of 0.3mg/l will require onsite storage and dosing of ferric sulphate.

Based on information provided by the Project Promoter, we understand that during an extreme flood event, the treated effluent outfall to the river will be inundated and will not operate, and instead treated effluent will drain to a sump from where it will be overpumped to the Ballagh River. A water level monitor will automatically close the gravity outlet from the sump and trigger overpumping to the river, see drawing 11896-2010 in appendix 1.

The extent of Flood Zone A and Flood Zone B, as derived from the flood model, are shown on Drawing 11896-2011, see appendix 1. It is noted that all wastewater treatment process tanks lie outside these flood zones.

5.0 Appropriate Assessment Screening

Zone of influence

A zone of influence was assessed to determine which, if any, Natura 2000 sites could be impacted by the project. Lough Melvin SAC was screened in for further assessment

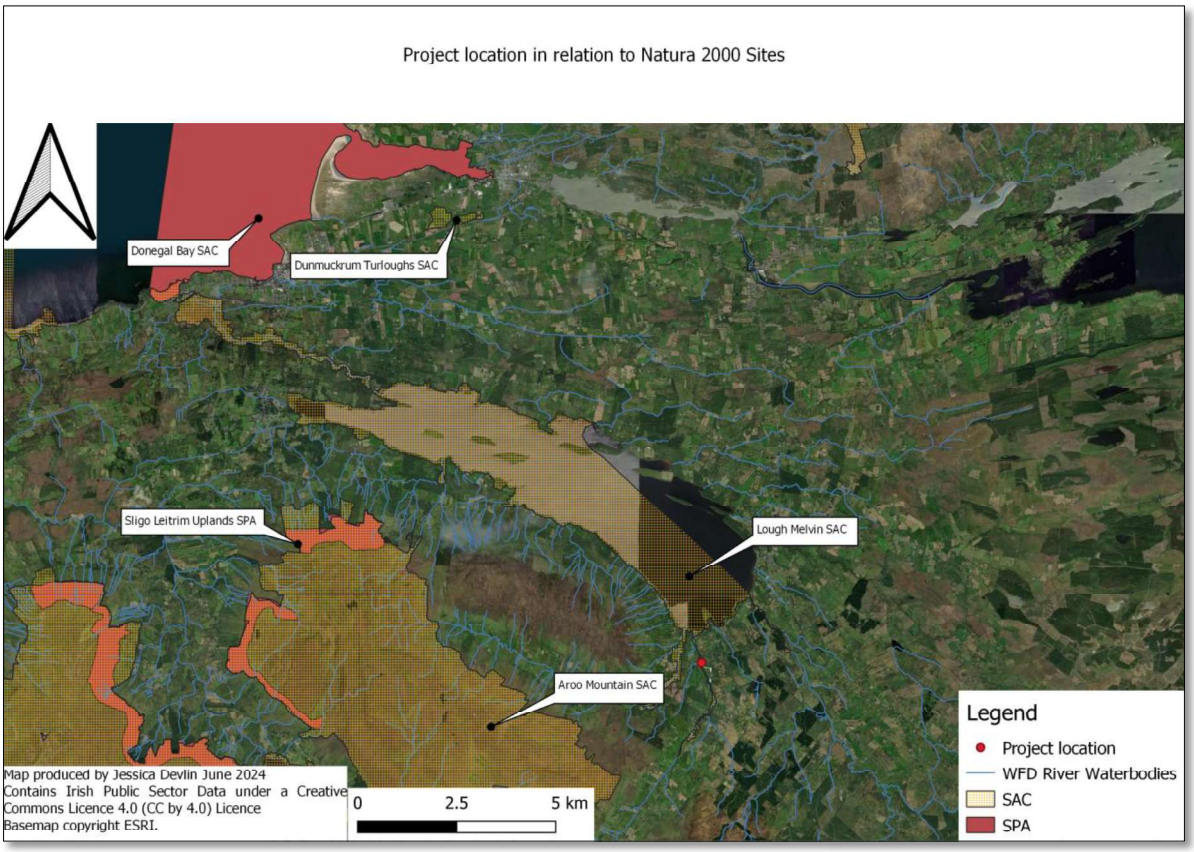

Figure 5.1 Project location in relation to Lough Melvin SAC.

The Screening process (refer to separate screening report Devlin, 2024) identified the relevant Natura 2000 sites and the qualifying interests which have the potential to experience significant effects from the proposed development. These are detailed in table 5.1.

There is a hydrological and acoustic link between Lough Melvin SAC and the proposed development. All other Natura 2000 sites were screened out.

Natura 2000 Site / (Site Code) / Distance from project (m)	Source Pathway Receptor Relationship Screened IN/ OUT
Lough Melvin SAC 000428 (Adjacent to SAC boundary) Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/*or Isoeto-Nanojuncetea* [3130] *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355] Lough Melvin SAC (UK0030047) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	Physical, hydrological and acoustic link with the SAC. S-P-R relationship exists Screened IN

Table 5.1 Extract from Screening Report - **Summary of Assessment of Qualifying Interests at Natura 2000 sites (* = priority; numbers in brackets are Natura 2000 codes)**

Natura 2000 Site	Qualifying Interest	Present/Absent Screened IN/OUT
Lough Melvin SAC 000428 / UK0030047	**Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/*or Isoeto-Nanojuncetea* [3130]**	**Found downstream of project location - Screened IN**
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	Not present at project location or surrounds- Screened OUT.
	***Salmo salar* (Salmon) [1106]**	**Present in Ballagh River adjacent to project location- Screened IN**
	***Lutra lutra* (Otter) [1355]**	**Suitable habitat present in vicinity of project location and surrounds - Screened IN**
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	Not present at project location or surrounds- Screened OUT

The project proposal has been assessed in the Screening process in terms of the likely impacts the proposal may have, before mitigation, on the Natura 2000 sites in the area. The significance of impacts identified has been determined. The assessment undertaken in terms of the proposed development concludes that the there is potential for the project to significantly impact on the following designated sites:

Lough Melvin SAC, resulting in effects on:

Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/*or Isoeto-Nanojuncetea* [3130]

Salmo salar (Salmon) [1106]

Lutra lutra (Otter) [1355]

Potential impacts pertain to the construction and operational phases of the project.

Construction and operation:

- Habitat loss due to construction;
- Habitat degradation due to hydrological impacts via surface water and groundwater;
- Habitat degradation due to hydrological impacts during operation;
- Habitat degradation due to the introduction of the invasive species, disease and pathogens;
- Noise and disturbance causing displacement, injury or mortality of QI species Otter and Salmon;
- Reduction in species density and
- In-combination effects.

The remaining qualifying interests namely *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] and Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles from UK0030047 do not occur in or around the project. There is no Source Pathway Receptor relationship between the project and these QI's. They are therefore screened out and will not be discussed further in the Assessment.

Step 2 of the Appropriate Assessment process was therefore undertaken. Otter and invasive alien plant species surveys were undertaken. Further assessment of the likely impacts of the project and assessment of mitigation measures has also been undertaken.

6.0 Current baseline status of the site and surrounds

According to the Natura 2000 standard data available known threats and pressures experienced in Lough Melvin SAC include grazing, fertilisation, invasive non-native species, diffuse pollution to surface waters due to agricultural and forestry activities, removal of hedges and coppice or scrub, forest and plantation management and use.

6.1 Field survey

(Fossitt Description in brackets)

A walkover survey of the site was carried out on 30 May 2024 This was a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone of influence) in relation to the project. The site was visited after relatively dry weather there were heavy showers on the day but visibility was excellent between showers. The route for the foul sewer was walked, there were no invasive species noted along the route, see plates 1 - 3.

Within the field the ground was generally dry underfoot with some wetter patches in places.

The site for the access road and WwTP is located in an agricultural field (GA1 Improved agricultural grassland/ GS2 Dry Meadows and grassy verges) which is grazed by livestock and mowed for silage. The field is flat and is buffered to the north by a stream/drain (FW4 drainage ditches) and to the south by hedgerow (WL1 Hedgerows) and the Galubaun Estate (BL3 buildings and artificial surfaces) and to the west by the Ballagh River (FW1 Eroding upland rivers). The site entrance is to the east onto the R282, see plates 3 - 8. Agricultural fields surround the area around the site with single dwellings dotted throughout the landscape. The area is very rural and agricultural in nature.

Grass Species included Crested Dogs Tail *(Cynosurus cristatus),* Yorkshire Fog (*Holcus lanatus),* Creeping soft grass (*Holcus mollis)* Tufted Hair-grass (*Deschampsia cespitosa,)* Rye-grasses *(Lolium spp.),* Sweet veneral grass (*Anthoxanthum odoratum*) Annual meadow grass *(Poa annua).*

Flowering plants included Nettle *(Urtica dioica),* Broad dock *(Rumex obtusifolius),* Daisy *(Bellis perennis),* Bramble *(Rubus fruticosis agg),* Meadow buttercup *(Ranunculuc acris),* Pignut *(Conopodium majus),* Ivy *(Hedera helix),* Cow parsley *(Anthriscus sylvestris),* Meadowsweet *(Filipendula ulmaria),* Water avens *(Geum rivale),* Spotted orchid *(Dactylorhiza spp.,)* Forget me not *(Myosotis arvensis),* Ragged robin *(Silene flos-cuculi),* Colt's-foot *(Tussilago farfara).*

Hedgerows and riparian zone include species Willow *(Salix Spp.),* Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa),* Holly *(Ilex aquifolium),* Alder *(Alnus glutinosa),* Hazel *(Corylus avellana),* Sycamore *(Acer pseudoplatanus) and* Ash *(Fraxinus excelsior).*

The area around the pumping station was also surveyed; this area was dominated by coltsfoot. Invasive species (the site was previously treated for Gunnera) were not noted.

Signs of Otter were not noted within the project site. Invasive Alien Plant Species were not noted on the walkover survey. The river adjacent to the site has good Salmonid habitat in terms of pool riffle sequences, clean gravel for spawning and vegetated riparian zone.

Plate 1. Looking north from junction with R281 along the R282, route for sewer pipe.

Plate 2. Looking north along R282 towards Gublaun Estate.

Plate 3. Looking north along R282 at Gublaun Estate entrance. Entrance to WwTP site, just after wall on LHS.

Plate 4. Looking northwest across the proposed pumping site location to the west of Gublaun estate.

Plate 5. Looking west from exisiting entrance across southern section of site.

Plate 6. Looking west along route for the access road

Plate 7. Looking north west towards the Ballagh River from the site of the WwTP

Plate 8. Looking north from the site of the WwTP.

6.2 Hydrology and flood risk

The Ballagh River _010 runs along the western border of the site and enters Lough Melvin c. 800m downstream, see figure 6.1. According the EPA website, catchments.ie, the WFD water quality status 2016 to 2021 for the Ballagh _010 is good; Lough Melvin status is moderate and groundwater status is good. In terms of risk of not meeting WFD requirements: the Ballagh River is under review. Lough Melvin is At Risk of not meeting WFD requirements by 2027. The Ballagh River does not have any recent data pertaining to Q values with the most recent dating back to 1990.

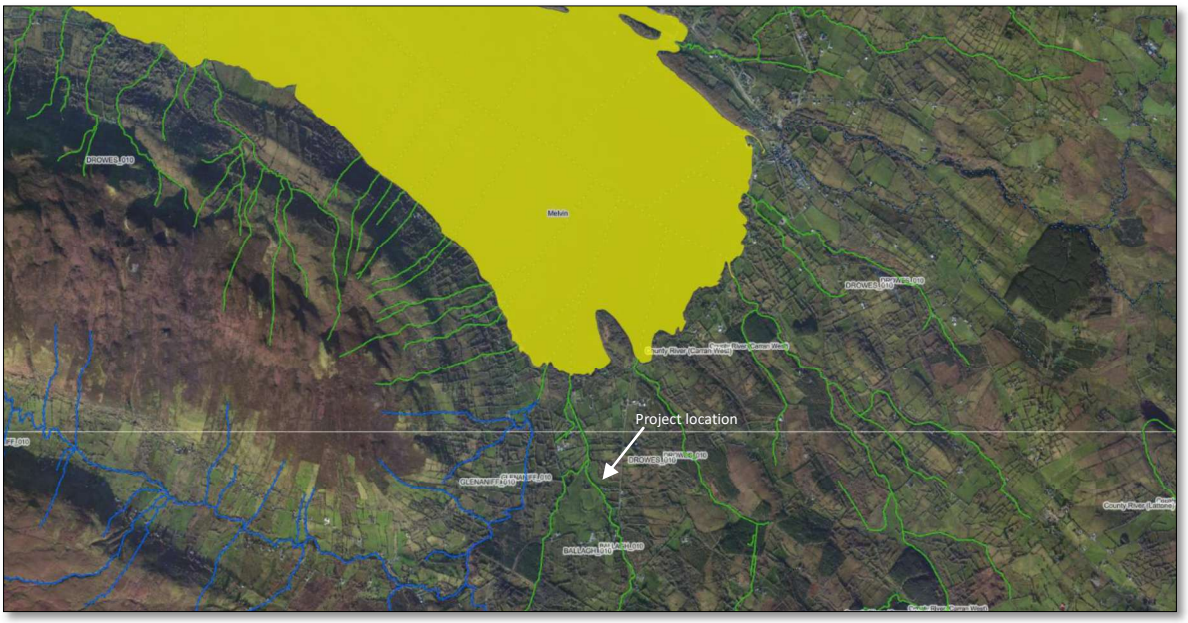

Figure 6.1 River network and water quality in the project area. (Map source catchments.ie accessed 06 June 2024, © ESRI, ©OSI).

Storm water currently percolates to ground at the site, and drains to the open drain running along the northern boundary and to the Ballagh River to the west.

The site and the surrounding area are in a floodplain see figure 6.2.

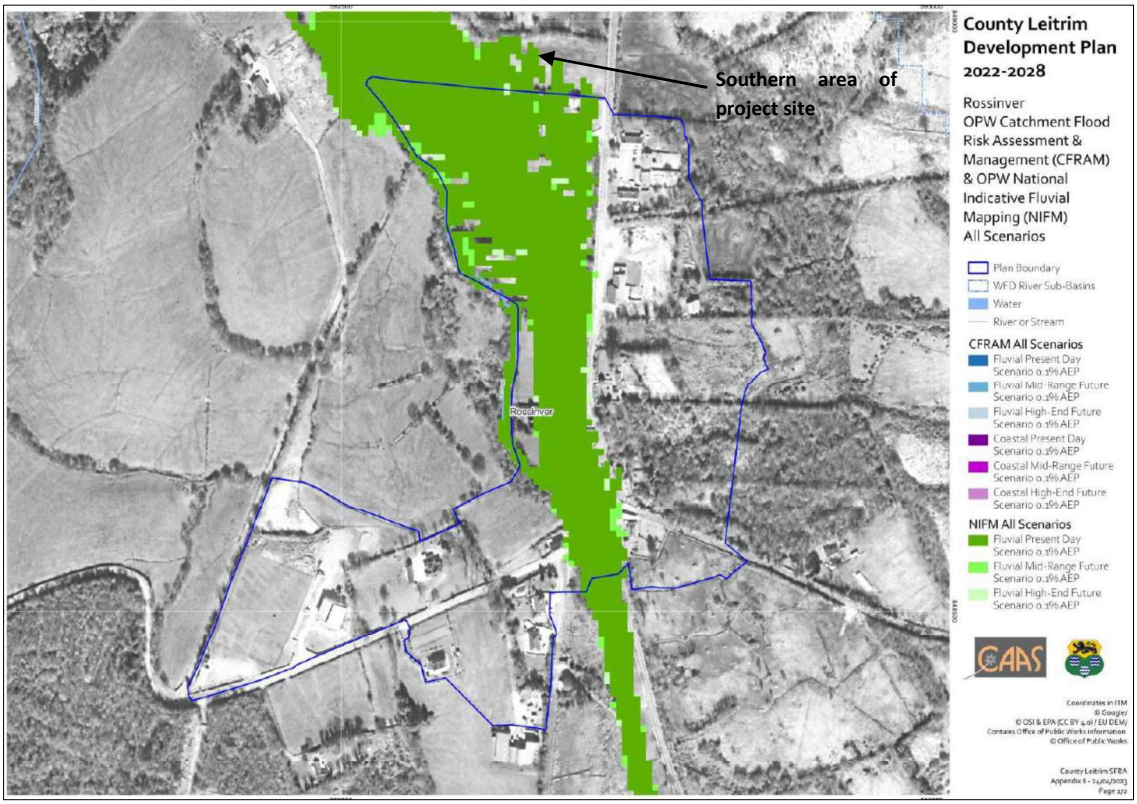

Figure 6.2 Extract from County Leitrim Development Plan 2022 - 2028, Strategic Flood Risk Assessment, Appendix II. Rossinver village, project location is to the north of the blue line.

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. 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 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).

A level 3 Flood Risk Assessment has been completed for the site (TOBIN, 2024b, see Appendix B of Planning statement). A 1D site-specific hydraulic model of the site area was developed using the latest version (6.0) of Jacob's Flood Modeller software. 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.

The FRA concludes:

*…." **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 accomadate 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. …"

6.3 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/*or Isoeto-Nanojuncetea* [3130]

The habitat 'Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*' has been interpreted as a mixed *Najas flexilis* lake habitat in Ireland (NPWS 2019). Mixed *Najas flexilis* lake habitat occurs in lakes with very clear, circum-neutral, low-nutrient waters in catchments of mixed geology. Base-rich influences come from basalt, limestone, marble, sedimentary deposits or calcareous coastal sand, and peatland is often widespread in the catchments. The Annex II macrophyte *Najas flexilis* is a character species. The co-occurrence of *Potamogeton perfoliatus* and *Isoetes lacustris* is also characteristic. Macrophytes grow from shallow to deep water (8 m or more) and, hence, vegetation can cover a large proportion of the lake bed. Owing to its rare species and relatively high species richness, mixed *Najas flexilis* lake habitat is of high conservation value. Ireland is a European stronghold for the habitat and for *Najas flexilis*. The habitat is widespread particularly along the western fringe. Overall status in Ireland is inadequate (NPWS 2019).

Threats and pressures: Nutrient enrichment; afforestation; waste water; invasive alien species; sport and leisure activities.

Sensitivitiy of QI: Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.

Lough Melvin was considered significantly altered in 2017 (Roden *et al.*, in prep. as cited in NPWS 2021). The lake was assessed as in bad conservation condition, while overall habitat 3130 was in poor deteriorating conservation status across Ireland in 2013-2018 (NPWS, 2019 as cited in NPWS, 2021). Roden *et al.* (in prep.), during a brief survey in 2017 from the southern shore, found a depauperate flora in Lough Melvin and considered it had changed significantly since the survey by Wolfe-Murphy *et al.* (1992).

6.4 *Lutra lutra* (Otter) [1355]

Otter, and their breeding and resting places, are protected under the Wildlife Acts. Otter are also listed on Annex II and Annex IV of the EU Habitats Directive. Otter was previously listed as "near threatened" in Ireland in the Ireland (Marnell *et al.*, 2009), however following a revised assessment in Marnell *et al.* (2019) its conservation status is now listed as "least concern". It is believed that this is due to population recovery (Marnell *et al.*, 2019) and Ireland is a stronghold for Otter, and they are widespread and relatively common throughout the island (Reid *et al.*, 2013). Otters prefer rivers and streams which provide good cover and plenty of food. The preferred option is to run along the bank especially if moving upstream, against the flow of water. Otters tend to use the bank that is free of obstructions and so it may only have low lying vegetation with a path indicating its use by Otters (NPWS, 2009).

Otters are born in natal holts that may not be the same as those used for rearing young or by adult Otter (Moorhouse 1988 as cited in Chanin, 2013). The piles of spraint, which are conspicuous at other holts, are not visible at natal holts and they are often difficult to find during field surveys. Natal holts may be some distance from major rivers and areas frequently used by other Otter. This might be a defence against cannibalism, which has been reliably recorded in one instance (Simpson & Coxon 2000 as cited in Chanin 2013).

Water chemistry (within the range of natural values) has little impact on Otters other than by affecting food supply (Chanin 2013). Otters are not directly affected by pH values within normal ranges, but where acid rain leads to excessive acidity in watercourses, it can have an adverse effect on food supply (Chanin 2013).

Threats and pressures: Decrease in water quality: Use of pesticides; fertilization; vegetation removal; professional fishing (including lobster pots and fyke nets); hunting; poisoning; sand and gravel extraction; mechanical removal of peat; urbanised areas; human habitation; continuous urbanization; drainage; management of aquatic and bank vegetation for drainage purposes; and canalization or modifying structures of inland water course.

Sensitivity of QI: Surface and marine water dependent. Moderately sensitive to hydrological change. Sensitivity to pollution.

Article 17 data shows the Ballagh River as Otter habitat. Potential habitat was identified in and around the project site which was surveyed on 30 May 2024 to determine Otter presence /absence/ activity. The identification of spraint and holts is the standard method for determining Otter activity in a particular area. Footprints can be used as an indicator of activity if the conditions are right for leaving prints. Suitable habitat a distance of 150m surrounding the proposed development site was surveyed to ensure breeding holts were not in the project vicinity (NPWS, 2009). Suitable habitat is found along the Ballagh River adjacent to the site and in dense vegetation to the north and along streams and tributaries flowing into the Ballagh. The habitat is suitable for commuting and foraging Otter with some potential for holts in the dense vegetation to the north. No spraint were noted in the survey area. The tributary on the western side of the Ballagh River showed potential signs of Otter use, and some runs along the bank were noted, however Mink scat was recorded in this section also. There was no evidence of runs on either side of the Ballagh River either within the development site or on the other bank.

Holts or couches were not noted on the survey. Patches of dense vegetation to the north of the project site provides good habitat for Otter, however there was no indication of use by Otter at the time of the site visit.

Survey Limitations

Otter are transient and do not use the same habitat all the time. Otter habitat should be checked for activity prior to commencement on site to determine if any active holts are present. A small section of river to the south west of the site was inaccessible.

6.5 *Salmo salar* (Salmon) [1106]

Atlantic Salmon populations are listed in Annex II of the EU Habitats Directive (92/43/EEC). Atlantic Salmon is also listed as an Annex V species, whereby Member States must ensure that their exploitation and taking in the wild is compatible with maintaining them in a favourable conservation status. Internationally the protection and conservation of Salmon is managed through North Atlantic Salmon Conservation Organization (NASCO). Irish Salmon stocks have been managed on a river-by-river basis since 2007 with conservation limits (CL) based on maximum sustainable yield (MSY) (White *et al.* 2016). The Wild Salmon and Sea Trout Tagging Scheme Regulations 2018 (S.I. No. 585 of 2018) along with the Conservation of Salmon and Sea Trout bye-laws provides protection to both of these species in Ireland. Inland Fisheries Ireland (IFI) is the statutory body with the responsibility for the protection, development and management of the inland fishery resource within the State.

Salmonid populations have distinct requirements at each stage of their lifecycle. They need cool, clean, flowing water with adequate pool and riffle sequences, and suitable gravel for survival. Their lifecycle begins with spawning when the adult fish return to their native river to lay redds in gravel beds. The eggs remain in the redd throughout winter and hatch in spring as alevins. As alevins they depend on a yolk sac for primary nutrition until they become fry/ parr when they feed mainly on invertebrates. As smolt, usually after around 2

years, they migrate to sea, returning to their river of origin to spawn as adults during the Autumn and Winter months.

Threats and pressures: Marine survival rates are of concern for the populations.

Sensitivity of the QI: Disease, parasites and barriers to movement.

Distribution data shows that Salmon are present in Lough Melvin SAC. IFI fish stock surveys on the lake reported Salmon present in all surveys carried out since 2005. In 2017, six Salmon were caught ranging from 13.7cm-78.1cm and ranging in age from 1+ to 3+ years of age (wfdfish.ie, 2017). This indicates good Salmon recruitment and feeding habitat for them. It also indicates that Salmon migrate into the tributaries off the lake to spawn. The Ballagh River has been the subject of electrofishing surveys by IFI on three occasions, 1992, 2000 and 2022, see figure 6.3 for site survey locations 1-7.

The Ballagh River has a good gradient throughout its length with riffle, shallow glide and occasional pools sequences noted throughout its length from the lake inflow to almost site 7 at Tullyskeherny bridge, see figure 6.3. The substratum is comprised primarily of gravels and cobble with occasional protrusions of bedrock. Gradient and habitat changes occur in the area of Tullyskeherny bridge with less suitable spawning and nursery conditions available (Delanty *et al.* 2024).

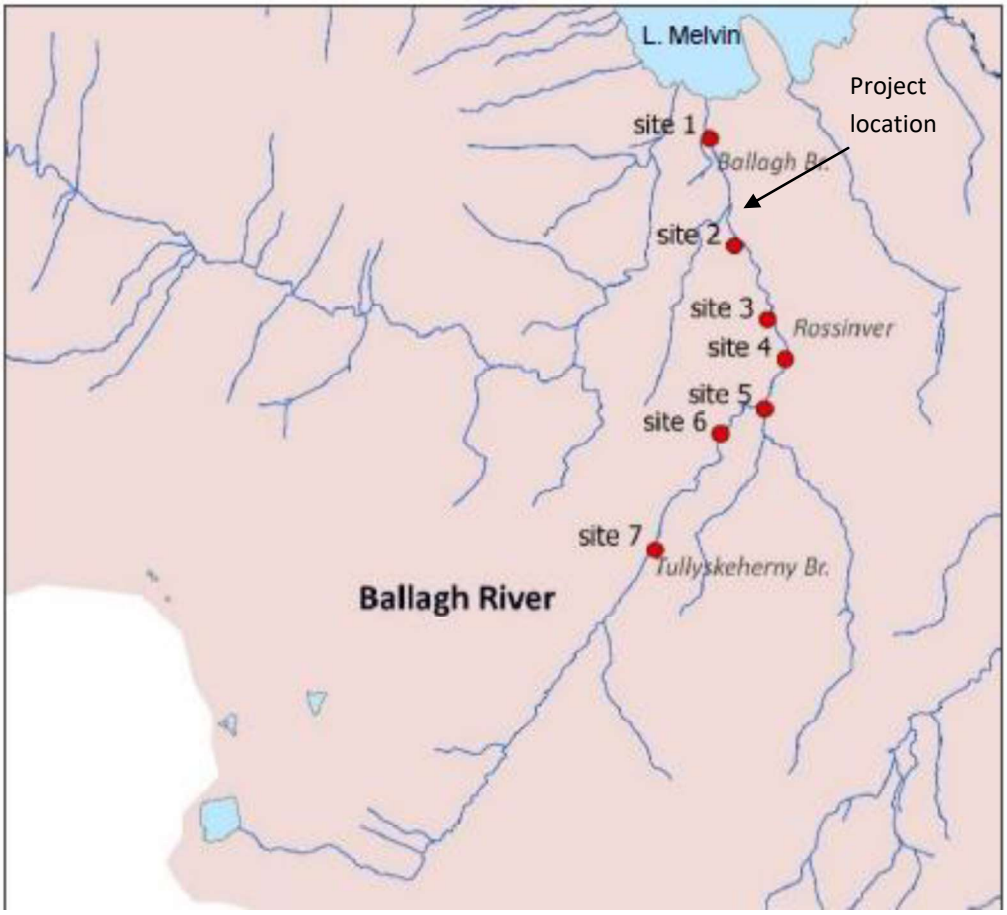

Figure 6.3 Project location in relation to IFI electrofishing sites on the Ballagh River (Delanty *et al.* 2024)

Lough Melvin catchment Electrofishing survey 2022 - 2023 results suggest there is moderate to good Salmon and Trout spawning and nursey within the Ballagh River (Delanty *et al,* 2024). Fish data collected during 2022

provides some evidence that there has been a decline in Salmonid numbers in the river (Delanty et al. 2024). However, the population structure of riverine Salmonids from the Ballagh has remained similar across the three survey periods. Salmon were more abundant than trout during each survey period. Salmonid length frequencies and age composition have also remained relatively stable (Delanty *et al,* 2024).

Survey data indicated trout used the entire length of river for spawning. Such suitable habitat was recorded at sites 2, 6, 1 and 4, see figure 6.3. Salmon spawning activity was restricted to the river downstream of the low bedrock falls located downstream of Tullyskeherny bridge. Electrofishing results identify the section of river between Ballagh bridge and Rossinver village as an extremely active Salmon spawning area (sites 2 and 3), see figure 6.3. Suitable Salmon spawning habitat is available further upstream though is less extensively utilised currently.

Survey results from the Ballagh river suggest that this river offers suitable trout nursery waters due to the suitable gradient and riffle, shallow glide and occasional pools sequences noted throughout its length. Survey results identify the areas around sites 4, 6, 2 and 3 as being particularly good. Even so, fish data comparisons with previous survey years would suggest that it is currently functioning below potential.

6.6 Invasive Alien Plant Species (IAPS)

Planting, dispersing, or allowing/causing the dispersal, spread or growth of certain non-native plant species is controlled under Article 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011; and refers to plant or animal species listed on the Third Schedule of those regulations.

Due to the increase in occurrence of invasive alien plant species throughout Ireland, an IAPS survey of the site was undertaken to determine if any Third Schedule species were present. The entirety of the site was walked including the river bank adjacent to the site. No IAPS were detected at the time of the survey.

7.0 Assessment of Impacts

Overview

The proposed development site is located directly adjacent to a designated Natura 2000 site. Therefore there is potential to impact or cause disturbance to the qualifying interests of Lough Melvin SAC as a result of the proposed development.

There are several elements associated with the proposed development that may give rise to indirect impacts that have the potential to result in likely significant effects during both the Construction and Operation Phases. The significance of these impacts depends on the scale of the impact as well as the ecological condition and the sensitivities of the qualifying interests/special conservation interest.

These potential impacts are associated with the Construction Phase, and to a lesser extent with the Operational Phase of the proposed development.

During the operational phase of this proposed development, the key impact on the integrity of Lough Melvin SAC would be from the outfall and its effect on the quality of the receiving waters; however, the new WwTP treated effluent will have to comply with the ELVs set in any future Certificate of Authorisation (CoA) for the plant. Therefore the potential impact on water quality associated with the proposed development and the discharge of treated effluent, is likely to have long-term positive effects on the receiving waterbody.

The development site is located within the flood plain of the Ballagh River and has been subject to a Level 3 Flood Risk Assessment.

7.1 Habitat loss during construction

The proposed development may give rise to impacts and result in loss of habitat as a result of the proposed infrastructure, in particular the outflow pipe to the Ballagh River. This area is directly adjacent to Salmonid spawning grounds, and Otter are also likely to commute and forage around this area. Inappropriate construction techniques could lead to direct loss of habitat.

7.1.1 Mitigation measures - Habitat loss

A project-specific Construction and Environmental Management Plan (CEMP) has been developed, see appendix A of planning statement.

In river works will be carried out at low water, outside of spawning periods for Salmon, i.e. during the summer months, generally May 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 river bank will be reseeded and allowed to recover.

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

There are no proposals to remove suitable Otter habitat at the site, and in river /bank works are limited to the installation of the outflow pipe. A pre construction Otter survey will be undertaken to determine if there has been any new activity in or around the works, the presence / absence of holts and resting places, and if present determine whether it is a maternal holt or not. If found, habitat area to be signposted and cordoned off.

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

See also section 7.4.2 for additional measures.

7.1.2 Residual effects – Habitat loss

Provided the CEMP is followed, and guidance is fully adhered to and implemented, construction methods within the river and river bank will not pose a risk to the conservation objectives, or the conservation condition, of the QI habitats or species of Lough Melvin SAC. There are no residual direct or indirect impacts that could adversely affect the integrity of the SAC.

7.2 Habitat degradation due to hydrological impacts via surface water and groundwater.

Construction

Emissions to air, soil and water during site preparation and construction activities: While temporary in nature, construction operations can, sometimes, result in pollution or sedimentation incidents, which can impact negatively on habitat quality. Inadvertent release of suspended solids (from excavation, movement of soils, and construction materials) and other pollutants and hyrocarbons into the Ballagh River could contribute to nutrient enrichment and sedimentation, and could also impact on the water quality. Increased silt loading may stunt aquatic plant growth, limit dissolved oxygen capacity, and overall reduce the ecological quality of watercourses, with the most critical period associated with low flow conditions.

An acute pollution incident could have significant effects on Qualifying Interests, potentially causing death and/or pollution and degradation of habitats and feeding sources.

The main pathway for transporting sediments from the development site is via storm/surface water runoff during construction. If this pathway is eliminated then this risk is reduced significantly. Other pollutants that could enter the system via percolation through soils or groundwater require careful site management, in particular hydrocarbon, fuel, chemicals and any other hazardous materials on site.

Operation

Run off of polluted surface water from hard surfaces from the developed site could cause an ongoing source of pollution. A malfunction of the waste water treatment plant could also cause a major acute incident or a long term pollution source. All of these issues if they were to occur individually or together could have significant effects on the Qualifying Interests causing death and /or pollution and degradation of freshwater habitats and feeding sources.

Flood risk

Fluvial flooding: 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 (Tobin, 2024b).

Pluvial Flooding: The PFRA indicative mapping indicates that there is one area of pluvial flooding within the subject site (Tobin, 2024b).

A flood risk assessment has been completed see appendix B of Planning statement.

7.2.1 Mitigation measures - Habitat degradation due to hydrological impacts via surface water and groundwater.

A full suite of mitigation measures can be seen in section 7.6. These should be integrated into the method statements prepared by the appointed contractor.

Construction & Environmental Management Plan

A project-specific CEMP has been developed see appendix A of planning statement, with input from the projects' environmental consultant and is included within the planning application. 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 or 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.

Water Monitoring

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.

As discussed, the main pathway for transporting sediments from the development site is via storm/surface water runoff both during construction and operation. If this pathway is eliminated then this risk is reduced significantly. Other pollutants that could enter the system via percolation through soils or groundwater would require careful site management, in particular hydrocarbon, fuel, chemicals and any other hazardous materials on site.

Operation

Wastewater Treatment Plant

During the operational phase of this proposed development, the key impact on the integrity of Lough Melvin SAC would be from the outfall and its effect on the quality of the receiving waters; the new WwTP treated effluent will have to comply with the ELVs set in any future Certificate of Authorisation (CoA) for the plant. Necessary alarm and back-up systems in the event of a malfunction or failure of the system will be incorporated in to the final design of the WwTP. The Reed bed offers another level of protection whereby treated effluent will be slowed and treated prior to final discharge to the Ballagh River.

The potential impact on water quality associated with the proposed development and the discharge of treated effluent, is likely to have long-term positive effects on the receiving waterbody.

Surface water management

The site includes some soft landscaped areas where rainwater will percolate to ground. Runoff from the internal roads on the site will connect to surface water drainage pipes which will connect to a Hydrocarbon / silt interceptor. The discharge from this interceptor will connect to the proposed flood storage basin to the north of the site. There will be no piped outlet form this to any watercourse and water will simply percolate through the base of this basin.

Flood risk

The project has been designed in cognisance of its location within the Ballagh River Flood zone and a Flood Fisk Assessment completed for the site, see appendix B of the planning statement. Based on information provided by the Project Promoter, we understand that during an extreme flood event, the treated effluent outfall to the river will be inundated and will not operate, and instead treated effluent will drain to a sump from where it

will be overpumped to the Ballagh River. A water level monitor will automatically close the gravity outlet from the sump and trigger overpumping to the river, see drawing 11896-2010 in appendix 1.

The extent of Flood Zone A and Flood Zone B, as derived from the flood model, are shown on Drawing 11896-2011, see appendix 1. It is noted that all wastewater treatment process tanks lie outside these flood zones.

The FRA concludes:

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 accomadate for any loss of floodplain caused by the regrading of existing site elevations.

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

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

Pluvial Flooding

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

Any proposed development being considered in an inappropriate flood zone (as determined by PSFRM Guidelines) must satisfy the criteria of the 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…."

7.2.2 Residual effects – Hydrological impacts

Provided the flood risk measures and CEMP are followed, and operational guidelines are fully adhered to and implemented, waste water, surface water and flood waters will not pose a risk to the the conservation

objectives, or the conservation condition, of the QI habitats or species of Lough Melvin SAC. There are no residual direct or indirect impacts that could adversely affect the integrity of the SAC.

7.3 Habitat degradation due to the introduction or spread of the invasive species, disease and pathogens

Construction and operation

When importing materials from outside a site there is always a risk of importing unwanted elements such as seed or spores from invasive plants for example, Japanese knotweed or Rhododendron. The accidental spread of non-native invasive plant species as a result of construction works has the potential to impact upon terrestrial habitats within and immediately adjacent to the proposed development boundary; potentially affecting plant species composition, diversity and abundance over the long-term.

When working in the aquatic environment great care must be taken not to introduce invasive aquatic plant or animal species, such as the Asian Clam, which can be devastating to the environment.

The vectors and pathways by which non-native invasive species are transported are many, and result from the diverse array of human activities which operate over a range of scales. Primary introductions often result from the accidental transport, for example visiting boats or equipment. Secondary introductions result from the expansion of a species from the initial place of establishment. Secondary spread will normally include a wider range of vectors that may act either separately or together (Stokes *et al.*, 2004).

Once an invasive species or disease enters or leaves any aquatic space it can pose a risk to our ecosystems and biodiversity. Both pose different implications and are hard to remediate and eradicate. Fish parasites, pathogens and diseases represent a significant threat to the health status of our water bodies. The introduction or transfer of such pathogens or diseases has the potential to wipe out large populations of fish in affected waters or catchments (IFI, 2010).

7.3.1 Mitigation measures - Habitat degradation due to the introduction/spread of the invasive species disease and pathogens

Biosecurity – Avoiding the introduction or spreading of non-native invasive plant and animal species

Planting, dispersing, or allowing/causing the dispersal, spread or growth of certain non-native plant species is controlled under Article 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011; and refers to plant or animal species listed on the Third Schedule of those regulations.

None of the plant species on the Third Schedule were recorded within the project site. Every effort will be made to ensure imported material is clear of contaminants and comes from a known reliable source. Machinery, equipment and footwear will be cleaned prior to entering the site and will be checked on entering the site for plant material.

As significant time can pass between attaining planning permission and construction it is prudent that a preconstruction survey to confirm absence of IAPS species is required.

If found an IAPS management plan 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.

In or near the aquatic environment works must comply with IFI *Guidance on Biosecurity* 2010 and CAISIE guidelines 2022 *Control of Aquatic Invasive Species and the restoration of Natural Communities in Ireland (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. 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 24 hours before returning to a watercourse (IFI, 2022).

7.3.2 Residual effects - invasive species, disease and pathogens

Following the implementation of mitigation measures outlined the proposed development poses no risk of affecting the conservation objectives, or the conservation condition, of the QI habitats or species of Lough Melvin SAC. There are no residual direct or indirect impacts that could adversely affect the integrity of the SAC.

7.4 Noise and disturbance causing displacement, injury or mortality of QI species - Otter and Salmon

Construction

There is a high level of activity and noise on a construction site. Sources include noise and activity from excavation machinery, increased human activity during construction processes and increased heavy traffic to and from site. All this increased activity and noise will potentially have a significant impact on species using the adjacent SAC site through indirect habitat loss caused by disturbance. Loud construction noise or vibration (e.g. piling) during critical times of the life cycle have potential for significant effects, given the close proximity of spawning grounds, and Otter habitat.

Construction activity on site will not be permanent and activity levels will vary greatly during the construction period. Disturbance events are temporary in nature. It is reasonable to assume that during periods of low or no activity on site species will continue to use the adjacent River and habitat as normal.

Operation

The activity within the completed development will be a lesser source of disturbance. The comings and goings of the site users will be few; however there will be increased traffic and human activity in the grounds, compared to present day, which have the potential to disturb.

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.

7.4.1 Otter

Construction

The Otter is a secretive mammal and so the provision of holts and couches is essential. Each animal will be familiar with its home range, knowing each site where shelter is available. The loss of such sites can place more stress on the animal requiring it to move further in order to find suitable cover. This in turn may place it in conflict with other Otters, or put it at risk from other hazards.

Signs of Otter were not confirmed during survey work, however habitat is good and activity is likely to be occasional, it should therefore be assumed that Otter are in the vicinity of the project.

In general according to NRA guidance 2009, disturbance effects from construction would not be expected to extend beyond 150m. Suitable holt/couch habitat is present directly adjacent the development site. Otter are largely nocturnal species and may be impacted by noise or vibration during the day if they are resting in the area when construction is ongoing. Being inquisitive animals, they may investigate the work site, or conversely, they may be alarmed and be diverted from their normal paths on to a more dangerous route to avoid the construction site. As a result there are many possible hazards that could be fatal to animals such as being hit by works vehicles or by being caught in machinery. Temporary displacement, if it were to occur, would be significant at a local level.

During operation, activities are not likely to have a significant effect on Otter. Unpublished observations by Kruuk and colleagues indicate that Otters will rest under roads, in industrial buildings, close to quarries, and at other sites close to high levels of human activity. These observations clearly indicate that Otters are very flexible in their use of resting sites and do not necessarily avoid 'disturbance' in terms of noise or proximity to human activity (Chanin, 2003). Potential effects of the project in the operational phase, alone or in combination with others, in terms of disturbance or displacement are not significant.

7.4.2 Mitigation measures - Otter

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

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

Habitat area to be signposted and cordoned off.

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.

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 should 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 in section 7.2 will provide adequate protection for Otter in terms of construction and operation phase water quality effects.

7.4.3 Residual effects - Otter

Following the implementation of mitigation measures outlined the proposed development poses no risk of affecting the conservation objectives, or the conservation condition, of Otter. There are no residual direct or indirect impacts that could adversely affect the integrity of the SAC.

7.4.4 Salmon

Construction

Construction can be noisy and given the proximity of the works adjacent to prime Salmonid spawning habitat (Delanty et al, 2024), there is potential for noise and vibration to impact on Salmon. The project therefore has the potential to interact with two life stages of the Atlantic Salmon; the concerns being the impact loud construction activities, such as piling (if applicable), may have on the smolt stage, when the juvenile Salmon move from the Ballagh river to the feeding grounds in the sea, and the adult spawning migration when adults return to the river to spawn (Hawkins, 2005).

However, the construction works will require shallow excavation in the field adjacent to the River, with minimal in river works. Given the nature of the ground, loud construction activities such as piling will not be necessary and construction noise is likely to be low level. Migratory movement usually occurs in the hours of darkness, outside of working hours on the site.

Operation

The normal intensity of activity during project operational phase will be significantly lower than that of the time-limited construction phase. The operational phase of the project is unlikely to have any significant effects on Salmon in terms of disturbance and displacement. Migratory movement usually occurs in the hours of darkness, when no tonal or impulsive noise will occur at the WwTP.

7.4.5 Mitigation measures - Salmon

Taking the precautionary approach, though not envisaged, if loud construction activities are required e.g. piling; they should take place outside of smolt stage, which occurs in Spring and spawning season, which generally occurs November to March. If this is not possible due to operational requirements piling will only take place during daylight hours, using ramp up procedures to give Salmonid “warning” of works. All activity to be discussed with IFI prior to commencement.

7.4.6 Residual effects - Salmon

Following the implementation of mitigation measures outlined the proposed development poses no risk of affecting the conservation objectives, or the conservation condition, of Salmon. There are no residual direct or indirect impacts that could adversely affect the integrity of the SAC.

7.5 Reduction in species density

A reduction in species density in Lough Melvin SAC would be as a consequence of habitat loss, sedimentation, pollution, release of contaminants and the introduction of invasive species, and disturbance, displacement or injury of a species while feeding, breeding or commuting to a feeding/breeding area.

7.5.1 Mitigation measures - Reduction in species density

The mitigation measures pertaining to habitat loss and degradation due to hydrological impacts (see sections 7.1 and 7.2), invasive species, disease and pathogens (see section 7.3) and disturbance, displacement or injury (see section 7.4), will also mitigate in this instance.

7.5.2 Residual effects - Reduction in species density

With mitigation the project will not pose a risk to the conservation objectives, or the conservation condition, of the QI habitats or species of Lough Melvin SAC. There are no residual direct or indirect impacts that could adversely affect the integrity of the SAC.

7.6 Mitigation Measures Table

The project has been designed in cognisance of the SAC adjacent to the site. A number of in-design/avoidance mitigation has also been incorporated into the project. A CEMP can be seen in appendix A of the planning statement. A full suite of site specific mitigation measures are detailed in tables 7.1 and 7.2. **NOTE MITIGATION FOR ALL ECOLOGICAL AND NATURA 2000 aspects have been included in the table to ensure continuity across the project.**

In-design mitigation / avoidance

The development is adjacent to Lough Melvin SAC. The proposed development will drain directly to the SAC. The project has been developed with this fact in mind and has a number of mitigation measures built into the design and implementation of the project:

Construction

WwTP has been set back from the Ballagh River and L. Melvin SAC to provide a buffer between the project and the protected areas and potential Salmonid and Otter habitat.

A CEMP has been developed which includes a suite of mitigation measures including: erosion and sediment controls in the form of buffer zones, silt fencing, settlement lagoon, management of hazardous materials.

An Ecological Clerk of Works appointed to the project will oversee the project and will provide staff training.

The plant has been designed in cognisance of the flood plain and compensatory flood storage has been included.

Operation

The site includes some soft landscaped areas where rainwater will percolate to ground. Runoff from the internal roads on the site will connect to surface water drainage pipes which will connect to an hydrocarbon/silt interceptor. The discharge from this interceptor will connect to the proposed flood storage basin to the north of the site. There will be no piped outlet from this to any watercourse and water will simply percolate through the base of this basin.

The Reed bed adds another layer of protection in terms of treated water.

In-situ and remote alarms for wastewater treatment facilities are proposed

Non return valves will be installed to prevent flood waters entering the WwTP system. During an extreme flood event, the treated effluent outfall to the river will be inundated and will not operate, and instead treated effluent will drain to a sump from where it will be overpumped, using a flexible pipe, to the Ballagh River. A water level monitor will automatically close the gravity outlet from the sump and trigger overpumping to the river. All wastewater treatment process tanks lie outside these flood zones.

Preconstruction surveys

Preconstruction survey	Location	Survey objective	Survey timing/seasonality	Licence required for survey?	Specification for surveyors
Invasive species.	Entire site.	Determine extent and treatment required.	Survey any time of year Chemical treatment: After flowering Spring/Summer.	No.	Walkover survey. Specialist contractor for treatment.
Amphibians - Common frog spawning habitats (only necessary if works cannot be avoided from Jan - Mar inclusive.	Drainage ditches and grassland adjacent.	Determine if frogspawn is present.	Feb - Mar (Allow time c. 1 month for licensing and receptor site identification).	Yes, if translocation required.	Surveys to adhere to NRA guidance 2009: Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. National Roads Authority: Ireland.
Otter.	Suitable habitat already identified around the site.	Determine if holt / couch/ habitat in active use. Or whether other species are present.	Any time of year (Allow time c. 1 month for licensing and receptor site identification).	No.	Surveys to adhere to NRA guidance 2009.
Nesting Birds. Only necessary if works cannot be avoided March - Aug inclusive.	Vegetation at entrance to site.	Determine if nests present. Set up exclusion zones. Apply for licence for removal of nests if required.	March - August inclusive (where no nests present works must proceed within 72 hours otherwise re-survey required).	Yes, if nests are to be removed.	Ferguson Lees *et al.*, 2011.

Table 7.1 Pre construction surveys

Mitigation measures

Source	Pathway	Receptor	Mitigation Measure
Project / Site management	Construction site	Lough Melvin SAC	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 or 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. Good practice guidelines must be followed including those for Pollution Prevention (PPGs).
Construction			
Silt fencing	Runoff from installation	Lough Melvin SAC	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)).
Settlement lagoon	Runoff from installation	Lough Melvin SAC	Works will be carried out in dry weather. 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.
Compound	Run off and spills	Lough Melvin SAC	Compound location will be a dedicated area of hard standing, located at least 20m from any watercourse. 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.

Source	Pathway	Receptor	Mitigation Measure
Haulage routes, vehicles and construction traffic	Run off from construction site	Lough Melvin SAC	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. 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. Use of a self-contained wheel wash. 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.
Site preparation, topsoil removal, excavation, materials handling and levelling	Run off from construction site	Lough Melvin SAC	Prior to construction: 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. 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 lagoon 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. ≤25mg/L Total Suspended Solids [TSS] in accordance with the Freshwater Fish Directive [2006/44/EC] and Salmonid Waters Regulations [1988]). During excavation material will be loaded directly into a tipping lorry for removal for spreading or storage as appropriate. There will not be any soil removal from the site, all soil will be reused and stockpiled if required in a designated area. Disturbed soils will be stabilised as soon as practicable, either temporarily or permanently as required, e.g. sowing, impermeable mats.

Source	Pathway	Receptor	Mitigation Measure
Materials storage, stockpiling.	Dust and run off from construction site	Lough Melvin SAC	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.
Completions and landscaping	Run off from construction site	Lough Melvin SAC	Disturbed soils will be stabilised as soon as practicable by sowing. Silt fencing will remain until soils are stabilised.
Excavation	Run off from construction site.	Lough Melvin SAC	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. ≤25mg/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. Drains to be protected with geotextile bund, fixed with sandbags to prevent surface water runoff into the openings. 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.

Source	Pathway	Receptor	Mitigation Measure
Contaminated water	Run off from construction site. Pollution.	Lough Melvin SAC	Within the construction site storm water drains will be created and directed to settlement lagoon and released as required in a controlled manner Silt de-watering bags shall be used when water is being discharged. This discharged water will be within prescribed water quality limits (i.e. ≤25mg/L Total Suspended Solids [TSS] in accordance with the Freshwater Fish Directive [2006/44/EC] and Salmonid Waters Regulations [1988]). 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. Storm water flowing onto and through the site, will be controlled. Storm water flows will be diverted and slowed to prevent erosion, and will be diverted to a settlement lagoon and released as required in a controlled manner. Settlement lagoons 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. Settlement lagoons will be monitored at least twice daily and discharged when water is within the prescribed water quality limits (i.e. ≤25mg/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.
Contamination from hazardous materials - oils, fuels, chemicals	Run off from construction site, spills and leaks. Pollution.	Lough Melvin SAC	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

Source	Pathway	Receptor	Mitigation Measure
			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. All machinery/equipment will be well serviced and in good working condition. Machinery/equipment will be inspected daily for leaks of hydrocarbons. 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. A bunded storage area will be located in a designated area within the compound and will be provided for the duration of the construction period for the storage of oils, fuels, chemical and other hazardous materials. 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. Associated waste materials will be transported by registered carriers, and disposed of to appropriately licensed sites. Drip trays will be supplied for static machinery. 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. A 24-hour, seven-day week Emergency Response protocol will be written up and implemented 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.
Concrete	Run off from construction site. Pollution.	Lough Melvin SAC	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. 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

Source	Pathway	Receptor	Mitigation Measure
			50m or more from any surface water conduit.
Dirty vehicles and equipment	Run off from construction site. Pollution.	Lough Melvin SAC	A designated self contained wheel wash is proposed, the water from which will be directed to the settlement lagoon. 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.
Waste management	Construction site	Lough Melvin SAC	Waste will be removed from the site and disposed of by an approved waste contractor in accordance with prevailing waste management regulations. 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.
Biosecurity and Importation of Invasive species	Importing materials	Lough Melvin SAC	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)* 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.

Source	Pathway	Receptor	Mitigation Measure
			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.
Emergency Event	Run off from construction site, Spills, damage to equipment	Lough Melvin SAC	All operatives pre, during and post construction will be made fully aware of the environmental sensitivities in the area and the procedures to follow in the event of an emergency or pollution incident. If an emergency event should arise (e.g. an extreme weather event or a chemical spill), with the capability of generating additional erosion and sediment laden runoff the necessary equipment required in responding to this event will be stored on site. Staff will be trained in the use and application of these temporary emergency measures which may involve: Impermeable matting, silt fences, mulching and portable settlement tanks. In the event of an incident the NPWS IFI and the Environment Protection Agency will be notified immediately.
Construction near sensitive habitat	Damage to habitat, habitat loss, injury, mortality	Lough Melvin SAC Terrestrial habitat - 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 stream 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*

Source	Pathway	Receptor	Mitigation Measure
			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 Otter are thought to be active. A derogation licence is required if for any unforeseen reasons the Otter holt has to be disturbed or destroyed. 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 should be made safe, or cordoned off with temporary fencing at the end of the working day.
Construction near sensitive habitat and in river works	Damage to habitat, habitat loss, injury, mortality	Lough Melvin SAC Atlantic Salmon, Otter Freshwater Habitat	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. If this is not possible due to operational requirements piling will only take place during daylight hours, using ramp up procedures to give Salmonid "warning" of works, Migratory movement usually occurs in the hours of darkness. In river works will be carried out at low water, outside of spawning periods for Salmon, i.e. during the summer months, generally May 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 using sand bags. 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.

Source	Pathway	Receptor	Mitigation Measure
			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 species to be translocated. After the ECoW has approved, the pipe and headwall can be installed. 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 river bank will be reseeded and allowed to recover. IFI will be consulted prior to works. All works will comply with Inland Fisheries Ireland (2016). Guidelines *on the protection of fisheries during construction works in and adjacent to waters*. CIRIA guideline s Control of water pollution from linear construction projects. Technical guidance' (C648) https://www.thenbs.com/PublicationIndex/documents/details?Pub=CIRIA&DocID=279111
Flood Storage Area	Entrapment of mammals	Lough Melvin SAC = Otter, other wildlife	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.
Operation	Run off from site	Lough Melvin SAC	All maintenance works must align with the guidance set out in the guidance document entitled:

Source	Pathway	Receptor	Mitigation Measure
	Malfunction of waste water treatment facilities		"Control of Water Pollution from Construction Sites. Guidance for consultants and contractors (C532) (CIRIA, 2001) Spill-kits and hydrocarbon absorbent packs will be stored on site, as applicable; Hydrocarbon/ silt interceptors will be maintained and a service agreement will be in place to provide this service. Water sampling will be carried out to monitor discharge water levels leaving the site, to ensure baseline levels are not impacted. WwTP treated effluent will have to comply with the ELVs set in any future Certificate of Authorisation (CoA) for the plant These are to be based on the proposed design ELVS for the upgraded plant, which are: • BOD: 20mg/l • Ammonia: 0.5mg/l • Ortho-P: 0.3mg/l The requirement to achieve an ortho-P level of 0.3mg/l will require onsite storage and dosing of ferric sulphate. This will require the following environmental mitigation measures with respect to delivery and storage of Ferric Sulphate. • Chemicals will have individual separate bunds and storage areas. • Using (sealed) Bauer connections for bulk delivery of chemicals; • Providing a self-bunded storage tank, with a capacity equal to 110% of the maximum volume of chemical in the storage tank; • Measures to prevent overfilling during bulk delivery. This can include a 'dead man's handle' (where the operator can't walk away from the transfer pump without it shutting off); • The availability of spill kits on site to be deployed in the event of an accidental spillage, and appropriate training for operators in their use; Documented Incident Response Procedures for environmental incidents; 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)"; A spill method statement will be drawn up which all personnel must adhere to and receive training in;

Source	Pathway	Receptor	Mitigation Measure
			Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of all construction vehicles and in specific areas around the site i.e. next to a chemical store. All machine operators and site staff will be fully trained in the use of this equipment; All machinery will be regularly maintained and checked for leaks. Services will not be undertaken within 50m of a surface water conduit. Servicing must be undertaken on level, hard surfaced designated areas where possible. No chemicals that are deleterious to aquatic organisms are to be used in cleaning works; and All chemicals stored onsite (i.e. Polyelectrolyte) will be stored in a bunded container to 110% capacity.
Flood risk River Ballagh	Flooding of the WwTP, and increased flood risk in the area	Lough Melvin SAC	The WwTP and Reed bed will be elevated above flood levels (taking account of Climate Change) Compensatory Flood Storage will be developed to the north of the WwTP, and the materials excavated from this area will be reused to elevate the site. In-situ and remote alarms for wastewater treatment facilities. Non return valves will be installed on the outflow pipe to prevent flood waters entering the WwTP system.
Other considerations			
Lighting	Habitat loss and fragmentation due to artificial lighting	Birds and Bats	There are no proposals to remove trees or hedgerows with the exception of a small section at the entrance. Large area of grassland to remain. Bats and artificial lighting at night Guidance note 08/23 Bat Conservation Trust will be followed. Motion sensitive lighting around the facility will be used. Supplementary planting of hedgerows and treelines within and around the site will be used to soften lighting impacts and to integrate the site better into the wider network of hedgerows, woodland and scrub.
Clearing of vegetation/hedgerows	Damage to habitat, habitat loss, injury, mortality	Hedgerow habitat –Birds	There are no proposals to remove trees or hedgerows with the exception of a small section at the entrance. 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.

Source	Pathway	Receptor	Mitigation Measure
			• 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.
Clearing of vegetation, drainage works	Damage to habitat, habitat loss, injury, mortality	Aquatic habitat - Amphibian	Drainage works not anticipated however, if required, works should not take place during January to March, a preconstruction survey should be undertaken by the ECoW. Drains within the footprint of the proposed works will be surveyed for frogs/frog spawn prior to commencement of works. If present the ECoW will advise the Contractor on appropriate mitigation measures, e.g. signage or cordoning off the area. If this 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.
Construction site/excavations	Damage to foraging habitat, habitat loss, disturbance, displacement injury, mortality	Terrestrial Habitat - mammals	All construction pits and trenches will be covered outside of construction hours to avoid animals 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.

Table 7.2 Mitigation measures for **ALL ECOLOGICAL AND NATURA 2000 aspects of the project**

8.0 Residual Effects

The screening assessment undertaken in terms of the proposed development concludes that, in the absence of mitigation, there is potential for the project to significantly impact on the following designated site: Lough Melvin SAC, resulting in effects on:

- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/*or Isoeto-Nanojuncetea* [3130]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]

Potential impacts pertain to the construction and operational phases of the project.

Construction and operation:

- Habitat loss due to construction.
- Habitat degradation due to hydrological impacts via surface water and groundwater.
- Habitat degradation due to hydrological impacts during operation.
- Habitat degradation due to the introduction of the invasive species, disease and pathogens.
- Noise and disturbance causing displacement, injury or mortality of QI species Otter and Salmon
- Reduction in species density
- In combination effects

The remaining qualifying interests namely *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] and Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles from UK0030047 do not occur in or around the project. There is no Source Pathway Receptor relationship between the project and these QI's. They were therefore screened out.

The project has been assessed in terms of the potential for residual effect AFTER MITIGATION which may affect reaching specified targets in the Conservation Objectives see table 8.1.

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
Atlantic Salmon *(Salmo salar)* [1106]	This species was recorded by IFI electrofishing survey 2022-2023. Seven sites were surveyed along the Ballagh main channel as part of the repeat monitoring survey. All sites recorded trout while Salmon were present at sites 1 to 6, (Delanty et al 2024).Distribution data shows that Salmon are present in Lough Melvin SAC. Inland Fisheries Ireland fish stock surveys on the lake reported Salmon present in all surveys carried out since 2005. In 2017, six Salmon were caught ranging from 13.7cm-78.1cm and ranging in age from 1+ to 3+	Inadequate	To maintain the favourable conservation condition of Salmon in the Lough Melvin SAC.	Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary.	Yes –Potential for significant adverse effects on this species from potential pollutants / sediment entering surface water are considered to exist. An accidental pollution event of a sufficient magnitude could influence the water quality downstream of the proposed development in the SAC and impact Salmon through silt smothering spawning grounds or affecting respiration, chemical contaminants physically damaging fish or causing mortality as a result of toxins. Loud construction noise or vibration (e.g. piling) during critical times of the life cycle also have potential for significant effects, given the close proximity of spawning	Suite of mitigation measures proposed to negate risk. No residual effects anticipated. WwTP will improve overall water quality when residents connect to the facility.
				Adult spawning fish	Conservation Limit (CL) for each system consistently exceeded.		
				Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 Salmon fry/5 min sampling.		
				Out-migrating smolt abundance	No significant decline.		
				Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic causes.		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
	years of age. This indicates good Salmon recruitment and feeding habitat for them. It also indicates that Salmon migrate into the tributaries off the lake to spawn. Therefore, it can be assumed that this species is present throughout the catchment.			Water quality	At least Q4 at all sites sampled by EPA.	grounds.	
Otter *(Lutra lutra)* [1355]	No spraint or confirmed holts of couches in the vicinity of the project area, however ample good habitat present. Otter are transient and it is likely that this habitat is used on an occasional basis.	Favourable	To maintain the favourable conservation condition of Otter on Lough Melvin SAC.	Distribution	No significant decline	Yes – This species is likely to be present throughout the catchment. There is historic records from Atlas of Mammals in Ireland in 1998 of this qualifying interest found 600m south of the proposed development at grid reference G924485 where Otter spraint was present under a bridge. There is also records of Otter present along Lough Melvin shore in 2002 and 2005, from the	No residual effects anticipated.
				Extent of terrestrial habitat	No significant decline Area mapped and calculated as 75.64ha.		
				Extent of Marine Habitat	No significant decline, area mapped and calculated as 5.87ha.		
				Extent of freshwater (lake) habitat	No significant decline, area mapped and calculated as		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
					317.55ha	Northern Ireland Mammal Database and NPWS Otter Survey of Ireland, 1.5km from the proposed development. This indicates there is suitable habitat for foraging and commuting along the Ballagh River which is adjacent to the site. Based on the results of the Otter survey of the site and surrounds, there is no potential loss of breeding or resting places, couch or holt sites for Otter within the vicinity of the works. There are no resting places found in proximity to the works and there will be no loss of Otter holts or couches. Otters in the general area may be temporarily disturbed as a result of the works. Furthermore, Otters are largely nocturnal animals and will be largely active	
				Extent of freshwater (river) habitat	No significant decline, Length mapped and calculated as 20.89km.		
				Couching sites and holts	No significant decline		
				Fish biomass available	No significant decline		
				Barriers to connectivity	No significant increase.		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
						outside of the working day. There will be no permanent loss of habitat as a result of the works. An accidental pollution event of a sufficient magnitude could (at least temporarily) potentially affect usage of holt/couch sites available for Otter in the SAC or affect prey availability or abundance. During the Construction Phase noise from construction activities and/or human presence may cause disturbance/displacement effects on Otter foraging or commuting in the area.	
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	Due to lack of distribution data the precautionary approach is used which assumes that this habitat is present throughout the catchment. Habitat not found on	Bad	To maintain the favourable conservation condition of Molinia meadows on calcareous, peaty or clayey-silt laden soils (*Molinion*	Habitat area	Area stable or increasing, subject to natural processes	No – Although there is a lack of distribution data and no know location of this habitat within the SAC, Molinia meadows is a terrestrial habitat and the proposed development poses no risk of affecting any of the attributes and targets	No potential for impacts or effects - Screened out (Devlin, 2024) No residual effects.
				Habitat distribution	No decline, subject to natural processes		
				Vegetation	At least 7 positive indicator species		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
	the walkover survey		*caeruleae*)	composition: positive indicator species	present in monitoring stop of, if 5 – 6 present in stop, additional soecies within 20m of stop; this includes at least one high quality positive indicator species present in the stop or within 20m of stop	supporting the favourable conservation status of this habitat within Lough Melvin SAC. This habitat was not recorded present within the development site or nearby	
				Vegetation composition: negative indicator species	Negative indicator species collectively not more than 20% cover, with cover by an individual species less than 10%.		
				Vegetation structure: broadleaf herb: grass ratio	Broadleaf herb component of vegetation between 40 and 90%		
				Vegetation composition: non native species	Cover of non-native species not more than 1%		
				Vegetation	Hair mosses		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
				composition: moss species	(*Polytrichum spp*.) not more than 25% cover		
				Vegetation structure: woody species and bracken	Cover of woody species and bracken (*Pteridium aquilinum)* (not more than 5% cover		
				Vegetation structure: Boradleaf herb:grass ratio	Broadleaf herb component of vegetation between 40% and 90%		
				Vegetation structure: sward height	At least 30%of sward between 10cm and 80cm tall		
				Vegetation structure litter:	Litter cover not more than 25%		
				Vegetation composition: typical species	At least 7 positive indicator species present, including 1 "high quality" species		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
				Physical structure; grazing or disturbance	Area of the habitat showing signs of serious grazing or disturbance less than 20m^2		
Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]	Lough Melvin found directly downstream of proposed development.	Bad	To restore the favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	Habitat area	Area stable or increasing, subject to natural processes	Yes – Due to proximity of Lough Melvin downstream, the potential for adverse effects on this habitat from potential pollutants and sediment entering surface water are considered to exist. Potential to cause Nutrient enrichment, pollution due to WwTP and introduction of invasive alien species.	Suite of mitigation measures proposed to negate risk. No residual effects anticipated. WwTP will improve overall water quality when residents connect to the facility.
				Habitat distribution	No decline, subject to natural processes		
				Vegetation species richness	Restore appropriate species richness		
				Vegetation composition: Typical species	Restore typical species, in good condition, and demonstrating typical abundances and distribution		
				Vegetation composition: characteristic zonation	Restore deep water vegetation		
				Vegetation	Restore maximum		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
				distribution: maximum (euphotic) depth	depth of vegetation, subject to natural processes		
				Hydrological regime: water level fluctuations	Maintain appropriate Natural hydrological regime necessary to support the habitat		
				Lake substratum quality	Maintain / restore appropriate substratum type, extent and chemistry to support the vegetation		
				pH and Alkalinity	Maintain / restore appropriate water and sediment pH, Alkalinity and cation concentrations to support the habitat, subject to natural processes		
				Nutrients Nm/l P ; mg/l N	Restore the concentration of nutrients in the		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
					water column to sufficiently low levels to support the habitat and its typical species		
				Water colour	Restore appropriate water colour to support the habitat		
				Dissolved organic carbon (DOC)	Maintain/restore appropriate organic carbon levels to support the habitat		
				Turbidity	Maintain/ restore appropriate turbidity to support the habitat		
				Transparency	Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency		
				Attached algal biomass	Maintain trace/absent attached algal biomass (<5%		

Qualifying Interests *indicates a priority habitat	Closest Proximity	Conservation Status	Conservation Objective	Attribute	Target	Potential for Adverse Effects	Potential for residual effects after Mitigation
					cover)		
				Fringing habitat: Area and condition	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3130		

Table 9.2. Assessment of residual effects on Lough Melvin SAC

From the information provided, the assessment of the suitability and effectiveness of proposals suggests that the proposed mitigation measures will be sufficient to protect the receiving environment and Lough Melvin SAC. Potential risks pertaining to the construction and operational phases of the project have been addressed.

Sufficient mitigation is proposed to protect Otter, Salmon and Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130] form the effects of Habitat loss, habitat degradation, disturbance, displacement and potential reduction in species density. Residual effects are not anticipated.

9.0 In combination effects

The potential for cumulative impacts to arise from the project proposal is regulated and controlled by the environmental policies and objectives of Leitrim County Council and Fermanagh and Omagh District Council.

Any existing/proposed plan or project that could potentially affect Natura 2000 sites in the vicinity of the project, in combination with the proposed development, must adhere to the overarching environmental policies of the County Development Plan and Local Area Plans. These policies will ensure the protection of the Natura 2000 sites within the zone of influence of the proposed project and include the requirement for any future plans or projects to undergo Screening for Appropriate Assessment and/or Appropriate Assessment (NIS/HRA) to examine and assess their effects on Natura 2000 sites, alone and in combination with other plans and projects.

There were no other planning applications pending in the immediate vicinity of the project area at the time of writing.

Garrison WwTP discharges in to Lough Melvin also, Northern Ireland Water has proposals to upgrade the Garrison WwTWs under the Peace Plus program. However, the delivery of these projects is also dependent on the confirmation of funding through this programme, as well as successful land acquisition (where appropriate) and statutory approvals.

Within the Leitrim County Development Plan 2023 - 2029, a Natura Impact Report of the Development Plan was carried out and it concluded that is not foreseen to give rise to any adverse effects on the integrity of European Sites, alone or in combination with other plans or projects. The Plan has been formulated to ensure that uses, development and effects arising from developments, based upon the Plan (either individually or in combination with other plans or projects) shall not give rise to significant adverse impacts on the integrity of any Natura 2000 site.

The Strategic Environmental Assessment of the Plan was also carried out. The SEA process ensured that environmental considerations were suitably incorporated into the Plan as adopted. This SEA process will continue with the monitoring of environmental impacts of the implementation of the Plan. This will include ongoing monitoring and the carrying out of a progress report on the implementation of the Plan.

Following the precautionary principle, potential effects from the proposed development include habitat loss, a reduction of water quality due to the release of pollutants, particularly sediment from ground disturbance activities, potential spills of hydrocarbons and chemicals associated with the WwTP, and the treated effluent being discharged from the WwTP, noise disturbance, injury and mortality of QI species. These potential impacts are associated with the construction phase, and to a lesser extent with the operational phase of the proposed development and are considered, in the absence of mitigation, to have the potential to give rise to significant effects on the aquatic species and habitats in the Lough Melvin SAC.

With regard to the project proposed it has been determined that, after mitigation, there will be no residual effects on the Natura 2000 sites within the zone of influence of the project. As the proposed development itself will not have any residual negative effects on the conservation objectives of any Natura 2000 sites, considering the lack of other development in the area, the environmental policies outlined above, and considering the mitigation measures described in Section 7, it is not predicted to result in any negative in-combination effects with any other plans or projects

10.0 Conclusion

This NIS has been prepared following the Department of the Environment, Heritage and Local Government guidance 'Appropriate Assessment of Plans and Projects in Ireland, guidance for Planning Authorities. The function of this report is to assist the competent authority with undertaking an Appropriate Assessment in accordance with the Habitats Directive.

The assessment considers whether the proposed development, alone or in-combination with other projects or plans, will result in adverse effects on the integrity of Lough Melvin SAC, and includes any mitigation measures necessary to avoid or reduce the risk of negative effects.

This NIS has examined and analysed, in light of the best scientific knowledge, with respect to those Natura 2000 sites within the zone of influence of the proposed development, the potential impact sources and pathways, how these could impact on the sites' qualifying interests or special conservation interests and whether the predicted effects would adversely affect the integrity of Lough Melvin SAC. There are no other Natura 2000 sites at risk of effects from the proposed development.

It has been objectively concluded from the examination and analysis of the proposed development, potential effects from same, and the mitigation measures outlined as presented in section 7 of this report, that the development proposed by Leitrim County Council will not adversely affect (either directly or indirectly) the integrity of Lough Melvin SAC, or any other Natura 2000 site, either alone or in combination with other plans or projects.

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Appendix 1 Drawings 11896-2010 and 11896-2011

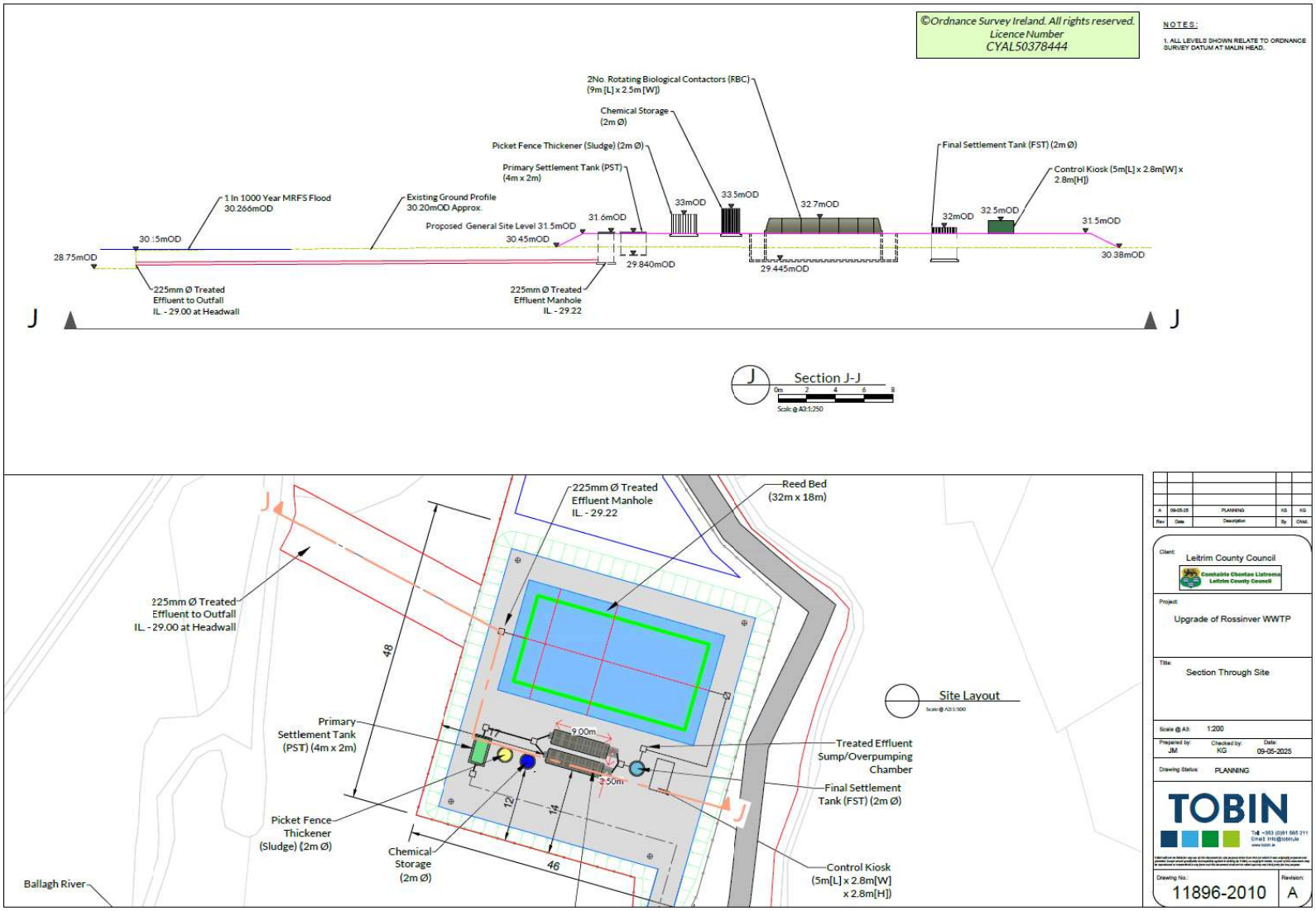

Figure 1. Drawing 11896-2010 location of sump / overpumping chamber which will take over in the event of an extreme flood event, as supplied by TOBIN Ltd. (not to scale).

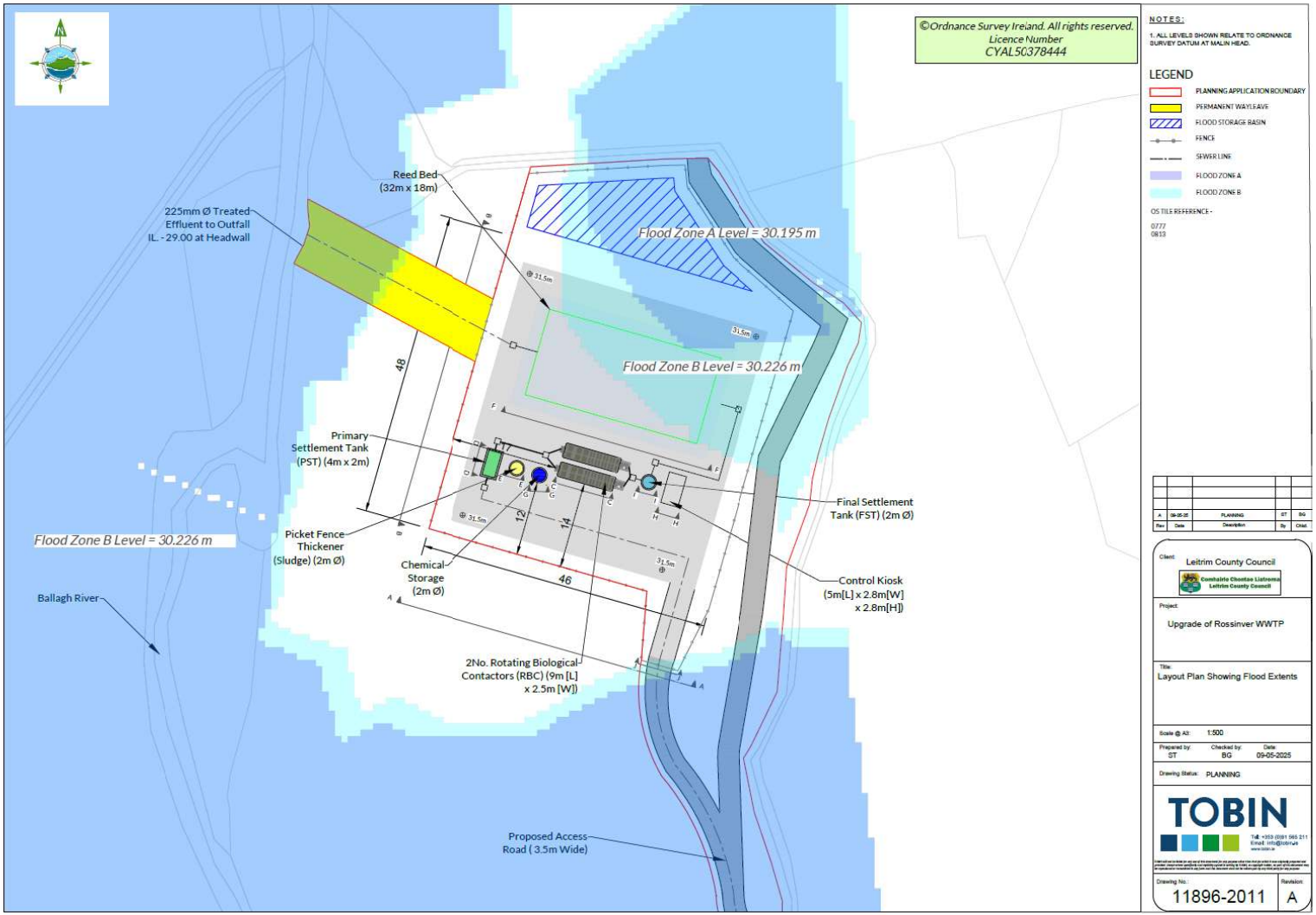

Figure 2. Drawing 11896-2011 Flood extents at the project location as supplied by TOBIN Ltd. (not to scale).