AtkinsRéalis

Appropriate Assessment Screening Report – Dublin Road Active Travel Scheme

Westmeath County Council

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0086409DG0036

MULLINGAR ACTIVE TRAVEL BUNDLE

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1. Introduction

AtkinsRéalis has been commissioned by Westmeath County Council to prepare an Appropriate Assessment (AA) Screening Report for the Dublin Road Active Travel Scheme of the proposed Mullingar Active Travel Bundle, hereafter referred as the 'proposed scheme'.

1.1 Background

The overall commission of the Mullingar Active Travel Bundle includes six areas within Mullingar town which are divided into four different projects, as outlined below and in Figure 1-1. The total length of the scheme is 9.1km.

Project 1: St. Finian's to Harbour Street Footpath and Cycleway

Project 2: Dublin Road Footpath and Cycleway and National Science Park Junction Improvements

Project 3: Sundays Well Road - Lynn Road/Auburn Road - Millmount Junction Improvements and Mount Street Lower Pedestrian Interventions

Project 4: Grange South to Orbital C-Link Segregated Cycling Scheme.

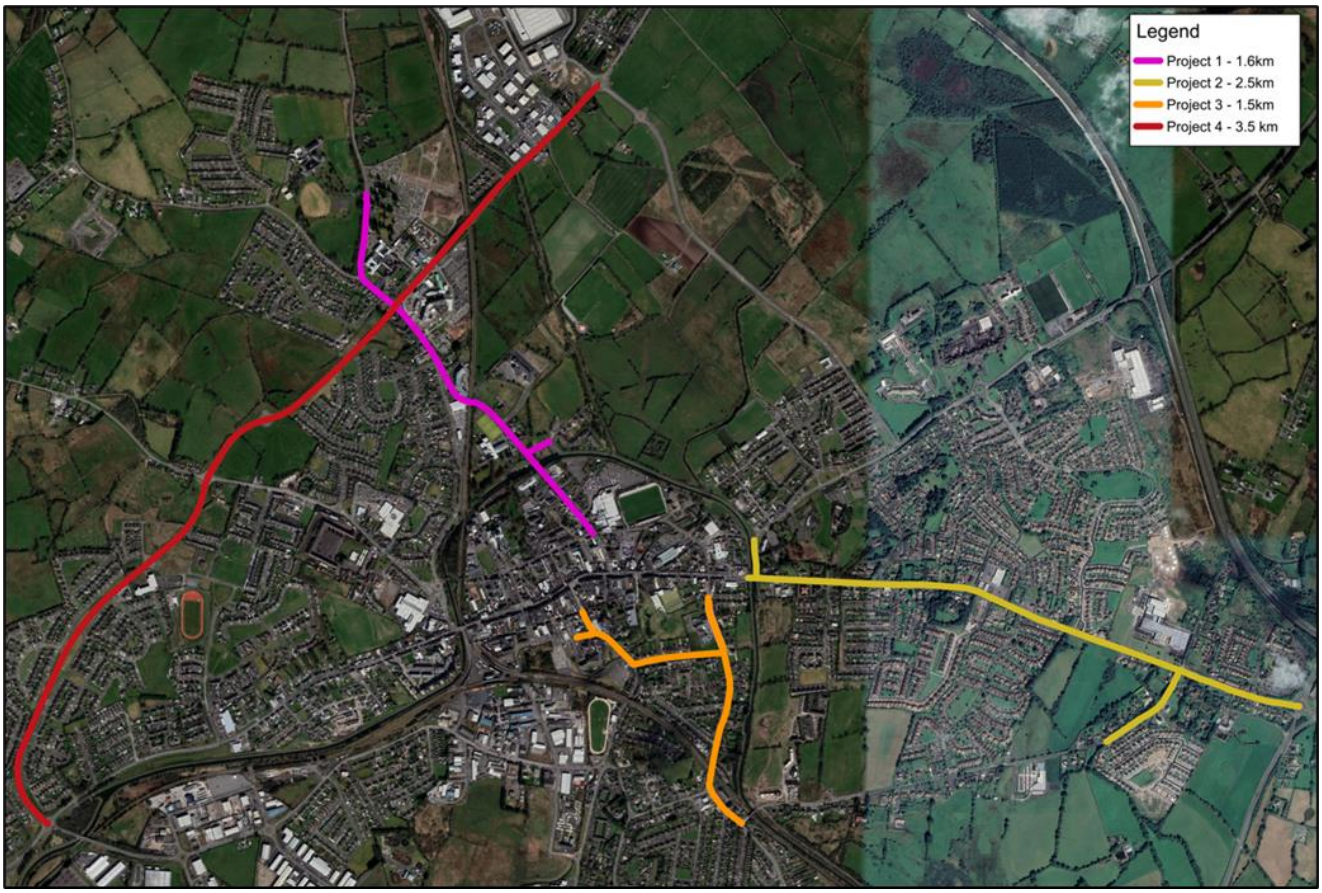

Figure 1-1 – Mullingar Active Travel Bundle Routes

1.2 Proposed Scheme – Dublin Road Active Travel Scheme

The proposed scheme consists of a circa 2.5km route located primarily along the Dublin Road (R392) as well as sections on Delvin Road and Ardmore Road. On the western end of the scheme, it links to the Royal Canal Greenway and Austin Friar's Street and on the eastern end links to the existing active travel in place on Ardmore Road and tie-in near the Marlinstown Roundabout.

The proposed scheme intersects with a number of other key road network features nearby the proposed scheme namely connections to the N52 National Road and links to Mullingar Town Centre. The alignment of the route is illustrated in Figure 1-2 below.

Figure 1-2 – Dublin Road Active Travel Scheme Extents.

1.3 Scheme Description

The proposed scheme has been divided into 6 no. segments of common characteristic types which are illustrated in Figure 1-3 below. Refer to Table 1-1 below for details of the various segments.

Figure 1-3 – Dublin Road Active Travel Scheme Segments

For segments that are not constrained by width, the scheme will consist of a segregated 3.0m wide two-way cycle tracks with 0.5m buffer between the cycle track and carriageway, 2.0m wide footpaths on both sides of the road and a 6.5m road carriageway.

At constrained (narrower) locations the width of the cycle track could be reduced to a minimum of 2.0m and a 0.3m buffer and footpaths could be reduced to a minimum of 1.8m, at locations where this cannot be facilitated the cycle track and footpath will merge into a shared path of 3.0m width with a 0.3m buffer.

The general arrangement drawings for the proposed scheme showing the layout of all the sections is included in Appendix A.

1.4 Construction Details

The proposed scheme will be constructed using traditional build construction techniques (as opposed to rapid build) and where feasible the existing kerb and grassed areas will be retained or upgraded. As the proposed cycle facilities are proposed on one side of the road, the opposite side will be retained where the existing width is deemed appropriate. Rapid build options were assessed, however, these options were not deemed to be appropriate based on the requirements for the proposed scheme. A summary of all the traditional build sections of the scheme is outlined in Table 1-1 below.

Table 1-1 - Summary of Sections

Location	Proposal
Segment 01	2.3m two-way cycle track on the south side of the road, locally changed to shared active travel paths at constrained locations 1.8m footpath on both sides of the road 6.5m carriageway
Segment 02	3.5m two-way cycle track on the south side Retention of the existing 1.8m+ footpaths on both sides of the road 6.5m carriageway
Segment 03	4.0m two-way cycle track on the south side Retention of the existing 1.8m+ footpaths on both sides of the road 6.5m carriageway
Segment 04	2.3m two-way cycle track on the south side Retention of the existing 1.8m+ footpath on the north side 6.5m carriageway
Segment 05	2.3m two-way cycle track on the east side 2.0m footpath on the east side 6.0m carriageway
Segment 06	3.3m shared active travel path on the western side Footpath on the eastern side Removal of left turning lane into Dublin Road 6.0m carriageway
Dublin Road/Delvin Road Signalised Junction	Upgrade Junction into a TL505 Protected T-Junction – Full Signal Control as per the Cycle Design Manual Removal of turning lanes on all three approaches Crossing facility on the western arm to be upgraded into a raised toucan crossing Removal of the yellow box
Dublin Road/Bellview Priority Junction	Removal of Slip Lane Tightening of the radii Provision of a raised uncontrolled pedestrian crossing facility
Dublin Road/Aldi Food Store/Glenmore Wood Signalised Junction	Removal of the Slip Lane off Aldi Upgrade Junction into a TL503 Protected Junction – Full Signal Control as per the Cycle Design Manual Removal of turning lanes along Dublin Road
National Science Park Roundabout	Upgrade into a TL703 Segregated Roundabout with Shared Active Travel Facilities as per the Cycle Design Manual Removal of the toucan crossing on the eastern arm and inclusion of raised zebra crossings on all arms

1.5 Construction Methodology

The Construction period for the proposed scheme is anticipated to be 18 months and can be summarised as follows:

1.5.1 Cycle Track Construction

The exact construction depth for cycle track pavements is subject to the outcome of ground investigations to be carried out at detailed design stage. However, the typical cycle path construction will be in the order of 500 mm maximum excavation depth.

Works will commence with the clearance and off-site removal of redundant road signage, boundary treatment, road surface materials and topsoil. The works will be undertaken using a combination of operatives using hand tools, mechanical excavators and dumper trucks. To facilitate the main works, underground utilities which conflict with the main works will be uncovered using mechanical excavators and hand digging where appropriate. The need for significant utility diversions is not envisaged as part of the works; instead a 'lower and protect' approach will be favoured. This is likely to be restricted to locations where the walking and cycling facilities cross or interface with public roads.

Following the utility works, the initial pavement and cycle track construction phase will be undertaken. This will include the excavation and removal of the existing stone, soil, concrete ad bitumen materials along the route followed by the installation of new path and track base materials. Excavations will be largely undertaken by mechanical means, with any spoil arisings to be removed off site or reused locally where testing confirms its suitability. The proposed scheme involves an anticipated maximum excavation depth of 500mm below ground level to facilitate the base layers for the proposed footpaths / pavements and the ducting for the signalling associated with the scheme. The base layers of the pavement and track are to be made of compacted stone materials.

The works will also involve constructing the civil engineering elements required to facilitate the commissioning of the traffic signals and the public lighting elements at the latter stages of construction. Service chambers and underground duct sets will be laid within trenches and backfilled with granular material. Signal poles and public lighting columns will be erected, and ducting connections will be made to the base of each pole unit. Following completion of the lighting elements, the final pavement surface course will be laid using an asphalt paving machine followed by compaction using a vibrating roller.

1.5.2 Road Resurfacing

The typical new road construction, which is minimised throughout the scheme, will be in the range of 600 mm to 1 m depending on capping requirements if the California Bearing Ratio (CBR) is poor.

The scheme also involves the resurfacing of the roadways and painting of new road markings within the scheme footprint. The existing road surface course layer will be planed-out throughout the entire scheme extents with planings being removed off site. The planed-out area will be replaced with Hot Rolled asphalt (HRA) or Stone Mastic Asphalt (SMA) surface course ca. 40mm - 60mm thick. Additional to this, and where required, additional bituminous layers may be replaced in localised areas where there is evidence of pavement failure. It is not envisaged that the foundations layers (i.e. sub-base or capping) will require replacement. Following road resurfacing new road markings will be painted on road surfaces.

1.5.3 Footpath Construction

The exact construction depth of the footpath is subject to the outcome of ground investigations to be carried out at detailed design stage. However, the typical footpath construction will be in the order of 300mm.

1.5.4 Drainage Alterations

Typically, drainage will be provided using new gullies and existing or new storm drainage pipes where appropriate. The new facilities will generally slope towards the road in order to minimise the need for additional drainage collection measures. In some areas, where this may not be possible, additional channels or measures may be required. The details of this will be developed as part of the detailed design. The existing drainage infrastructure, and any new channels, within the proposed scheme site will outfall to the Brosna River.

1.5.5 Verge Reinstatement

For soft landscaping areas topsoil profiles will be graded to tie into the new pavement levels followed by grass seeding. The top soiling and seeding will be undertaken using a combination of mechanical excavator, tractor unit drawing a rotavator / rake / seed spreader and also operatives using hand tools for areas where machinery access is unavailable. There are areas along the scheme that will require embankments to be reduced in order to facilitate the active travel proposals, primarily along Segment 01 as can be seen in AtkinsRéalis Drawing Ref: 0086409-ATK-ST-P2-DR-C-900122) as well a small area in Segment 05 outside of Ardmore Hills (0086409-ATK-ST-P2-DR-C-900128).

1.5.6 Traffic Management

The construction of the cycle tracks and footpaths will be carried out in short segments (c. 100-200m in length) on one side of the roadway at a time to allow for continued traffic flow and will progress along the roadways, as such individual work zones will be relatively small.

1.5.7 Junctions

All signalised junctions along the scheme will be segregated. This will feature cyclists passing through the junction on their own cycle tracks with dedicated traffic signal phases which are separate to the vehicular phasing and separate to the pedestrian phasing (where applicable). The proposed junctions are to include kerb upstands throughout (except at crossing points), providing vertical segregation and thereby increasing protection to the cycle tracks. The Roundabout on the scheme will be segregated whereby cyclists and pedestrians will join a shared path and use zebra crossings to facilitate crossing, the roundabouts will require kerb upstands throughout.

1.5.8 Site Compound

It will be the responsibility of the Contractor to determine a suitable location for the site compound within the proposed development area, but away from any identified environmentally sensitive receptors (watercourses, designated sites etc.) so as to avoid potential impacts to the environment and the general public. It is planned that existing Local Authority (Westmeath County Council) controlled material storage yards in the locality, currently used for the storage of inert materials, will be utilised during the construction phase to store similarly inert materials for incorporation in the proposed scheme. Materials will be brought to site on a periodic basis as required directly from suppliers. Parking for operatives will be at the main compound only. Operatives will be transported from the compound to the works area. No parking will be allowed within the temporary works area or on-street.

2. Scope of Study

2.1 Legislative Context

2.1.1 Natura 2000

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") is a legislative instrument of the European Union (EU) which provides legal protection for habitats and species of Community interest. Article 2 of the Directive requires the maintenance or restoration of such habitats and species at a favourable conservation status, while Articles 3 to 9, inclusive, provide for the establishment and conservation of an EU-wide network of special areas of conservation (SACs), known as Natura 2000, which also includes special protection areas (SPAs) designated under Article 4 of Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds ("the Birds Directive"). Both SACs and SPAs are commonly referred to as "European sites" or "Natura 2000 sites".

SACs are selected for natural habitat types listed on Annex I to the Habitats Directive and the habitats of species listed on Annex II to the Habitats Directive. SPAs are selected for species listed on Annex I to the Birds Directive, other regularly occurring migratory species and other species of special conservation interest. The habitats and species for which a Natura 2000 site is selected are referred to as the "*qualifying interests*" of that site and each is assigned a "*conservation objective*" aimed at maintaining or restoring its "*favourable conservation condition*" at the site, which contributes to the maintenance or restoration of its "*favourable conservation status*" at national and European levels.

2.1.2 Appropriate Assessment

Article 6 of the Habitats Directive deals with the management and protection of Natura 2000 sites. Articles 6(3) and (4) set out the decision-making process, known as "*Appropriate Assessment*" (AA), for plans or projects in relation to Natura 2000 sites. Article 6(3) states: -

> *"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

The first sentence of Article 6(3) provides a basis for determining which plans and projects require AA, i.e., those "*not directly connected with or necessary to the management of* [one or more Natura 2000 sites] *but likely to have a significant effect thereon, either individually or in combination with other plans or projects*".

In *Waddenzee* (C-127/02), the Court of Justice of the European Union (CJEU) ruled that significant effects must be considered "*likely*" if "*it cannot be excluded, on the basis of objective information*", that they would occur. This clearly sets a low threshold, such that AA is required wherever there is a reasonable possibility of significant effects on a Natura 2000 site. In the same judgment, the CJEU established that the test of significance relates specifically to the conservation objectives of the site concerned, i.e., "*significant effects*" are those which, "*in the light, inter alia, of the characteristics and specific environmental conditions of the site*", could undermine the site's conservation objectives.

In addition to the effects of the plan or project on its own, the combined effects arising from the plan or project under consideration and other plans and projects must also be assessed (see Section 5.6 for more details).

The last part of the first sentence of Article 6(3) defines AA as an assessment of the "*implications* [of the plan or project] *for the site in view of the site's conservation objectives*". In the second sentence, Article 6(3) requires that, prior to agreeing to a plan or project, the competent authority must "*ascertain*" that "*it will not adversely affect the integrity of the site concerned*". In *Sweetman v. An Bord Pleanála* (C-258/11), the CJEU ruled that a plan or project "*will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of sites*". On that basis, EC (2018) described the "*integrity of the site*" as "*the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated*". As such, the "*integrity*" of a specific site is defined by its conservation objectives and is "*adversely affected*" when those objectives are undermined. In *Waddenzee*, the CJEU ruled that the absence of adverse effects can only be ascertained "*where no reasonable scientific doubt remains*".

The "*precautionary principle*" applies to all of the legal tests in AA, i.e., in the absence of objective information to demonstrate otherwise, the worst-case scenario is assumed. Where the tests established by Article 6(3) cannot be satisfied, Article 6(4) applies (see explanation in Section 2.2 below).

2.1.3 Competent Authority

The requirements of Articles 6(3) and (4) are transposed into Irish law by, inter alia, Part 5 of the European Communities (Birds and Natura Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) ("the Planning and Development Acts"). As per the second sentence of Article 6(3), it is the "*competent national authorities*" who are responsible for carrying out AA and, by extension, for determining which plans and projects require AA. The competent authority in each case is the body responsible for authorising a plan or project, e.g. local or other public authorities (including TII), An Bord Pleanála, the Environmental Protection Agency (EPA) or a Government Minister. In all cases, it is the competent authority who is ultimately responsible for determining whether or not a plan or project requires AA and for carrying out the AA, where required.

2.2 Appropriate Assessment Process

The AA process can be described as being made up of three distinct stages, as described below, the need to progress to each stage being determined by the outcome of the preceding stage.

Stage 1: Screening – This stage involves a determination by the competent authority as to whether or not a given plan or project required AA. As explained in Section 2.1, AA is required in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but for which the possibility of likely significant effects on one or more Natura 2000 sites cannot be excluded. The CJEU's Judgment on *Eco Advocacy v. An Bord Pleanála* (C-721/21) and the *Opinion* of Advocate General Kokott in the same case set out the principles for identifying any aspects of a plan or project which may constitute what the CJEU termed in *People Over Wind* (C-323/17) "*measures intended to avoid or minimise harmful effects on a Natura 2000 site*" and, as such, cannot be taken into account in making an AA Screening determination. Consideration of the potential for in-combination effects is also required at this stage.

Stage 2: Appropriate Assessment – This stage involves a detailed assessment of the implications of the plan or project, individually and in combination with other plans and projects, for the integrity of the Natura 2000 site(s) concerned. This stage also involves the development of appropriate mitigation to address any adverse effects and an assessment of the significance of any residual impacts following the inclusion of mitigation. In *Kelly v. An Bord Pleanála* (IEHC 400), the High Court ruled that a lawful AA must contain complete, precise, and definitive

findings based on examination and analysis, and conclusions and a final determination based on an evaluation of the findings. In the same judgment, the High Court stressed that, in order for the findings to be complete, precise, and definitive, the AA must be carried out in light of best scientific knowledge in the field and cannot have gaps or lacunae. In *Holohan v. An Bord Pleanála* (C-461/17), the CJEU clarified that AA must "*catalogue the entirety of habitat types and species for which a site is protected*" (i.e. the qualifying interests of the site) and assess the implications of the plan or project for the qualifying interests, both within and outside the site boundaries, and other, non-qualifying interest habitats and species, whether inside or outside the site boundaries, "*provided that those implications are liable to affect the conservation objectives of the site*". The proposer of a plan or project requiring AA is furnishes the competent authority with the scientific evidence upon which to base its AA by way of a Natura Impact Statement (NIS) or Natura Impact Report (NIR). If it is not possible to ascertain that the plan or project will not adversely affect one or more Natura 2000 sites, authorisation can only be granted subject to Article 6(4).

Stage 3: Article 6(4) – If a plan or project does not pass the legal test at Stage 2, alternative solutions to achieve its aims must be considered and themselves subject to Article 6(3). If no feasible alternatives exist, authorisation can only be granted where it can be demonstrated that there are imperative reasons of overriding public interest (IROPI) justifying its implementation. Where this is the case, all compensatory measures must be taken to protect the overall coherence of Natura 2000.

The three stages described above are illustrated in Figure 2-1 below.

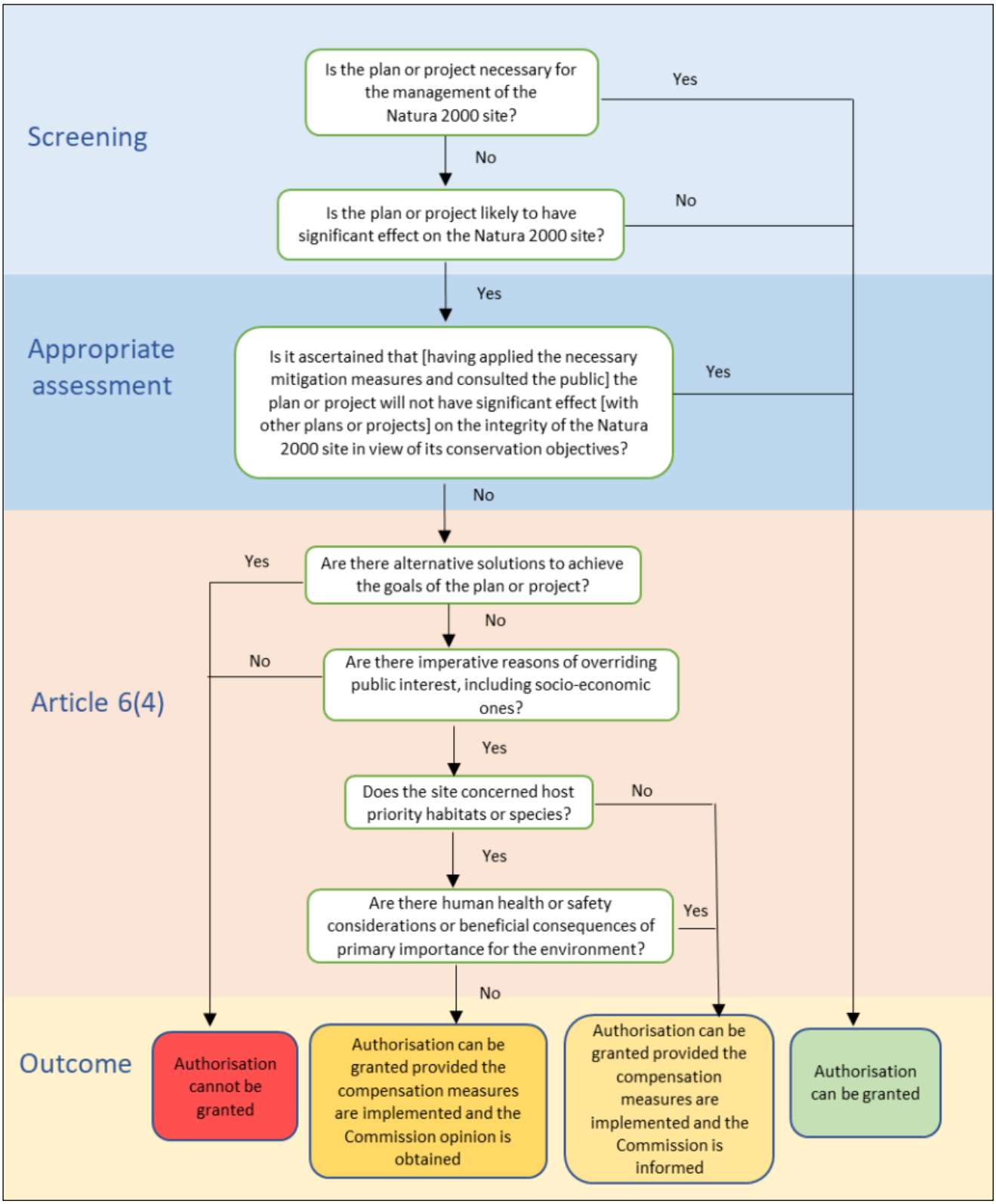

Figure 2-1 - Stages of the Appropriate Assessment process (EC, 2021a).

3. Methods

3.1 Guidance documents

The Screening for Appropriate Assessment was prepared with reference and due consideration to the following documents, guidelines and case law, including but not limited to: -

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna. *Official Journal of the European Communities* L 206/7-50.
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. *Official Journal of the European Union* L 20/7-25.
- European Communities (Birds and Natural Habitats) Regulations, 2011. *S.I. No. 77/2011* (as amended) ("the Habitats Regulations").
- Planning and Development Act, 2000. *No. 30 of 2000* (as amended) ("the Planning and Development Acts").
- Planning and Development Regulations, 2001. S.I. No. 600/2001 (as amended) ("the Planning Regulations").
- EC (2019). *Managing Natura 2000 sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC.* European Commission, Brussels. *Official Journal of the European Union* C 33/1-62.
- EC (2021a). *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission, Brussels. *Official Journal of the European Union* C 437/1-107.
- EC (2021b) *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive. C(2021) 7301.* European Commission, Brussels.
- DG Env (2022) *Guidance document on assessment of plans and projects in relation to Natura 2000 sites – A summary.* Directorate-General for Environment, European Commission, Brussels. Publications Office of the European Union, Luxemburg.
- DEHLG (2010a) *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Revised 11/02/2010.* Department of the Environment, Heritage and Local Government, Dublin.
- DEHLG (2010b) *Circular NPW 1/10 & PSSP 2/10. Dated 11/03/2010.* Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2012) *Marine Natura Impact Statements in Irish Special Areas of Conservation. A Working Document. April 2012.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.
- NPWS (2021) Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland. *National Parks & Wildlife Service Guidance Series* 1, Department of Housing, Local Government and Heritage, Dublin.
- Mullen, E., Marnell, F. and Nelson, B. (2021) Strict Protection of Animal Species – Guidance for Public authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public authority. *National Parks & Wildlife Service Guidance Series* 2, Department of Housing, Local Government and Heritage, Dublin.

- OPR (2021) *Appropriate Assessment Screening for Development Management. OPR Practice Note PN01.* Office of the Planning Regulator, Dublin.

- Case law, including *Waddenzee* (C-127/02), *Sweetman v. An Bord Pleanála* (C-258/11), *Kelly v. An Bord Pleanála* (IEHC 400), *Commission v. Germany* (C-142/16), *People Over Wind* (C-323/17), *Holohan v. An Bord Pleanála* (C-461/17), *Eoin Kelly v. An Bord Pleanála* (IEHC 84), *Heather Hill* (IEHC 450) and *Eco Advocacy v. An Bord Pleanála* (C-721/21).

- Sundseth, K. and Roth, P. (2014) *Article 6 of the Habitats Directive – Rulings of the European Court of Justice.* Ecosystems LTD (N2K Group), Brussels.

3.2 Desk Study

Baseline data regarding the receiving environment, including Natura 2000 sites, was gathered through a thorough desk study.

The boundaries of Natura 2000 sites were downloaded from *NPWS: Maps and Data* <https://www.npws.ie/maps-and-data>. Information on sites, including their overall structures and functions, qualifying interests, conservation objectives and threats/pressures and activities therein, was found in the Site Synopsis, Natura 2000 Standard Data Form, Conservation Objectives and supporting documents for each site. Spatial data for site-specific conservation objectives of Natura 2000 sites, and boundary data for other designated sites, such as Natural Heritage Areas, was also retrieved from *NPWS: Maps and Data.* Reporting under Article 17 of the Habitats Directive (NPWS, 2019a-c; *Article 17 web tool*) and Article 12 of the Birds Directive (NPWS, 2024c; *Article 12 web tool*) provided further information on the habitats and species concerned at the national level.

Information relating to recent and historical records of species was obtained from the National Biodiversity Data Centre (NBDC) *Biodiversity Maps* <https://maps.biodiversityireland.ie/Map>.

The Environmental Protection Agency (EPA) map viewer *EPA Maps (Water)* <https://gis.epa.ie/EPAMaps/Water> and spatial data for river, lake, canal, transitional and coastal waterbodies downloaded from the *EPA Geoportal* <https://gis.epa.ie/GetData/Download> was used to identify any hydrological connection between the proposed works and Natura 2000 sites or connected features. Satellite and aerial imagery from Google Earth, Bing Maps and Tailte Éireann was reviewed to identify hedgerows, treelines and other potential ecological features.

In order to inform the assessment of potential in-combination effects, planning applications from the surrounding area were reviewed using the National Planning Application Database, An Bord Pleanála's online map viewer and the EIA Portal.

Information from the aforementioned data sources was last access 30/10/2024.

3.3 Site Visit

The entire Mullingar Active Travel Bundle scheme was subject to an arboricultural survey, undertaken by independent arboriculturist Dr Philip Blackstock(appointed by AtkinsRéalis) on 24th and 25th June 2024. The survey recorded information on trees (species, age, height, canopy size, condition etc.) growing on or immediately adjacent to the scheme site. Trees were categorized in accordance with BS5837: *Trees in relation to design,*

demolition and construction (2012) and recommendations for maintenance were provided in an associated tree survey report[1]. Note; the arboricultural survey is not an ecological survey.

3.4 Statement of Authority

The Screening for Appropriate Assessment report was prepared by Kevin Coogan, Daniel Blake and Colin Wilson. Owen O'Keefe provided peer review and support.

Kevin Coogan (AtkinsRéalis) has a BSc (Hons) in Zoology from University College Dublin. He has developed ecological surveying skills through country-wide small river sampling experience, as well as habitat evaluation experience in Spain and Ireland. He has volunteer experience in bird surveying on North Bull Island SPA and Ireland's Eye SPA. Kevin collated background information for this assessment.

Colin Wilson (Atkins Dublin) has a BSc (Hons) in Environmental Science and is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). He has over 16 years working in the fields of ecology and environmental management. He is a Senior Ecologist with experience in ecological surveying, environmental assessment, on-site ecological supervision and mitigation. He has experience on multiple infrastructure projects regarding all elements of surface and groundwater management, monitoring, sampling and associated reporting. Colin also has a broad range of experience in invasive species management, biosecurity and control. Colin has prepared AA screening reports, Natura Impact Statements and has also been involved in the development of Environmental Operating Plans and Construction Environmental Management Plans for a number of national infrastructure projects. Colin is the author of this report.

Owen O'Keefe is a Senior Ecologist at AtkinsRéalis. He holds a BSc (Hons) in Ecology from University College Cork (2015) and is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). He has 8 years' professional experience in ecological consultancy, including extensive experience in Appropriate Assessment. He has prepared a large number of AA Screening Reports and Natura Impact Statements, as well as carried out technical appraisals of such reports for competent authorities. Owen undertook the peer review of this report.

[1] Blackstock, P. (2024). *Tree Survey and Report for Mullingar Active Travel Routes*.

4. Existing Environment

4.1 General Overview

The proposed scheme is almost entirely located on existing hard standing surfaces of roadways and pathways with occasional areas of grass verges and roadside trees also within the footprint of the scheme. The surface water drainage from the scheme site is via existing roadway drainage infrastructure which outfalls to the Brosna River (outside the scheme extents).

4.2 Designated Sites

Natural Heritage Areas

Natural Heritage Area (NHA) is the basic designation for wildlife sites. These sites are considered to represent important habitats for species of plants and animals whose habitat needs protection[2]. These sites are protected under the Wildlife Amendment Act (2000)[3].

Additionally, proposed Natural Heritage Areas (pNHA) are those which have been published on a non-statutory basis, and have yet to be statutorily designated. These sites are of significance to flora, fauna, and their respective habitats. These sites will be designated on a phased basis over the coming years. Prior to designation pNHAs are subject to limited protection[4].

There are no NHAs within or in the immediate vicinity of the proposed scheme site, the nearest is Wooddown Bog NHA located c. 1.3km northeast of the scheme extents. There is no connectivity to this NHA from the scheme site.

The Royal Canal pNHA (002103) is located within the proposed scheme extents with the western most section of the proposed scheme aligned on an existing road bridge over the Royal Canal. A site synopsis for Royal canal pNHA is presented below.

Lough Sheever Fen/Slevin's Lough Complex pNHA, Walshestown Fen pNHA, Lough Owel pNHA and Lough Ennell pNHA are all within 5km of the proposed scheme, however, there is no connectivity to these pNHAs from the scheme site.

Summary of Royal Canal Site Synopsis[5]

> *'The Royal Canal is a man-made waterway linking the River Liffey at Dublin to the River Shannon near Tarmonbarry. There is a branch line from Kilashee to Longford Town. The canal NHA comprises the central channel and the banks on either side of it. The main water supply is from Lough Owel (also an NHA) via a feeder channel into the canal at Mullingar.*
>
> *A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland.*
>
> *Otter spraints are found along the towpath, particularly where the canal passes over a river or stream.*

[2] https://www.npws.ie/protected-sites/nha

[3] https://www.npws.ie/legislation/irish-law/wildlife-amendment-act-2000

[4] https://www.npws.ie/protected-sites/nha

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods.'

Figure 4-1 - NHAs and pNHAs near the proposed scheme.

Nature Reserves

Scragh Bog Nature Reserve is the nearest nature reserve located c. 5.6km north of Mullingar on the east side of Lough Owel. A NPWS site synopsis[5] is detailed below.

The best illustration in Ireland of the transition from alkaline fen to acidic raised bog and one of the few remaining in Europe. It contains a large number of uncommon plants and insects which are rare in Europe. The bog is rated as being of international importance. The greater part of the bog was purchased by the Irish Peatland Conservation Council with funds generously provided by the Dutch Foundation for the Conservation of Irish Bogs. It was then handed over to the State for management as a Nature Reserve. Birds include Skylark and Common Snipe. Plants include Sphagnum Moss, Sundew and the notable species Round-leaved Wintergreen (Pyrola rotundiflora).

There is no direct or indirect connectivity to Scragh Bog or any other Nature Reserve.

4.3 Annex I Habitats

Annex I habitats were reviewed in the context of the proposed project. These are habitats listed on Annex I to the Habitats Directive and for which Member States must designate SACs. The overall objective of the Habitats

[5] https://www.npws.ie/nature-reserves/westmeath/scragh-bog-nature-reserve

Directive is to achieve and maintain favourable conservation status for all habitats and species of Community interest; and to contribute towards maintaining biodiversity of natural habitats and of wild flora and fauna in member states. To this end, EU member states are obliged to monitor the conservation status of habitats and species. As all habitats (as listed in Annex I) and species of Community interest are included, the monitoring requirements obliged to be undertaken by member states is not restricted to European sites (SACs and SPAs) but encompasses the total national resource of each habitat. Consequently, data on Annex I habitat must be collected both within and outside the Natura 2000 network. In addition, member states are obliged, as detailed in Article 17 of the Habitats Directive, to report to the European Commission every six years on the implementation of measures taken towards meeting the objectives of the Directive. Annex I habitats are categorised into the following general habitat categories: - Bogs, mires and fens, Coastal habitats, Dunes habitats, Forests, Freshwater habitats, Grasslands, Heath and scrub and Rocky habitats.

A review of NPWS Article 17 datasets[6] (last accessed 3-/10/2024) and aerial imagery identifies no Annex I habitats within or bordering the proposed scheme boundary. Given the entirely urban nature of the scheme site (roadways, pathways, grass verges) there is no potential for annexed habitat to occur.

4.4 Surface Water Features

The Water Framework Directive (WFD) 2000/60/EC was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. Its objectives include the attainment of good status in water bodies that are of lesser status at present and retaining good status or better where such status exists at present (EPA, 2023). Status relates to the condition of the water in the waterbody as defined by its chemical status and its ecological status, whichever is worse.

There is 1 no. surface water feature within the scheme site extents, the Royal Canal. EPA datasets detail the canal as a WFS status ‘Good’ for the 2016-2021 reporting period and further outline the waterbodies risk status as being ‘Under Review’. There is no hydrological connectivity from the scheme site to the Royal Canal.

There are no streams or rivers within the proposed scheme extents. The nearest watercourse is the Brosna River located c. 270m west of the proposed scheme. EPA records indicate the Brosna River as having ‘Poor’ water quality (2016-2021) and consider the watercourse as being at ‘Risk’ of not achieving a favourable water quality status.

A review of the road drainage infrastructure within the proposed scheme site extents identifies that, for some sections of the project site, surface water drainage / run-off from roadways outfalls to the Brosna River.

See Figure 4-2 for all surface water features with connectivity to the proposed scheme.

[6] https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17 - It is acknowledged that this is not a definitive list as the NPWS datasets are incomplete.

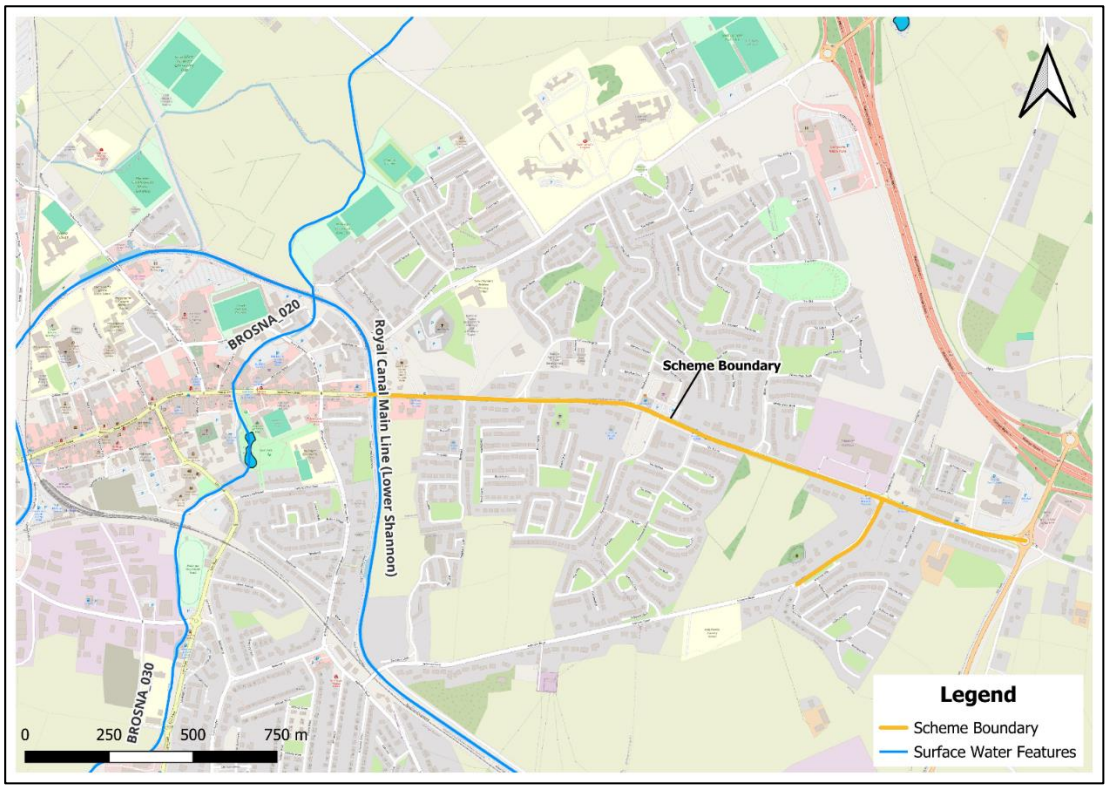

Figure 4-2 - Surface water features with connectivity to the scheme site.

4.5 Groundwater Body

The proposed scheme is located within the Inny (Code IE_SH_G_110) groundwater body (GWB). This GWB is of 'Good' WFD status with an overall objective to 'Restore' and 'Protect' the current status.

The proposed scheme is primarily underlain by a locally important aquifer that is moderately productive in local zones. The groundwater vulnerability beneath the route is predominately 'High'. This indicates that the bedrock would be shallow in this area and highly vulnerable to potential contamination.

4.6 Species

A search of National Biodiversity Data Centre records was carried out on 8th October 2024 and which included the proposed scheme site and a 100m buffer zone to capture mobile species in the surrounding environs. The following protected species were recorded within the last five years (2019 – 2024): Badger (*Meles meles*), Pine Marten (*Martes martes*) and Hedgehog (*Erinaceus europaeus*). Records also included the following bird species; Buzzard (*Buteo buteo*) and Goldfinch (*Carduelis carduelis*). No records of invasive plants species were noted in the reviewed area.

Further afield White-clawed Crayfish (*Austropotamobius pallipes)* have been recorded within the Brosna River and also within the upper stretches of the water supply feeder channel from Lough Owel which flows into the Royal Canal c. 600m north of the proposed scheme. White-clawed Crayfish are noted to be a qualifying interest species of Lough Owel SAC.

The tree survey undertaken within and adjacent to the proposed scheme site noted the following trees directly within the red line boundary of the proposed scheme; Lime, Sycamore, Flowering Cherry, Rowan, Apple, Hawthorn, Norway Maple, Swedish Whitebeam and Birch.

5. Connectivity to Natura 2000 Sites

5.1 Zone of Influence

The “Zone of Influence” of a plan, project or development is the area which may experience ecological effects as a result of its implementation, including any ancillary activities. The various impacts of a plan or project will each have their own characteristics, e.g. nature, extent, magnitude, duration etc. Accordingly, the area subject to each impact (“zone of impact”) will vary depending on characteristics of the impact and the presence of pathways for its propagation. Ecological features within or connected to one or more zones of impact could, depending on their sensitivities, be affected by the plan or project under consideration. The area containing such features may be regarded as the Zone of Influence. As such, in establishing the Zone of Influence for a plan, project or development, regard must be had to the characteristics of its potential impacts, potential pathways for impacts and the sensitivities of ecological features in the receiving environment.

In its guidance on selecting which Natura 2000 sites to include in the AA Screening, *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities* (DEHLG, 2010a) recommends inclusion of sites in the following three categories: -

- Any Natura 2000 sites within or adjacent to the plan or project area,
- Any Natura 2000 sites within the Zone of Influence of the plan or project (generally within 15 km for plans, to be established on a case-by-case basis for projects, having regard to the nature, scale and location of the project, the sensitivities of the ecological receptors and the potential for in-combination effects), and
- Following the precautionary principle, any other Natura 2000 sites for which the possibility of significant effects cannot be excluded, e.g. for a project with hydrological impacts, it may be necessary to check the full extent of the catchment for Natura 2000 sites with water-dependent qualifying interests.

In addition, *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC, 2021) recommends consideration of Natura 2000 sites hosting fauna which could move to the project area or its zone(s) of impact, and the potential for the project to sever ecological connectivity within or between Natura 2000 sites. *Appropriate Assessment Screening for Development Management* (OPR, 2021) emphasises the importance of employing the source-pathway-receptor model (rather than arbitrary distances such as 15km) when selecting Natura 2000 sites for inclusion in the AA Screening.

The proposed scheme does not lie within any European site nor is it adjacent to any European site.

The nearest European site is Wooddown Bog SAC located c. 1.9km from the proposed scheme. The proposed scheme is not located in the same groundwater body as Wooddown Bog SAC. As the proposed scheme is remote from any European site and is not within the same groundwater body as the nearest European site there is no potential connectivity to any European site via groundwater pathways.

Given the nearest European site which has species as a qualifying interest is c. 3.7km (Lough Owel SAC/SPA) from the proposed scheme site there is no potential for the proposed scheme to result in any noise, vibration or visual related adverse effects to any qualifying interest species accommodated within any European site.

The zone of influence of the scheme includes those European sites with potential indirect connectivity through the following pathways: -

- Hydrological – effects from surface water quality or quantity for 200m downstream of the scheme.

Consideration has also been given to species which may occur at a distance from the SAC or SPA for which they are a Qualifying Interest (QI). For example, many SPA waterbird species have a wide geographical range and aquatic species can utilise watercourses connected to / outside of an SAC, therefore, the mobility of QI species and their potential to range outside of the delineated boundaries of their respective European sites has also been considered as part of this assessment.

There are 6 no. European sites within the potential zone of influence (ZoI) of the scheme; 4 SACs and 2 SPAs which are outlined in Table 5.1 and 5.2 below.

Table 5.1 and 5.2 details the six European sites which are within the potential ZoI of the proposed scheme, lists their associated qualifying interests and specifies if there is connectivity to the European site from the proposed scheme or not.

Figures 5-1 and 5-2 depict the locations of the European Sites within the potential ZoI of the proposed scheme.

Table 5-1 - SACs within potential ZoI of the proposed scheme.

Site Name and Code	Distance from scheme	Qualifying Interests	Within the ZoI
Lough Ennell SAC (000685)[7]	3.6km (4.1km downstream)	▪ Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140] ▪ Alkaline fens [7230]	Yes There is no direct overlap or direct connectivity between the proposed scheme and Lough Ennell SAC. The Brosna River, to which surface waters from the proposed scheme site discharge, flows to Lough Ennell thereby providing a hydrological link between the scheme site and this SAC. This site is discussed further below.
Lough Owel SAC (000688)[8]	3.7km (5.2km upstream)	▪ Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140] ▪ Transition mires and quaking bogs [7140] ▪ Alkaline fens [7230] ▪ *Austropotamobius pallipes* (White-clawed Crayfish) [1092]	Yes There is no direct overlap or direct connectivity between the proposed scheme and Lough Owel SAC. Lough Owel is c. 5.2km upstream of the scheme site, as such there is no hydrological connectivity to the habitats within or bordering the SAC. White-clawed Crayfish are a mobile species and have been recorded within the Brosna River and Royal Canal feeder channel. Whether the crayfish in the Brosna River and canal feeder channel are qualifying interest (QI) populations of Lough Owel SAC is assessed below. This site is discussed further below.
Scragh Bog SAC (000692)[9]	5.6km	▪ Transition mires and quaking bogs [7140] ▪ Alkaline fens [7230]	No

[7] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000685.pdf

[8] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000688.pdf

[9] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000692.pdf

Site Name and Code	Distance from scheme	Qualifying Interests	Within the ZoI
		▪ *Hamatocaulis vernicosus* (Slender Green Feather-moss) [6216]	There is no direct overlap between the proposed works and Scragh Bog SAC. There is no direct or indirect/hydrological connectivity from the proposed scheme site to this SAC. The location, scale and duration of proposed scheme is such that it will not contribute to direct, indirect or in-combination impacts on habitats or species for which the SAC has been designated and does not have the potential to affect the conservation objectives of these habitats or species. This site is not considered further.
Wooddown Bog SAC (002205)[10]	1.9km	▪ Degraded raised bogs still capable of natural regeneration [7120]	There is no direct overlap between the proposed works and Wooddown Bog SAC. There is no direct or indirect/hydrological connectivity from the proposed scheme site to this SAC The location, scale and duration of proposed scheme is such that it will not contribute to direct, indirect or in-combination impacts on habitats for which the SAC has been designated and does not have the potential to affect the conservation objectives of these habitats. This site is not considered further.

[10] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002205.pdf

Table 5-2 - SPAs for birds within potential ZoI of the proposed scheme.

Site Name and Code	Distance from scheme	Qualifying Interests	Within the ZoI
Lough Ennell SPA (004044)[11]	4km (4.4km downstream)	▪ Pochard (*Aythya ferina*) [A059] ▪ Tufted Duck (*Aythya fuligula*) [A061] ▪ Coot (*Fulica atra*) [A125] ▪ Wetland and Waterbirds [A999]	Yes The Brosna River, to which surface waters from the proposed scheme site will discharge, flows to Lough Ennell thereby providing a hydrological link between the scheme site and this SPA. This site is discussed further below.
Lough Owel SPA (004047)[12]	3.7km	▪ Shoveler (*Anas clypeata*) [A056] ▪ Coot (*Fulica atra*) [A125] ▪ Wetland and Waterbirds [A999]	No There is no direct overlap between the proposed works and Lough Owel SPA. Watercourses to which surface waters from the proposed scheme discharge flow to Lough Ennell and not to Lough Owel. There is therefore no hydrological link between the scheme site and this SPA. The scheme site does not provide for habitat suitable for the Qualifying Interest species associated with this SPA, as such any ex-situ species are outside of the ZoI of the proposed scheme. The location, scale and duration of proposed scheme is such that it will not contribute to direct, indirect or in-combination impacts on habitats for which the SAC has been designated and does not have the potential to affect the conservation objectives of these habitats. This site is not considered further.

[11] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004044.pdf

[12] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004047.pdf

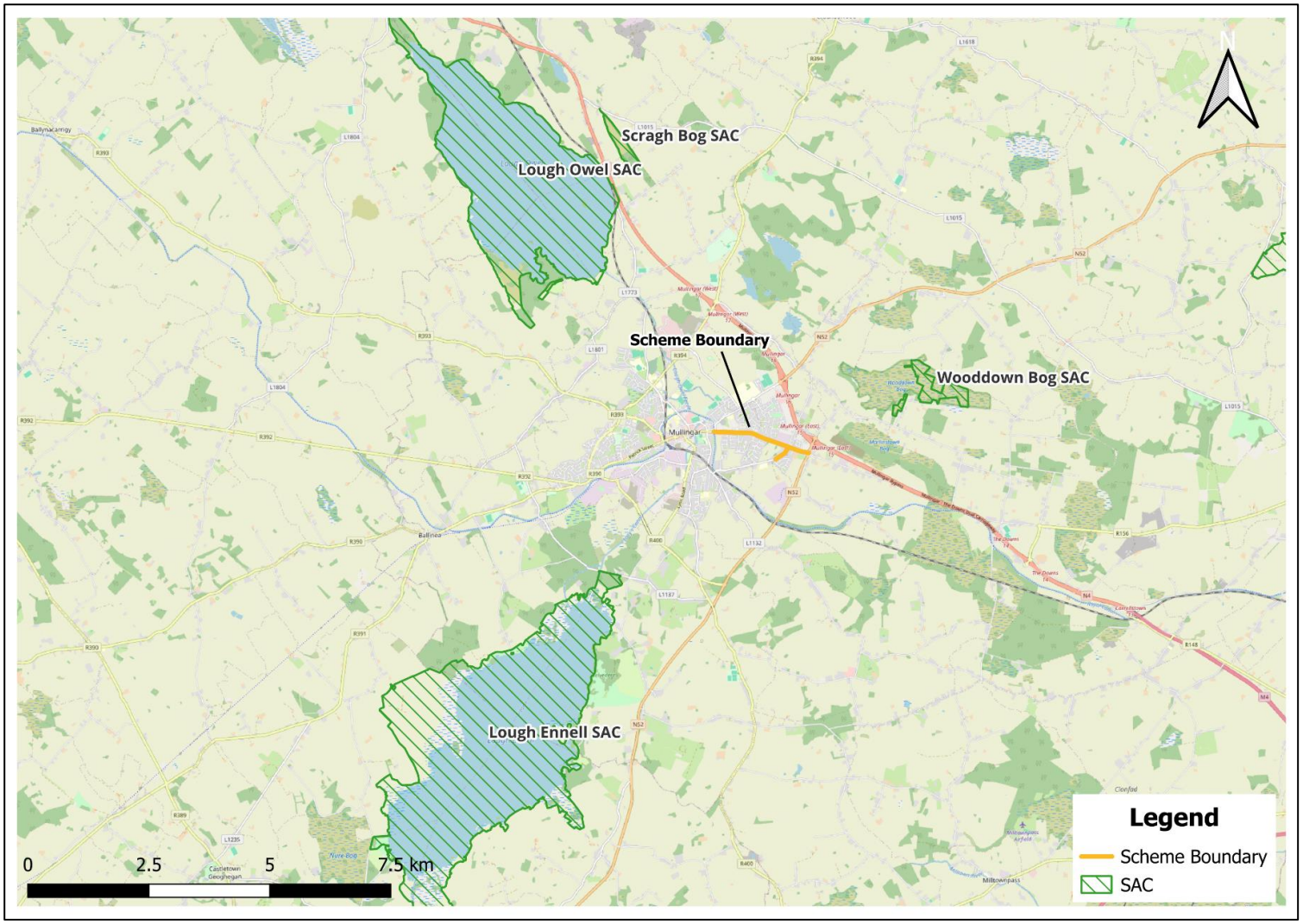

Figure 5-1 - SACs within the potential ZoI of the proposed scheme.

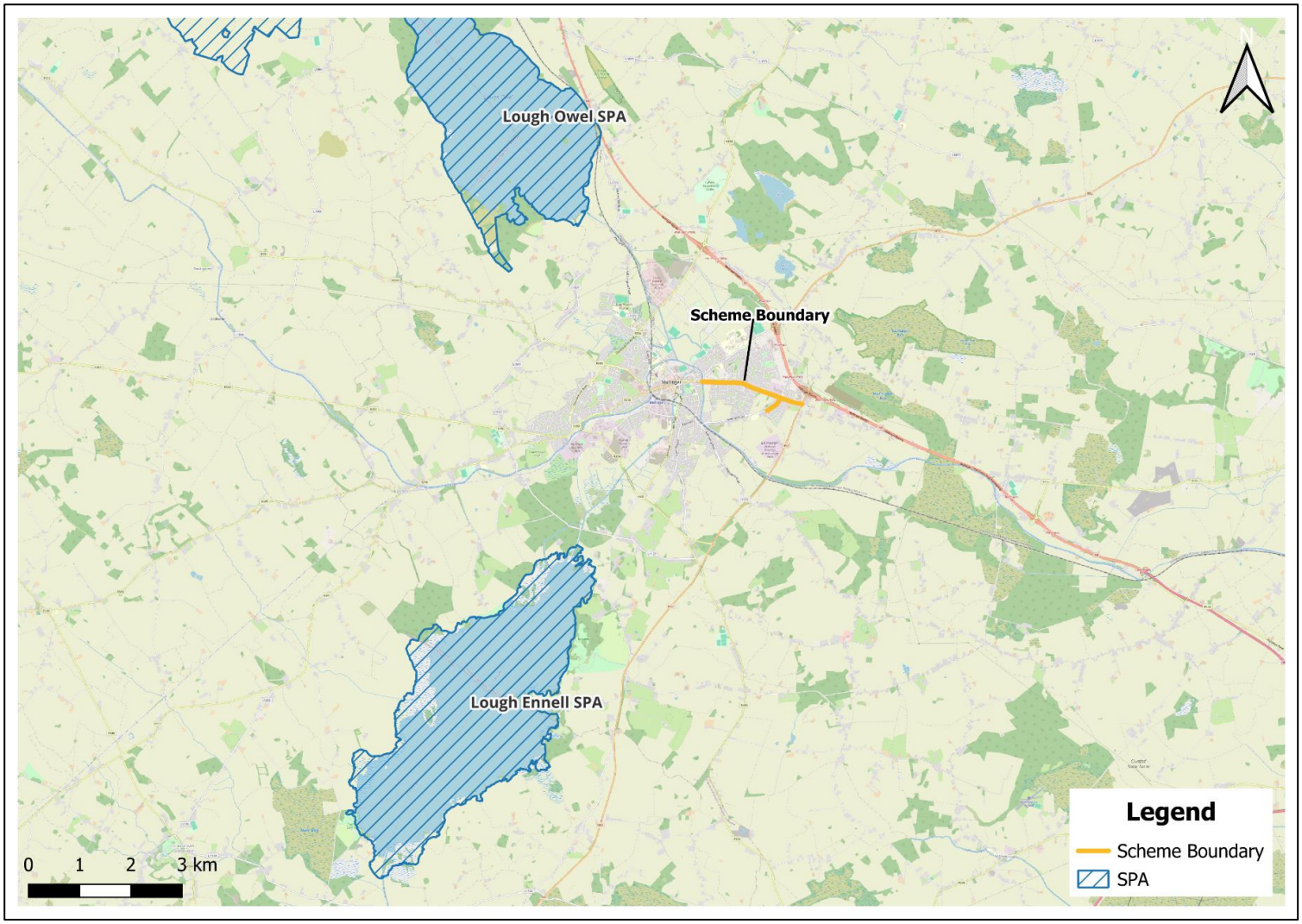

Figure 5-2 - SPAs within the potential ZoI of the proposed scheme.

5.2 Brief Description of Lough Ennell SAC

A synopsis of the SAC, as detailed by NPWS, is as follows [13]:

> *"Lough Ennell is a large, limestone lake, located 3 km south of Mullingar in Co. Westmeath. Much of the lake is shallow with a marl deposit. The River Brosna flows into the lake from the north at Butler's Bridge, and out from the south. Lough Ennell is a very good example of a marl lake with stonewort and cyanobacterial crust vegetation.*
>
> *Lough Ennell supports a specialist and diverse aquatic flora, dominated by stoneworts. A total of 13 stonewort species has been recorded, including two Red Data Book species, Chara denudata and C. tomentosa. C. tomentosa does not occur in Great Britain, is restricted to Irish marl lakes and has been known from Lough Ennell since 1841. Distinct zones of other marl lake specialist stoneworts occur in Lough Ennell, including C. curta, C. rudis, C. contraria, C. virgata and C. denudata. A characteristic and highly-sensitive cyanobacterial (blue-green algal) crust (or krustenstein) occurs in shallow waters. Average crust cover at Lough Ennell is 94% and average thickness 6 mm, similar to values in many of the best Irish marl lakes. Oncoids have been found in great abundance in shallow waters. These are pebblelike structures composed of calcified layers of cyanobacterial crust, particularly filamentous taxa such as Schizothrix, Calothrix and Rivularia. Water movement gives rise to their rounded shape.*
>
> *Lough Ennell was severely impacted by eutrophication in the 1970s and 1980s owing mainly to the discharge of inadequately treated sewage effluent from Mullingar. This resulted in significant biological changes in the lake including a rapid decline in the cover abundance, density and depth distribution of stoneworts, increases in phytoplankton and filamentous algal biomass, decreased mayfly emergence and the collapse of the Brown Trout fishery. Since the installation and upgrade of an urban waste water treatment plant there has been significant, on-going recovery in Lough Ennell. Phytoplankton biomass and, hence, turbidity have declined with a corresponding increase in water transparency. As a result, the depth-distribution and abundance of stoneworts has increased and the characteristic stonewort zonation has recovered. Further habitat recovery is needed, however, including colonisation of deeper water (7 m+) by stoneworts and reductions in the chlorophyll a concentrations of the cyanobacterial crust.*
>
> *Much of the lakeshore consists of dry, stony ground colonised by calcareous grassland. These areas were formerly part of the lake bed but are now exposed as a consequence of drainage. Species such as Mountain Everlasting (Antennaria dioica), Hairy Lady's-mantle (Alchemilla filicaulis subsp. vestita), Frog Orchid (Coeloglossum viride), Fairy Flax (Linum catharticum) and Yellow-wort (Blackstonia perfoliata) occur here.*
>
> *Alkaline fen is also found on the lake shore, with species such as Grass-of-parnassus (Parnassia palustris), Marsh Pennywort (Hydrocotyle vulgaris) and Bottle Sedge (Carex rostrata). In wet marshy patches along the shore Marsh-marigold (Caltha palustris), Brookweed (Samolus valerandi) and Lesser Water-plantain (Baldellia ranunculoides) are common.*
>
> *Reedbeds and species-poor swamp vegetation fringe the lake in places, particularly around the points of inflow and outflow, and on the eastern shore around Tudenham Park. Common Reed (Phragmites australis) is abundant here. Water-plantain (Alisma plantago-aquatica), Cowbane (Cicuta virosa), Frogbit (Hydrocharis morsus-ranae) and Tufted-sedge (Carex elata) also occur.*

[13] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004044.pdf

The latter two species are of note in that they have restricted distributions in Ireland. The rare Fibrous Tussock-sedge (Carex appropinquata) has also been recorded from this site.

Mixed woodland of Beech (Fagus sylvatica), Ash (Fraxinus excelsior) and Downy Birch (Betula pubescens) fringes the lakeshore to the north-west. Bluebell (Hyacinthoides nonscripta) and Lords-and-ladies (Arum maculatum) are among the woodland ground flora. Yellow Archangel (Lamiastrum galeobdolon), a rare plant listed in the Red Data Book, has been recorded in the woods along the eastern shores of Lough Ennell. This is the only record for this species outside the south-east of Ireland. The rare Myxomycete fungus, Licea castanea, has been recorded from woodland in the site.

Scharff's Char (Salvelinus scharffi), a distinct race of char which was once found only in Lough Owel and Lough Ennell, is now extinct. Notable aquatic invertebrates recorded from the lake include Tinodes maculicornis (Order Trichoptera), Metalype fragilis (Order Trichoptera), Limnephilus nigriceps (Order Trichoptera), Picromerus bidens (Order Heteroptera), Monarthia humili (Order Hemiptera) and Donacia obscura (Order Coleoptera).

This site shares an internationally important Greenland White-fronted Goose flock with Loughs Iron, Glen and Owel. The numbers of geese which visit Lough Ennell are lower than for the other lakes: 9l birds (3 year average peak). Nationally important bird populations which have been recorded on Lough Ennell are: Cormorant (average peak l49; absolute maximum 448); Mute Swan (average peak 424); Pochard (average peak 889; maximum 2,600 on 8/ll/85); Tufted Duck (average peak 720) and Coot (average peak 639). All of these data were compiled from counts made over 3 seasons, l984/85 - l986/87. A single count of 522 Golden Plover was obtained in that period, constituting a regionally important population.

Lough Ennell is an important amenity area, much used for fishing, boating and camping. Sections of the shoreline are managed for visitor access and amenity.

Lough Ennell is of significance as a midlands marl lake which supports a rich variety of lower plant and invertebrate species. Its lakeshore habitats, which include alkaline fen, a habitat listed on Annex I of the E.U. Habitats Directive, support a diverse flora. These habitats also provide important refuges for wildfowl."

5.2.1 Conservation Objectives of Lough Ennell SAC

The conservation objectives for Lough Ennell SAC, to maintain the favourable conservation for each of the qualifying interests of the site, were published by NPWS (2024) Version 2.0; 02/07/2024.

These were reviewed and considered when preparing this report. The conservation objectives can be broadly summarized as follows: -

- *To restore the Favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Lough Ennell SAC,*
- *To maintain the favourable conservation condition of Alkaline fens in Lough Ennell SAC.*

5.2.2 Potential Threats

The threats, pressures and activities with impacts on the SAC[14] are listed below in Table 5.3.

[14] https://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=IE0000685

Table 5-3 - Threats, Pressures and activities with impacts on Lough Ennell SAC.

Rank [High/Medium/Low]	Pollution
L	Abandonment of pastoral systems, lack of grazing
L	Competition
L	Diffuse pollution to surface waters due to agricultural and forestry activities
L	Diffuse pollution to surface waters due to household sewage and waste water
M	Point source or irregular noise pollution
L	Forestry clearance
L	Hunting
L	Intensive cattle grazing
L	Landfill, land reclamation and drying out, general
L	Light pollution
L	Modifying structures of inland water courses
L	Paths, tracks, cycling tracks
L	Pole fishing

5.3 Brief Description of Lough Ennell SPA

A synopsis of the SAC, as detailed by NPWS, is as follows [15]:

> *Lough Ennell is a large, limestone lake located south of Mullingar in Co. Westmeath. It has a length of approximately 6.5 km along its long axis and is mostly about 2 km wide. The River Brosna is the principal inflowing and outflowing river. It is a relatively shallow lake, with a maximum depth of c. 30 m. The water is hard, with low colour and markedly alkaline pH. The lake is classified as a mesotrophic system though it has been eutrophic in the past. The lake bottom is of limestone with a marl deposit.*
>
> *The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Pochard, Tufted Duck and Coot. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.*
>
> *Lough Ennell is one of the most important Midland lakes for wintering waterfowl, with nationally important populations of Pochard (738), Tufted Duck (1,303) and Coot (433) - all figures are mean peaks for the 5 winters 1995/96-1999/2000. The population of Tufted Duck represents over 3% of the all-Ireland population. The site is also utilised by an internationally important population of non-migratory Mute Swan (340). Other species which occur include Golden Plover (1,000 in 1998/99), Lapwing (673), Mallard (93), Little Grebe (30), Great Crested Grebe (24) and Goldeneye (22).*
>
> *Lough Ennell is of ornithological significance for wintering waterfowl, with three migratory species having populations of national importance. The occurrence of Golden Plover in the vicinity of the*

[15] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004044.pdf

lake is of note as this species is listed on Annex I of the E.U. Birds Directive. Lough Ennell is a Ramsar Convention Site.

5.3.1 Conservation Objectives of Lough Ennell SPA

The conservation objectives for Lough Ennell SPA, to maintain the favourable conservation for each of the qualifying interests of the site, were published by NPWS (2024) Version 2.0; 28/05/2024.

These were reviewed and considered when preparing this report. The conservation objectives can be broadly summarized as follows: -

- *To restore the Favourable conservation condition of Pochard in Lough Ennell SPA*
- *To restore the Favourable conservation condition of Tufted Duck in Lough Ennell SPA*
- *To maintain the Favourable conservation condition of Coot in Lough Ennell SPA*
- *To maintain the Wetland habitats in Lough Ennell SPA as a resource for the regularly occurring migratory waterbirds that utilise these areas.*

5.3.2 Potential Threats

The threats, pressures and activities with impacts on the SPA[16] are listed below in Table 5.4.

Table 5-4 - Threats, Pressures and activities with impacts on Lough Ennell SPA.

Rank [High/Medium/Low]	Pollution
H	Fertilisation
H	Urbanised areas, human habitation
M	Leisure fishing
M	Nautical sports
M	Sylviculture, forestry
M	Walking, horseriding and non-motorised vehicles
L	Hunting
L	Trampling, overuse

5.4 Brief Description of Lough Owel SAC

A synopsis of the SAC, as detailed by NPWS, is as follows[17]:

'Lough Owel is a large hard water lake located approximately 4 km north-west of Mullingar in Co. Westmeath. It is a relatively shallow lake with a rocky, marlcovered bottom.

[16] https://biodiversity.europa.eu/sites/natura2000/IE0004044

[17] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004047.pdf

Two areas of wetland vegetation of particular interest occur at the north-west (Bunbrosna) and south-west (Tullaghan) of the lake. These areas contain a mosaic of vegetation types of varying degrees of wetness, with quaking bog, alkaline fen, wet grassland and wet woodland all present.

*In places the quaking mire grades into alkaline fen. Some characteristic species such as Black Bog-rush (Schoenus nigricans) and Long-stalked Yellow-sedge (*C. lepidocarpa*) occur, as well as brown fen mosses. Scarce fen species have been recorded here, including Fen Bedstraw (*Galium uliginosum*) and Marsh Fern (*Thelypteris palustris*).*

*he Bunbrosna wetland area contains a number of rare plant species, namely Marsh Pea (*Lathyrus palustris*), Marsh Fern and Round-leaved Wintergreen (*Pyrola rotundifolia*). In addition, four other rare plant species are found along the lake margins - White Sedge (C. curta), Fibrous Tussock-sedge (*C. appropinquata*), Marsh Stitchwort (*Stellaria palustris*) and Frogbit (*Hydrocharis morsus-ranae*). Tullaghan fen hosts the uncommon Bog-sedge (*C. limosa*), Fibrous Tussock-sedge and Marsh Fern*

Lough Owel is one of the most important fishing lakes in the midlands and is especially good for Trout. Scharff's Char (Salvelinus scharffi), a distinct race of char which was once found only in Lough Owel and Lough Ennell, is now thought to be extinct. Notable invertebrates recorded from the lake include three caddis fly (Order Trichoptera) species: Tinodes maculicornis, Metalype fragilis *and* Limnephilus nigriceps. *White-clawed Crayfish, a species listed in Annex II of the E.U. Habitats Directive, is found at this site. There are small populations of Mallard, Shoveler, Pochard and Tufted Duck present at Lough Owel. Farmland adjacent to the lake provides feeding grounds for internationally important numbers of Greenland White-fronted Goose. Potential threats to the conservation interest of Lough Owel include the increasing level of water supply to Mullingar, overfishing, eutrophication caused by local farming practices and pressure from amenity uses such as boating and fishing. With the exception of Lough Carra in Co. Mayo, Lough Owel is the best example of a large, spring-fed calcareous lake in the country. The site is of major conservation significance and contains three habitats that are listed on Annex I of the E.U. Habitats Directive, i.e. alkaline fens, transition mires and hard water lakes. Additionally, the site supports bird populations of conservation significance.'*

5.4.1 Conservation Objectives of Lough Owel SAC

The conservation objectives for Lough Owel SAC, to maintain the favourable conservation for each of the qualifying interests of the site, were published by NPWS (2018) Version 1.0; 08/05/2018.

These were reviewed and considered when preparing this report. The conservation objectives can be broadly summarized as follows: -

- To restore the *Favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Lough Owel SAC.*
- *To maintain the favourable conservation condition of Transition mires and quaking bogs in Lough Owel SAC.*
- *To maintain the favourable conservation condition of Alkaline fens in Lough Owel SAC.*
- *To maintain the favourable conservation condition of White*-clawed Crayfish in Lough Owel SAC.

5.4.2 Potential Threats

The threats, pressures and activities with impacts on the SAC[18] are listed below in Table 5.5.

Table 5-5 - Threats, Pressures and activities with impacts on Lough Owel SAC.

Rank [High/Medium/Low]	Pollution
M	Airports, flightpaths
M	Diffuse pollution to surface waters due to agricultural and forestry activities
M	Other sport / leisure complexes
M	Outdoor sports and leisure activities, recreational activities
M	Piers / tourist harbours or recreational piers
L	Hunting
L	Landfill, land reclamation and drying out, general
L	Surface water abstractions for public water supply

[18] https://biodiversity.europa.eu/sites/natura2000/IE0004044

5.5 Identification of Potential Impacts on European Sites

As outlined above, there are 3 no. European sites within the ZoI of the proposed scheme; Lough Ennell SAC, Lough Ennell SPA and Lough Owel SAC. The possible sources, receptors, and pathways for potential impacts are discussed below

5.5.1 Construction Phase

Direct Impacts

The proposed scheme is not located within or adjacent to any European sites and as such there will be no direct impacts as a result of the construction of the proposed scheme.

Indirect Impacts

There is hydrological connectivity from the proposed scheme site to 2 no. European sites via the road drainage infrastructure within works areas which outfalls to the Brosna River which subsequently flows for c. 4km to Lough Ennell SAC and Lough Ennell SPA. The potential for scheme construction works to produce contaminated surface water run-off (e.g. silt-laden waters), which could in turn result in adverse water quality impacts on the Brosna River, has been considered. The works (construction of the cycleway, pathways, road resurfacing etc.) will be undertaken in short 100-200m sections at any one time limiting the amount of any potential run-off. Also, as part of normal construction practices, road gullies will be disconnected from the main roadway carrier drain limiting flows to the local storm water drainage network. In addition works will not involve the use of any significant amounts of contaminating materials that could run off to the drainage network (such as cement or hydrocarbons). Potential contaminants are limited to small-scale silt laden run-off from works areas during periods of heavy rainfall and the potential adverse effects on the Brosna River are limited to minor siltation, short term in duration, over a relatively short distance (c. 200m). As such significant adverse water quality on the Brosna River are not anticipated. Given the small scale and nature of the works and the potential levels of contaminated run off the proposed works could possibly generate and also considering the dilution, dispersal and attenuation that would occur through c. 4km of river, it can be safely concluded that the proposed works do not have the potential to result in likely significant effects on the qualifying interest habitats of Lough Ennell SAC/SPA nor the qualifying interest bird species of Lough Ennell SPA via the Brosna River.

Lough Owel SAC is located c. 5.2km upstream of the proposed works and as such proposed works cannot affect the QI habitats within and bordering the SAC. Similarly there is no potential for the proposed works to affect the QI White-clawed Crayfish populations accommodated within Lough Owel.

As noted in Section 4.6, a review of NBDC species records along the Brosna River and the upper reaches of the Royal Canal feeder channel identifies White-clawed Crayfish as having been recorded within these watercourses in recent years. It is assumed for this assessment that White-clawed Crayfish can be found throughout the Bosna River and the Royal Canal feeder channel. There is no connectivity from the scheme site to the upstream stretches of the Royal Canal feeder channel and as such potential adverse water quality impacts on this watercourse are negated. A review of studies of the ranging distances of White-clawed Crayfish was undertaken to establish if the crayfish recorded within Mullingar stretches of the Brosna River could potentially be qualifying interest species of Lough Owel SAC. During studies of radio-tagged crayfish movement and ranges Bubb *et al.* 2007[19] notes "*Crayfish did not make extensive movements, the median annual distance moved was 84.8 m yr, equivalent to annual net movement of 0.233 m day, substantially less than reported in previous studies. The lower*

[19] Bubb, H., Thom, T., Lucas, M. (2007) Spatial ecology of the white-clawed crayfish in an upland stream and implications for the conservation of this endangered species.

levels of movement may reflect the study encompassing all seasons, including winter, when crayfish are relatively inactive". Earlier studies (Bubb *et al* 2006[20]) noted a more expansive range for crayfish; *"The greatest absolute distance moved was 734m upstream and 918m downstream in 335 and 304 days respectively*", and further notes *"Once a crayfish had moved from one area to another it was rare for it to subsequently be recorded in the area it had moved from."* Given the downstream distance of the scheme from Lough Owel (>5.2km), the crayfish recorded within the Brosna River downstream of the scheme site are considered unlikely to be qualifying interest species of Lough Owel SAC given the species limited range. The Brosna River crayfish in Mullingar are considered likely to be an expansion and distribution of the Lough Owel crayfish populations over a period of time. Notwithstanding this, following a highly precautionary principle, the potential for the proposed works to adversely affect the expanded SAC crayfish populations has been considered. As detailed above, the works (and works areas) are of small scale, road drainage infrastructure will be disconnected from the works areas and the scheme does not necessitate the use of any significant amounts of contaminating materials (such as cement or hydrocarbons) and as such potential contaminants are limited to small-scale silt-laden run-off from works areas during periods of heavy rainfall. As a worst-case scenario, the potential impacts on the Brosna River are limited to minor siltation, short term in duration, over a relatively short distance (c. 200m). Given the scale and extent of the construction activities, and the limited nature of any potential contaminants the proposed scheme could potentially generate, no significant water quality impacts on the Brosna River are considered likely from construction activities. Therefore, it is considered that there will be no likely significant effects on White-clawed Crayfish populations within the Brosna River whether they be a QI of Lough Owel SAC or not.

The potential for qualifying interest bird species associated with Lough Ennell to potentially utilise the scheme site for foraging or roosting has also been considered. The scheme site is made up of roadways, pathways, adjoining grass verges and roadside trees and there are no habitats suitable for qualifying interest species Pochard, Tufted duck and Coot within the footprint of the scheme. There is a c. 200m stretch of the proposed scheme (Segment 6) alongside the Royal Canal and the potential for the QI birds species of the SPA to utilise this area of the canal and to be disturbed by the construction of the scheme has also been considered. The scheme site roadways alongside the canal in Mullingar are subject to busy usage and any coots or ducks regularly using the canal in the town would be habituated to the presence of people and vehicles. The proposed works in this area will be of relatively short duration (estimated 6-7 weeks) and are of relatively small scale and as such significant disturbance and/or displacement effects which could affect the conservation condition of these species is not considered likely.

In summary, given the nature, scale and extent of the proposed construction activities, the scheme works period will not result in direct impacts on any European site nor will works result in any significant adverse water quality impacts which could affect the downstream qualifying interest habitats and species of Lough Ennell SAC and SPA nor White-clawed Crayfish accommodated within the downstream stretches of the Brosna River. The proposed construction activities will not result in any significant disturbance or displacement effects to any ex-situ QI bird species.

5.5.2 Operational Phase

Direct Impacts

The proposed scheme is not located within or adjacent to any European sites and as such there will be no direct impacts when the proposed active travel scheme is in use.

[20] Bubb, Damian H. (2004) Spatial ecology of white-clawed crayfish *Austropotamobius pallipes* and signal crayfish *Pacifastacus leniusculus* in upland rivers, Northern England,

Indirect Impacts

During the operational phase surface water drainage from the proposed scheme will outfall to the existing storm water drainage network along the scheme's roadways. During the operational phase of the proposed scheme, there will not be any increase in drainage / surface water run-off levels compared to the current baseline conditions and as such the hydrological regime of the Brosna River will not be altered. In addition, the usage of the proposed scheme by cyclists and pedestrians will not produce any contaminating substances which could affect the water quality of surface water run-off from the scheme and as such the usage of the new cycleway and footpaths will not result in adverse water quality impacts within the Brosna River. Given the existing high levels of usage of the scheme site by pedestrians and traffic, the usage of the proposed scheme by cyclists and pedestrians will not result in any likely significant disturbance effects to any ex-situ QI bird species.

In summary, the usage of the proposed scheme will not alter the flows or water quality of the Brosna River and does not have the potential to result in likely significant effects on the downstream qualifying interest habitats and species of Lough Ennell SAC and SPA nor White-clawed Crayfish accommodated within the downstream stretches of the Brosna River. The usage of the scheme by cyclists and pedestrians will not result in any significant disturbance or displacement effects to any ex-situ QI bird species

5.6 In-combination Effects

5.6.1 Requirement for Assessment

The requirement for AA arising out of Article 6(3) of the Habitats Directive covers plans and projects that, "*either individually or in combination with other plans or projects*", are likely to have a significant effect on one or more Natura 2000 sites. This means that AA is required for any plan or project that, in combination with other plans or projects, would have a significant effect on one or more Natura 2000 sites, irrespective of the presence or absence of such effects from that plan or project on its own. Therefore, regardless of the significance of the effects of the plan or project individually, the potential for significant effects in combination with other plans and projects must be considered in all cases.

5.6.2 Approach and Methodology

The objective of this requirement is to capture significant effects potentially arising from the cumulation or other interaction of non-significant effects from multiple plans and projects. Consequently, the assessment of potential in-combination effects is not a pair-wise assessment, rather, it considers the totality of the effects arising from all plans and projects affecting the Natura 2000 site(s) in question. In identifying the plans and projects to be included in this assessment, it is important to define an appropriate geographical scope and timescale over which potential in-combination effects are to be considered and the sources of information to be consulted, as described below. It is also important to consider the nature of the interactions between effects, which may be additive, antagonistic, synergistic or complex.

5.6.3 Geographical Scope

In defining the geographical scope for identifying potential in-combination effects, it is important to remember that effects are evaluated in view of the conservation objectives of the Natura 2000 site(s) concerned. As such, two or more effects relating to the same conservation objective for a given Natura 2000 site would combine even if their geographical extents did not overlap. For example, the loss of a small area of an Annex I habitat type listed as a qualifying interest of a Natura 2000 site would combine with the loss of an entirely unconnected area of the same habitat type from a remote part of the same site to produce an in-combination effect, the significance of which would need to be evaluated in view of the relevant conservation objective. On that basis, the scope of the assessment of in-combination effects extends to all plans and projects affecting the same conservation objectives as the plan or project under consideration, irrespective of whether those effects are significant or not.

In this case, however, given the scale of the proposed scheme and sensitivities of the Natura 2000 sites in its ZoI, it was deemed most appropriate to include areas in close proximity to the proposed scheme and its ZoI (as described in Section 5.1) within the geographical scope for identifying potential in-combination effects.

5.6.4 Timescale

The timescale over which potential in-combination effects were considered in this case covered plans and projects from 5 years ago (i.e. 2019) to the present and all reasonably foreseeable future plans and projects, i.e. published draft plans and projects which are already in the planning system or have received planning permission.

5.6.5 Sources of Information

The following sources of information were consulted to gather information on other plans and projects:

- Westmeath County Council Planning Data viewed through; https://westmeathcoco.maps.arcgis.com/apps/webappviewer/index.html?id=f114217b26f348ea95660cad27e42ef6
- An Bord Pleanála Planning Applications viewed through; https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1
- Westmeath County Development Plan 2021-2027[21]
- Transport Infrastructure Ireland[22]
- Irish Water[23]

The threats, pressures and activities with negative impacts on the Lough Ennell SAC and Lough Ennell SPA were used to identify plans and projects which, by their nature, are likely to give rise to potential impacts on the sites concerned.

5.6.6 Assessment

Westmeath County Development Plan (CDP) sets out policies and objectives for the development of the county. The CDP aims to promote the sustainable development and improvement of the economic, environmental, cultural and social aspects of County Westmeath. The CDP also requires that any developments must be subject to AA process and that permitted developments comply with the requirements of the WFD, the relevant River Basin Management Plans and the Habitats Directive. A Strategic Environmental Assessment (SEA) was prepared for the CDP and it went through the AA process. The findings of which were integrated into the objectives of the CDP resulting in a plan that affords high levels of protection to the environment and Natura 2000 sites.

A review of Transport Infrastructure Ireland (TII) publicly available planned projects did not identify any major road granted projects within 10km of the proposed scheme. The N4 Mullingar to Longford (Roosky) road realignment project is at early design stages (i.e. not a granted project) and is remote (c. 2.4km) from the proposed scheme. Given the distance, lack of connectivity and differing construction timeframes, the road project will not act in-combination with the proposed scheme to give rise to any cumulative effects on any European site

A review of Uisce Éireann (Irish Water) projects identified no water project in the vicinity of the proposed scheme.

A search of Westmeath County Council planning and An Bord Pleanála planning applications has been undertaken for applications submitted within the last 5 years in the vicinity the proposed scheme (last accessed 30/10/2024). Near the proposed scheme, projects that have been granted planning permission include retention of existing developments, typical extensions to domestic dwellings or the construction of new domestic dwellings. Regarding potential impacts to water quality, the properties within Mullingar town fall within the Mullingar Urban Waste Water Treatment (UWWT) agglomeration and all foul and waste water discharges will be to Mullingar Wastewater Treatment Plant and there will be no hydrological connectivity to the proposed scheme. Therefore, it is not anticipated that the developments that have been granted permission will have any significant effects in combination with the proposed scheme.

Key developments which shall be considered are large-scale developments in the region of the proposed scheme, there are 3 no. of these developments which have been further assessed in terms of in-combination effects with the proposed scheme and are presented in Table 5-5 below.

[21] https://www.westmeathcoco.ie/en/ourservices/planning/developmentplans/countydevelopmentplan2021-2027/

[22] https://www.tii.ie/projects/

[23] https://www.water.ie/projects/

It is considered that there are no An Bord Pleanála or Council approved / planned developments or projects that will act in combination with the proposed scheme to give rise to significant in-combination effects on the Lough Ennell SAC, Lough Ennell SPA or Lough Owel SAC.

Table 5-6 - Planning applications near the proposed scheme.

Ref. No.	Project / Applicant	Project Summary	In-combination Assessment
Westmeath CC: 2360192	Andrews Construction Ltd.	Development of 245 no. residential units (a Large-scale Residential Development - LRD) and supporting infrastructure at Dublin Road, Petitswood Td., Mullingar, Co. Westmeath, a site of c. 9.76 ha.	This project has been subject to the Appropriate Assessment process which concluded: *"in view of best scientific knowledge and in view of the conservation objectives of the relevant European sites, the Proposed Development, individually or in combination with other plans or projects is not likely to have a significant effect on any European site."* - Altemar Based on the location and nature of this project, in-combination effects associated with the proposed scheme on the European sites will not occur.
Westmeath CC: 2260036	Frank Bell and Son Ltd.	development of 65 no. residential units at Ardmore Hills, Marlinstown, Mullingar, Co. Westmeath, a site of c. 2.24 ha	This project has been subject to the Appropriate Assessment process which concluded: *"on the basis of objective information provided in this report, that the proposed development, individually or in combination with other plans or projects, will not have a significant effect on any European sites."* – Whitehill Environmental Based on the location and nature of this project, in-combination effects associated with the proposed scheme on the European sites will not occur.
Westmeath CC: 22347	IDA Ireland	Permission is also sought for vehicular/pedestrian entrance, signage, new timber post-and-rail boundaries, car parking, cycle shelters, landscaping, gas skid, underground storage tank, independent ESB substation & switch room building, access road and all associated site works.	This project has been subject to the Appropriate Assessment process which concluded: *"the proposed development site, either individually or in combination with other projects and plans, is not likely to have a significant effect on any European Site."* – Delichon Ecology Based on the location and nature of this project, in-combination effects associated with the proposed scheme on the European sites will not occur.

5.7 Consideration of Findings

Given the nature, scale and extent of the proposed scheme, the construction and usage of the Dublin Road Active Travel Scheme of the Mullingar Active Travel Bundle will not result in direct impacts on any European site nor will works or usage of the scheme result in any significant negative water quality impacts which could affect the downstream qualifying interest habitats and species of Lough Ennell SAC and SPA nor White-clawed Crayfish accommodated within the downstream stretches of the Brosna River. Given the location, scale and extent of the proposed scheme, no likely significant disturbance and/or displacement effects will occur to any ex-situ SPA bird species as a result of the construction or operation of the proposed scheme.

On the basis of objective information and in view of best scientific knowledge and applying a precautionary principle, it is concluded by the authors of this report that with the absence of any mitigation measures the proposed scheme, either alone or in-combination with other plans or projects, will not result in likely significant effects on Lough Ennell SAC, Lough Ennell SPA, Lough Owel SAC or any other European site. Thus, it is recommended that it is not necessary for the scheme to proceed to Appropriate Assessment.

Should the scope, nature or extent of the proposed scheme change, a new assessment (AA Screening Report or AA Screening Addendum Report) would be required.

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Appendix A. General Arrangement Drawings

AtkinsRéalis

WS Atkins Ireland Limited
150-155 Airside Business Park
Swords
Co. Dublin
K67 K5W4

Tel: +353 1 810 8000