

GRAND CANAL BRIDGES - BONYNGE AND LOWTOWN BRIDGES

Appropriate Assessment Screening Report

Prepared for:

Kildare County Council



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Abstract: This document is to inform the Competent Authority in carrying out their statutory obligations relating to the Habitats Directive requirement for Appropriate Assessment for plans and projects seeking consent. Appropriate Assessment is required under Article 6 (3) of the Habitats Directive for any project or plan that may give rise to significant effects on a European (Natura 2000) site.

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1. INTRODUCTION

1.1 Background

Fehily Timoney and Company (FT) was commissioned by Kildare County Council to prepare an Appropriate Assessment Screening Report for the proposed installation of two pedestrian footbridges for the Grand Canal Greenway Phase 2 scheme, one located in Lowtown and the second adjacent to Healy's/Bonyngne Bridge in Co. Kildare.

Kildare County Council (KCC) are seeking Part VIII planning approval for the two pedestrian bridges. The proposed additional bridges seek to improve on the safety and user experience.

This report presents an examination of whether the two proposed bridges are likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is based on best available scientific knowledge. This report has been prepared to inform the competent authority in completing their statutory obligations in relation to Appropriate Assessment, as required by Article 6(3) under Council Directive 92/43/EEC (Habitats Directive).

1.2 Legislative Context

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) provides legal protection for habitats and species of European importance. The Directive requires that where a plan or project is likely to have a significant effect on a European Site, while not directly connected with or necessary to the nature conservation management of the site, it will be subject to 'Appropriate Assessment' to identify any implications for the European site in view of the site's Conservation Objectives. Specifically, Article 6(3) of the Habitats Directive states:

'6(3) 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 competent authority must carry out a screening for appropriate assessment to assess, in view of best scientific knowledge, if a plan or project, individually or in combination with another plan or project is likely to have a significant effect on a European site. If it cannot be excluded, on the basis of objective information, that a plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site, an appropriate assessment of its implications for the European Site(s) in view of the Site's conservation objectives is required to be carried out.

The provisions of Article 6(3) do not apply where the proposed plan or project is 'connected with or necessary to the management of the site'. In this case, the proposed bridge crossings are not directly connected with or necessary to the management of any European site(s) as such the provisions of Article 6(3) apply.



1.3 Methodology

1.3.1 Guidance

This assessment was conducted in accordance with the following guidance:

- European Commission. (2021). Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Commission Notice (2021) Brussels, 28.9.2021 C (2021) 6913 final.
- Environment Heritage and Local Government. (2009, updated 2010). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Dublin: National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government.
- European Commission. (2019). Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC. Brussels, (2019/C 33/01). OJ C 33, 25.1.2019.
- Office of the Planning Regulator. (2021). OPR Practice Note PN01 Appropriate Assessment Screening for Development Management.

1.3.2 Process

The process of determining the likelihood of significant effects from the continued operation of the existing waste facility on European sites is an iterative process centred around a Source-Pathway-Receptor (S-P-R) model. In order for an effect to be established, all three elements of this S-P-R mechanism must be in place. The absence of one of the elements of the mechanism is sufficient to conclude that a potential effect cannot occur.

- Source(s) – e.g., pollutant run-off, noise, removal of vegetation, etc.;
- Pathway(s) – functional link, or ecological pathway e.g., groundwater connecting to nearby qualifying wetland habitats; and,
- Receptor(s) – the qualifying habitats and species of European sites and ecological resources supporting those habitats/species which are sensitive to biophysical changes that result from the source of impact.

In the context of this report, a source is any identifiable element of the continued operation of the existing waste facility that is known to interact with the receiving environment. A receptor is the Qualifying Interests (QI) for an SAC or Special Conservation Interests (SCI) for an SPA or an ecological feature that is known to be utilised by the QI/SCI. In practice, the term Qualifying Interests also applies to SCIs (and is used in this document for simplicity). A pathway is any connection or link between the source and the receptor.

The assessment commences with a description of the project, along with a description of the receiving environment and the associated sources for impacts to the receiving environment. All elements of the project are presented including the project location and existing baseline environment. The type of impacts that are likely due to the project (Source) are identified having regard to the spatial and temporal scale of the proposed project, resource requirements and likely emissions. These sources are then used to define the zone of influence (Zol) of the project as detailed in Section 2.3.

The European Commission Notice (2021) on the 'Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC, states that in identifying European sites (Natural 2000 sites), which may be affected by the project, the following should be identified:



- Any European sites geographically overlapping with any of the actions or aspects of the plan or project in any of its phases, or adjacent to them;
- Any European sites within the likely zone of influence of the plan or project. European sites located in the surroundings of the plan or project (or at some distance) that could still be indirectly affected by aspects of the project, including as regards the use of natural resources (e.g., water) and various types of waste, discharge or emissions of substances or energy;
- European sites whose connectivity or ecological continuity can be affected by the plan or project.

The zone of influence of a project is the geographical area over which it could affect the receiving environment in a way that could have potential effects on the Qualifying Interests of a European site. The OPR (2021) practice note states that the Zone of Influence must be established on a case-by-case basis using the Source-Pathway-Receptor (S-P-R) framework and not by arbitrary distances (such as 15 km). Section 3.3 sets out the rationale for the identification of relevant European sites within the Zol based on the sources of impacts arising from the proposed project. Subsequently, an assessment is undertaken with respect to potential connectivity (Pathways) to European Sites and their qualifying interests/special conservation interests are identified.

The potential for in-combination effects with other plans and projects is examined in Section 3.4, having regard to the identified impacts of the project along the ecological pathways identified to European sites.

In section 3.2 the likelihood of significant effects of the European Sites within the Zol is examined having regard to the sensitivity of the site with pathways for impacts associated with the project on its own and in combination with other plans and projects.

Having regard to the European Commission Communication on the Precautionary Principle (European Commission, 2021) the:

“absence of scientific evidence on the significant negative effect of an action cannot be used as justification for approval of this action. When applied to Article 6(3) procedure, the precautionary principle implies that the absence of a negative effect on Natura 2000 sites has to be demonstrated before a plan or project can be authorised. In other words, if there is a lack of certainty as to whether there will be any negative effects, then the plan or project cannot be approved.”

Where significant effects are determined to be likely, or where there is uncertainty regarding the likelihood of significant effects, the project will be required under law to be subjected to Appropriate Assessment.

This AA screening is based on best scientific knowledge and has utilised ecological expertise. In addition, a detailed online review of published scientific literature was conducted. This included a detailed review of the National Parks and Wildlife Website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives.



2. DESCRIPTION OF PROPOSED PROJECT

In the first location a new pedestrian bridge has been proposed at Lowtown circa 1km west of Robertstown, Co. Kildare. In this location the original route for the Grand Canal forced greenway users to cross the canal in Robertstown at Binns Bridge and continue on the northern bank along the L7073, before turning off and heading west toward Lowtown on the L7073-5 still on the northern canal bank.

A new pedestrian bridge is proposed just west of the connection between the old barrow line and the grand canal. The new bridge at Lowtown will allow users to cross the old barrow line, where they may then cross the existing Fenton's bridge before continuing their journey westwards using the previously consented route along the north (northeast) canal bank. The proposed bridge at Lowtown will greatly improve the safety of this area of the Greenway by segregating greenway users from the traffic on the L3073 and avoiding the dangerous crossing at Binns bridge. In addition, the proposal will also provide improved connectivity between the Grand Canal Greenway and the Barrow Blue Way as well as providing additional recreational spaces for users to enjoy.

In the second location east of Robertstown, the new pedestrian footbridge is proposed circa 180m east of the existing Healy's/Bonyngne bridge. The proposed bridge will allow greenway users travelling west to cross the canal and continue their journey into Robertstown on the south bank by passing under the L7081 at Healy's/Bonyngne bridge. This proposed change will significantly increase the safety and sense of security of greenway users and is considered a necessary amendment to the originally proposed route of the Grand Canal Greenway. While a one-way traffic light system and traffic calming measures at the bridge were considered the proposal outlined below was considered to be by far the safer and more appropriate option for this location as the proposed arrangement will completely separate greenway and road users in this location, significantly increasing both safety and sense of security.

The proposed pedestrian bridges will be of similar form of construction as the pedestrian bridge recently constructed on the Grand Canal Greenway phase I in Sallins. The proposed bridge will have a minimum 3.5m clearance to the canal water level below to allow for safe passage of canal boats. The pedestrian ramps required to allow greenway users to get up to the correct height above the canal will be constructed from reinforced earth and shall have a grass surface finish. The ramp width and gradient shall be designed to allow for universal access. The proposed bridge decking shall be a high friction buff coloured epoxy type surfacing. A 1.45m high painted steel parapet shall be provided to protect greenway users from the exposed edge.

2.1.1 Lowtown Bridge

At Lowtown the proposed bridge shall be located just west of the confluence between the Grand Canal and the Old Barrow Line. The proposed bridge will be of similar form to the pedestrian bridge in Sallins. Approach ramps will be constructed from steepened earthworks with a grassed surface finish to blend in with the surrounding landscape. A minimum 3.5m clearance shall be maintained below the bridge to allow unimpeded passage of canal boats beneath the bridge. The approach ramp will be constructed to 3.0m width and to a gradient suitable to allow for universal access.

A significant overhead high voltage power line is located in this area. The bridge has been positioned to the west of this line to avoid issues with constructability. The construction methodologies proposed shall follow the appropriate code of practice for avoidance of danger from overhead power lines and shall be developed in consultation with ESB/EirGrid.



The location of the proposed bridge in Lowtown will facilitate a change in greenway route. The greenway will no longer follow the L7037 or L7037-5 on the northern canal bank and will instead be located on the south canal bank which is currently unused. The south bank is for the most part a maintained grass bank. For the final 200m of the route on the south bank as we approach the bridge from the east, some vegetation clearance will be required. See full project layout in Drawing P20-278-ST03-P-0004

- To facilitate the works, vegetation clearance on northern and southern bank in the area of the new pedestrian bridge and ramps will be undertaken using hand tools and light machinery. Site clearance will be limited to the area necessary to undertake the works only.
- On the southern bank the existing topsoil will be excavated and placed to one side, before a layer of granular stone is laid on the canal bank to create a solid formation level for the greenway and to act as a temporary access track for construction equipment. A geotextile separation layer will be used to provide separation between the cohesive soil and the granular material for the greenway.
- At the bridge site an exclusion zone will be set up underneath the high voltage electricity lines which traverse the site.
- The existing drain running parallel to the canal on the southern bank will be piped over a length of circa 60m to allow additional space for construction.
- The reinforced concrete foundation for the proposed pedestrian bridge will be excavated down to a suitable formation level and constructed on site. Approximately 100m³ of concrete pour will be required. No instream works will be required. Subject to further ground investigation works it is assumed that piles will be needed to support the bridge foundation.
- The bridge steel work will be fabricated off site. Upon completion of the bridge foundations and substructure the bridge will be transported to site and lifted into position. Due to the limited width of approach roads the bridge may be fabricated in sections and assembled site.
- The bridge will be lifted into position over a short period of 1-2 days. The canal will need to be closed to marine traffic during this period. It is expected that the bridge will be lifted into position from the northwest side. No lifting equipment will be allowed to operate within, or within falling distance of the hazard zone associated the electricity lines.
- Once the bridge has been installed, earthworks will be completed on southern bank to create the bridge approach ramps. The ramps will be circa 25m in length and raise bank level by circa 3m. A green reinforced earth system with a grassed finished will be used.
- Earthworks will also be completed on northern bank to create the bridge approach ramps. The ramps will be circa 40m in length and raise bank level by circa 3m. A green reinforced earth system with a grassed finished will be used.
- A small section of earthworks ramps will be constructed below the electricity lines. The construction of this section will be completed using restricted height equipment to ensure that no equipment encroaches into the exclusion zone around the electricity cables.
- As noted on the drawings the area adjacent to the northern bank will be landscaped for further use as a trial head or recreational area.
- On the northern bank additional earthworks will be required to create a maintenance access track for future Waterways Ireland use and to reduce the gradients to existing access tracks and trails.
- Minor improvement works will be undertaken at Fenton's Bridge to improve the surfacing and reduce the current gradient.
- The new bridge deck and ramp surface will receive a high friction bridgemaster or similar approved surfacing.



- Bridge parapets will be installed over the new pedestrian bridge and on the approach ramps to provide edge protection to greenway users.
- Upon completion of the bridge the revised greenway route on the southern bank will be completed. A quarry dust surface finish will be applied over the granular subbase.
- The excavated topsoil shall be used to dress the sides of the greenway. The existing seed bed will be reused and allowed to regenerate. The canal verge will be preserved with a typical buffer zone of 1m allowed between the edge of greenway and the canal.
- On approach to the Robertstown the existing footway will be widened and changed to a shared use cycle and pedestrian facility.
- The existing car park on the west side of Robertstown will be modified. The eastern entrance will be closed to allow for improved greenway user access and a segregated cycle track will be provided on the canal side.
- Chicane Gates, colour contrast surfacing, road signage, road markings and other finishes shall be applied to complete the works.



Figure 2-1: Lowtown Bridge New Bridge Crossing and Greenway Route

2.1.2 Bonynge Bridge

- The proposed Bonynge bridge location has been selected circa 175m east of the existing Bonynge/Healy's Bridge. See full project layout in Drawing P20-278-ST05-P-0002. 2.5m of vegetation clearance on northern bank over distance of approx. 110m, clearance begins at existing hedge line.
- General earthworks on northern bank over distance of 110m to raise bank by 1m, slope of raised bank to be at 70-degree angle using green Terramesh system or similar.
- Raised area to slope down to meet existing canal bank over distance of 24m at 1:24 slope
- 3m wide greenway to east, min. 1m wide grass verge to be protected to south of greenway
- 3m wide access track for Waterways Ireland to be provided to west, 50mm quarry dust surfacing, 150mm 804 sub-base



- At base of ramps, permanent steel traffic bollards to be used to restrict vehicle access
- Approach ramp surfacing to be high friction surfacing on top of concrete footway, 1:24 slope for universal access
- Suitable fill material to bridge embankments, embankment slope of 70 degrees using green Terramesh system or similar
- Proposed bridge deck surface is to be steel plate with high friction bridgemaster or similar approved
- Steel bridge structure and parapets
- Greenway to narrow under existing bridge due to existing under bridge conditions
- Existing masonry under bridge to be repaired and extended for approx. 25m either side of bridge, repointing of coping stones required
- Timber post and rail fencing to boundary of vacant dwelling on southern canal bank
- Vegetation clearance required to facilitate greenway adjacent to vacant dwelling boundary
- Colour contrast surfacing, road signs and road markings where greenway passes under existing bridge (see drawing 0107)
- Approx. 1m high green Terramesh system to be used to widen area adjacent to bridge for greenway.

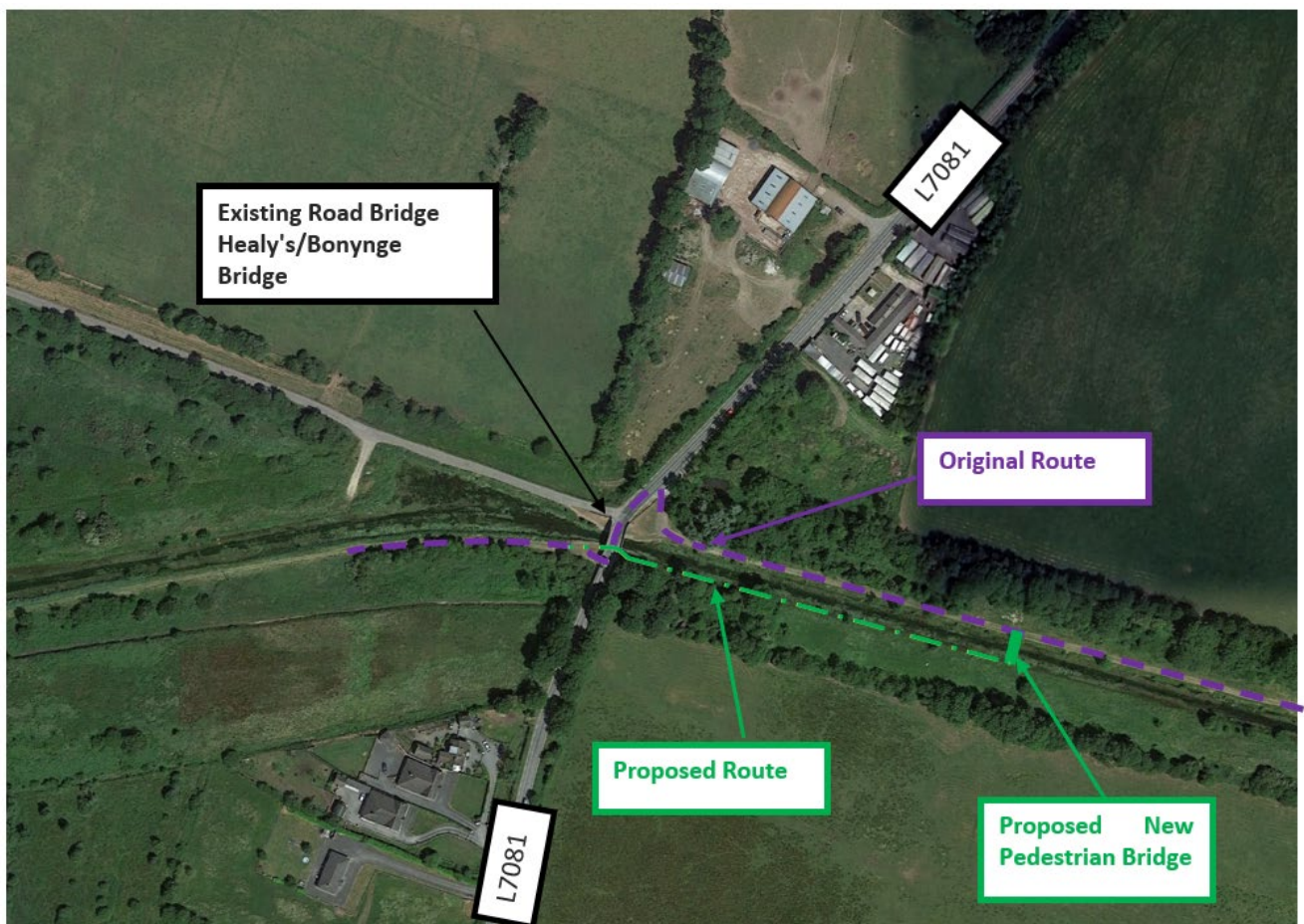


Figure 2-2: Bonynge Bridge New Bridge Crossing and Greenway Route



3. SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Introduction

This section of the report examines if two proposed bridges are likely to have, a significant effect upon European sites, either alone or in combination with other plans or projects. The approach to identifying European sites which have potential for significant effects due to the proposed development follows the approach set out in the AA screening practice note (Office of the Planning Regulator, 2021). A desk study was carried out to collate available information on the existing natural environment at and near the proposed bridge crossings. This comprised a review of the following publications and data:

- Environmental Protection Agency (EPA) (on-line map-viewer including the Appropriate Assessment Tool)¹;
- National Parks and Wildlife Service – online European site network information, including site conservation objectives²;
- National Parks and Wildlife Service – Information on the status of EU protected habitats and species in Ireland (including Article 17 and Article 12 Reports)³;
- National Biodiversity Data Centre⁴
- Inland Fisheries Ireland - Water Framework Directive Fish Ecological Status 2008-2022⁵
- Geological Survey Ireland⁶

3.2 Baseline Environment

Lowtown

Habitats north of the proposed new bridge crossing include GS2 grassy verge with frequent meadow brome *Bromus commutatus* running between the canal boat docks and the existing road. There is a stretch of approximately 100m of common reed *Phragmites australis* dominant FS1 reed and large sedge swamps habitat further west adjacent to the grassy verge and bordering the canal. On the north side of the existing road, there is a FW4 drainage ditch separating the road and an ash *Fraxinus excelsior* dominant WL2 treeline. The field lying north of the proposed Lowtown bridge and west of the existing Robertstown bridge encompasses GS4 wet grassland in the centre of the field surrounded by GS1 dry calcareous and neutral grassland at a higher elevation. This GS4 wet grassland was of low ecological value with low species diversity (hard rush *Juncus inflexus*) recorded and evidence of disturbance with vehicle tracks within the habitat. The WL2 treeline running along the western border of this field consists of abundant ash *Fraxinus excelsior* and white willow *Salix alba*. Land south of the proposed Lowtown bridge encompasses an area of WD2 Mixed broadleaved/ conifer woodland that consists of abundant ash with Scots pine (*Pinus sylvestris*) recorded rarely.

¹ <https://gis.epa.ie/EPAMaps/> Accessed 11/02/2025.

² www.npws.ie Accessed 11/02/2025

³ <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17> Accessed 11/02/2025

⁴ www.biodiversityireland.ie Accessed 11/02/2025

⁵ <https://opendata-ifigeo.hub.arcgis.com/datasets/ifigeo::water-framework-directive-rivers-fish-ecological-status-2008-2022> Accessed 11/02/2025

⁶ <https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/activities/understanding-irish-karst/Pages/Karst-databases.aspx> Accessed 11/02/2025



Figure 3-1: Lowtown Bridge - Habitat Map

Bonynges

A habitat surveys was conducted on 13th January 2025 and assessed land north and south of the proposed Bonynges location. Habitats north of the bridge include common reed dominant FS1 reed and large sedge swamps immediately bordering the canal. This transitions to WS1 Scrub along the bank south of the existing road. An ash *Fraxinus excelsior* dominant WL2 treeline border the north side of the existing road. This treeline extends west into a small area of WD1 (Mixed) broadleaved woodland further west before the existing o Bonynges/Healy's Bridge. According to Táilte Éireann mapping, the wider area north of the WL2 treeline/ WD1 (Mixed) Broadleaved woodland, encompasses fields of improved grassland. Land south of the proposed bridge encompasses an area grassland surrounded by ash dominated WD1 (Mixed) broadleaved woodland.

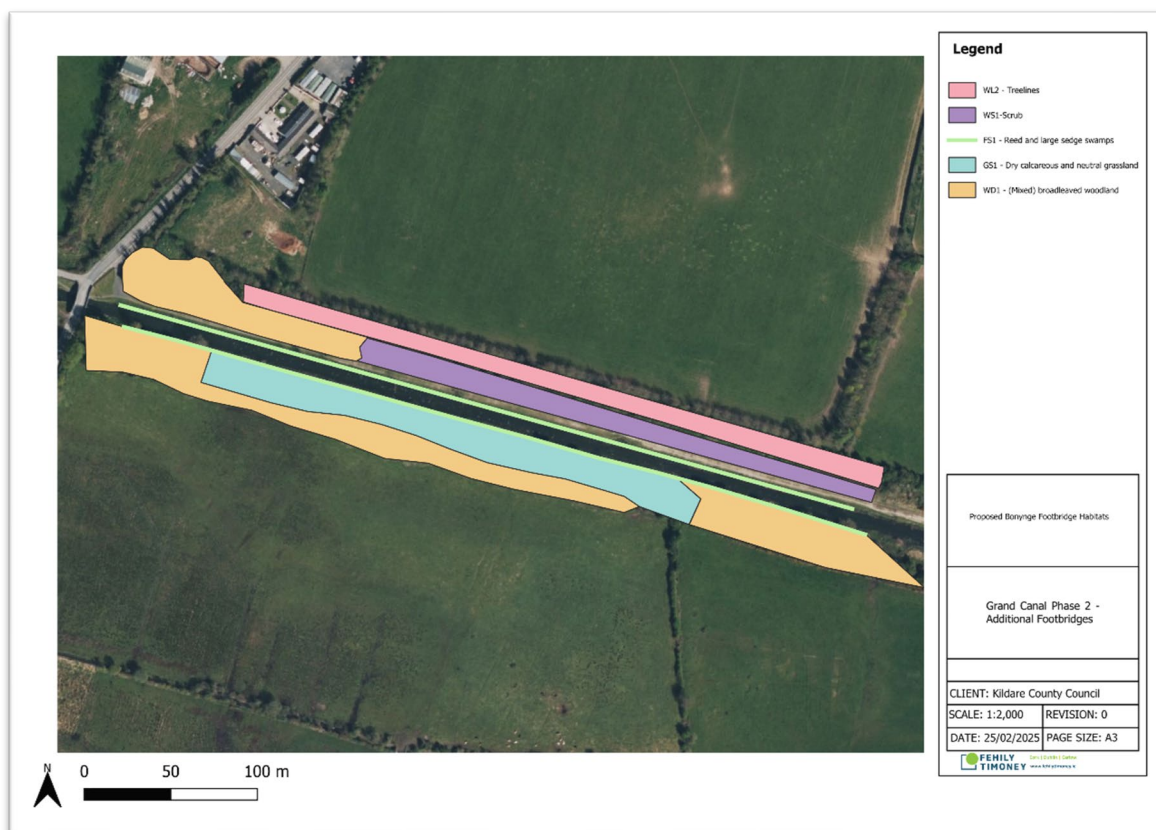


Figure 3-2: Bonynge Bridge - Habitat Map

3.3 Identification of relevant European sites using Source-Pathway-Receptor model

The OPR practice note on appropriate assessment screening (Office of the Planning Regulator, 2021) states that the Zone of Influence (ZoI) must be established on a case-by-case basis using the Source-Pathway-Receptor model. In this regard, consideration is given to the nature and extent of the proposed developments and the characteristics of the immediate environment along with the consideration of potential pathways for connectivity to European sites, which are assessed having regard to available Geographic Information System (GIS) mapping and ecological site walkover.

CIEEM guidelines (2018)⁷ defines the zone of influence (ZoI) of a project as the spatial and temporal scale of potential biophysical changes in the environment which might occur as a result of the development and throughout its lifetime. Consideration must therefore be given to how changes in the environment due to the project could have potential direct and indirect links to sensitive receptors of European sites. These potential direct and indirect links are established using the source-pathway-receptor model (S-P-R) in accordance with the recommendations of OPR guidance note. In this regard, consideration is given to the nature and extent of the proposed new bridge crossings and the characteristics of the surrounding environment along with the consideration of potential pathways for connectivity to European sites, which are assessed having regard to available Geographic Information System (GIS) mapping, ecological datasets and ecological field studies.

⁷ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester



An assessment is made as to whether there could be landscape⁸ or ecological connectivity⁹ to any European site. Consideration is given to the potential for mobile qualifying features of European sites to use the lands within the impact zone of the new bridge crossings. In determining the potential impact zone and S-P-R connectivity the following was considered:

Habitats:

The potential zone for biophysical change by disturbance/degradation/loss of habitat during construction and operation is taken as the lands within the footprint of the works (including any temporary works) plus 10m beyond (based on Office of Public Works, 2014)¹⁰. Having regard to field surveys and desktop assessments, the habitats within this ZoI therefore include grassland, reed swamp, treeline and woodland habitats. There are no European sites within this ZoI for habitat damage/loss. The proposed greenway route from the proposed new pedestrian bridge - Bonynghe Bridge will parallel the southern bank of the Grand Canal and will tie into the Healy's bridge on the L7081 local road. Greenway users will be able to access the already consented canal greenway route west of Healy's bridge from this point. The Blackwood Feeder channel of the Ballynafagh Lake SAC connects to the Grand Canal immediately west of Healy's bridge and is part of the SAC. There are no works associated with the proposed Bonynghe Bridge or new greenway route at this location. The SAC is outside of the zone of influence for habitat damage / loss. No potential S-P-R connectivity to European sites protected for habitats exists.

The potential zone for hydrogeological impacts on groundwater dependent terrestrial ecosystems (GWDTE) is taken as 250m beyond any works areas as per SEPA guidelines¹¹. The aquatic habitats within the 250m ZoI of the project includes the Grand Canal, Blackwood Feeder Channel (part of the Ballynafagh Lake SAC) and drainage ditches. None of these waterbodies are groundwater dependant terrestrial ecosystems and as such are not sensitive to hydrogeological effects through for example excavation for bridge foundations.

The Ballynafagh Lake SAC is designated for the protection of Alkaline fens [7230], which is a GWDTE. However, the fen habitat within the SAC is located around the lake itself, which is 3.3km from the proposed Bonynghe Bridge and greenway route and 4.1km from the Lowtown Bridge and greenway route. As such, the fen habitat is not within the ZoI for hydrogeology effects.

⁸ Landscape connectivity is a combined product of structural and functional connectivity, i.e. the effect of physical landscape structure and the actual species use of the landscape (Kettunen et al. 2007)

⁹ Ecological connectivity is defined as a measure of the functional availability of the habitats needed for a particular species to move through a given area. Examples include the flight lines used by bats to travel between roosts and foraging areas, or the corridors of appropriate habitat needed by some slow colonising species if they are to spread (CIEEM, 2018).

¹⁰ Office of Public Works (2014) Stage 1: Appropriate Assessment Screening Methodology for the Maintenance of Arterial Drainage Schemes. Prepared by Ryan Hanley Consulting Engineers on behalf of the Office of Public Works

¹¹ Scottish Environment Protection Agency (2014) Land Use Planning System SEPA Guidance Note 31. Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems.



The Conservation Objectives document for the Ballynafagh Lake SAC¹² notes Desmoulin's whorl snail (*Vertigo* (*Vertigo*) *moulinsiana*), a qualifying interest of the SAC, as being present in the Blackwood feeder channel. Fehily Timoney commissioned a dedicated Desmoulin's survey on 29th June and 26th July 2023. Habitats along the Blackwood feeder were assessed and deemed unsuitable, consisting mainly of scrub and bracken (See Appendix 2 for full Desmoulin Whorl Snail Survey Report). No Desmoulin whorl snails were recorded within any sampling points near the Grand Canal. Habitats within the ZoI are not suitable for Desmoulin's whorl snail, having regard to Irish Wildlife Manuals, No. 104 (Long & Brophy, 2019). Notwithstanding, no works are proposed within the zone of influence of the Blackwood feeder channel.

Hydrological Connectivity:

Consideration is given to European sites potentially hydrologically connected to the project, i.e. whereby there is potential for surface water from the project site to runoff into a watercourse or drain which flows into a European Site. In this regard, the bridge structure works, and greenway routes have potential hydrological connectivity to the Grand Canal, which is not part of any designated European site. No S-P-R connectivity exists.

Otter:

The potential disturbance zone for breeding otters is taken as 150m having regard to the NRA (2008) Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. The Grand Canal is within this zone of influence and is known to support otter. Otter is a mobile species with a potential territory of 20 km (Marnell et al, 2011)¹³. However, in areas with an abundance of food and other resources (as is the case in the Grand Canal) territories are smaller (Kruuk & Moorhouse 1991)¹⁴. The following SACs are located within 20 km of the bridge crossings, none of which are designated for the protection of otter:

- The Long Derries, Edenderry SAC
- Ballynafagh Bog SAC
- Red Bog, Kildare SAC
- Rye Water Valley/Carton SAC
- Ballynafagh Lake SAC
- Pollardstown Fen SAC
- Mouds Bog SAC

As such, any otter associated with the Grand Canal will not be part of a population designated for protection associated with an SAC. No potential S-P-R connectivity to European sites designated for otter exists.

¹² NPWS (2021) Conservation Objectives: Ballynafagh Lake SAC 001387. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

¹³ Marnell, F., Ó Néill, L., Lynn, D. (2011) How to calculate range and population size for the otter? The Irish approach as a case study. IUCN Otter Spec. Group Bull. 28(8): 15-22.

¹⁴ Kruuk, H., & Conroy, J. W. H. (1991). Mortality of Otters (*Lutra lutra*) in Shetland. Journal of Applied Ecology, 28(1), 83–94. <https://doi.org/10.2307/2404115>



Birds:

The potential disturbance zone for birds is taken as directly within the works areas plus a 500m distance thereof having regard to Cutts et al (2013)¹⁵. There are no European sites designated for the protection of birds within 500m of the proposed bridge crossings and new sections of greenway. However, consideration must also be given to potential landscape and ecological connectivity. As such, the core foraging ranges of SPA birds and their dominant feeding and roosting habitat associations are considered to determine the potential for the habitats within the 500m disturbance distance of the project to support SPA species. In this regard reference is made to the Scottish Natural Heritage (2016) 'Guidance on Assessing Connectivity with Special Protection Areas (SPAs)' for core foraging ranges of SPA birds and conservation backing documents are interrogated for habitat associations which support such birds. A core foraging range of 20km is used for the purpose of this assessment. Having regard to NPWS protected area maps, there are no Special protection Areas (SPAs) designed for the protection of bird, within 20km of the proposed developments. As such there can be no S-P-R connectivity. .

3.4 Consideration of in-combination Effects with other plans or projects

Article 6(3) of the Habitats Directive requires that:

“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”.

It is therefore required that potential impacts of the proposed projects are considered in-combination with any other plans or projects within the zone of influence. The consideration of in-combination effects with other plans or projects, focuses on the sources of impacts identified for the proposed project and any ecological pathways to European Sites as per the S-P-R assessment. However, given that there are no meaningful pathways for effects identified with respect to European sites from the proposed Lowtown bridge and Bonynghe bridge and associated sections not new greenway route, there can be no in-combination effects. As such, no further consideration is required as the S-P-R model has been completed with no potential effects that could arise.

3.5 Screening Conclusion

The results of the S-P-R assessment identified that there are no likely significant effects identified to any European sites given the absence of pathways for effects. Through an assessment of the pathways for effects and an evaluation of the sources for impacts, taking account of the processes involved and the distance of separation from European sites, it has been evaluated that there are no likely significant effects on the qualifying interests, special conservation interest or the conservation objectives of any designated European site.

¹⁵ Cutts N, Hemingway K and Spencer J (2013). The Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects. Produced by the Institute of Estuarine and Coastal Studies (IECS). Version 3.2.



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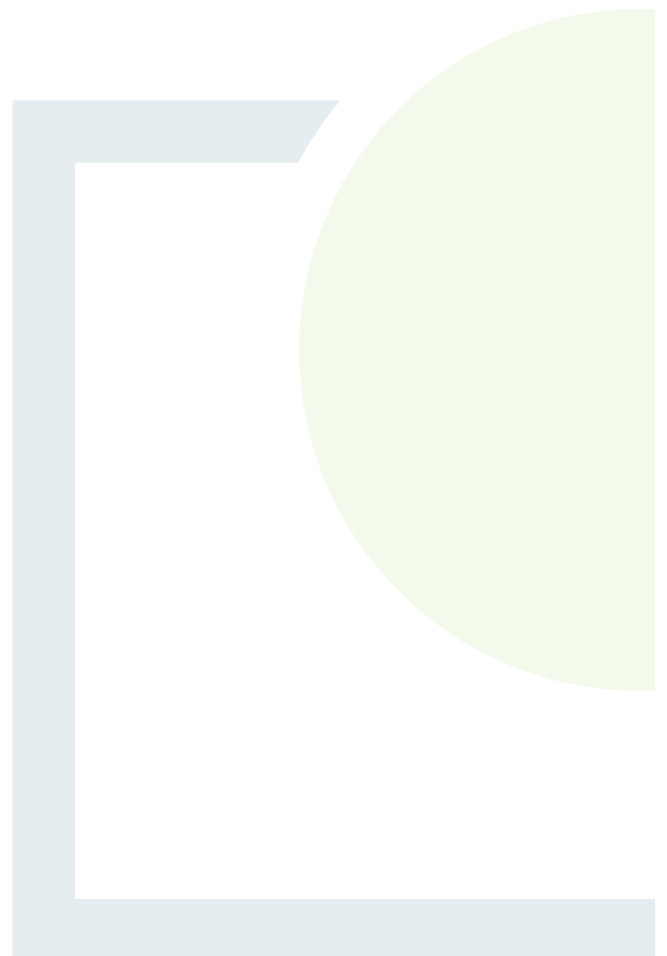
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DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 1

Statement of Authority



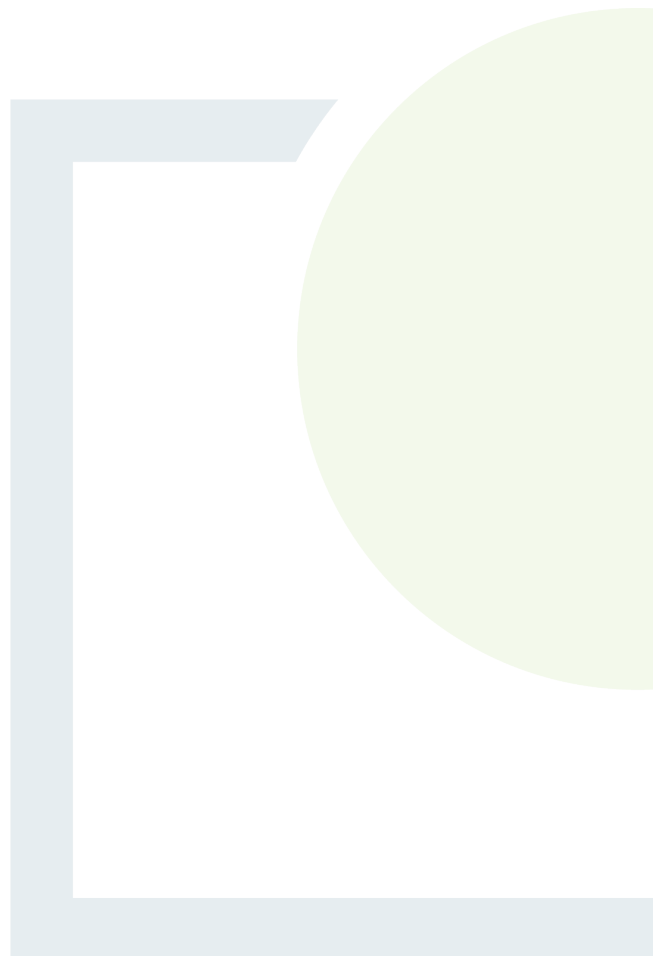
Surveyor	Surveys Completed	Biography
Kate O'Regan	Report Author	Kate O'Regan holds a first-class BSc. in Zoology and first-class MSc in Marine Biology from University College Cork. since joining Fehily Timoney, she has prepared Appropriate Assessments and Ecological Impact Assessments for waste facilities and road improvement schemes along with ornithological reports and collision risk models for renewable energy projects. Kate has previous experience in data management, statistical analysis, mapping and technical report writing. Kate has also completed a wide range of fieldwork including bird, bat, freshwater aquatic, intertidal, subtidal, insect and mammal surveys.
Rita Mansfield	Report Reviewer	Rita is a Principal Ecologist and Project Manager with 20 years' previous experience as a technical lead within the environmental and planning services sector. She specialises in statutory consent and environmental assessment for large scale public infrastructure projects in the energy, water (including flood relief schemes) and transport sectors. She is a qualified ecologist with experience in environmental impact assessment, planning applications (conventional and strategic infrastructure development), climate adaptation, Appropriate Assessment, foreshore licensing, Water Framework Directive, integrated catchment management, and stakeholder engagement.



DESIGNING AND DELIVERING
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APPENDIX 2

Desmoulin's Whorl Snail
Vertigo Moulinsiana Survey
Report





Survey of Desmoulin's whorl snail (*Vertigo moulinsiana*) Grand Canal Phase 2

Allen and Mellon Environmental

101 Priory Park Belfast BT10 0AG

August 2023

Any advice, opinions or recommendations expressed in this report are based upon due diligence including the authors' interpretation of field conditions experienced at the time of survey. The authors do not accept any responsibility for material changes to field conditions which may have occurred subsequent to the survey date.

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Figure 1. Grand Canal.

Introduction

This survey was undertaken for Phase 2 of a proposed new walkway and pedestrian bridge along the Grand Canal near Prosperous, Co. Kildare. The Ballynafagh Lake SAC, an area designated for its Alkaline Fen habitats and the presence of Marsh Fritillary (*Euphydryas aurinia*) (family Nymphalidae) and Desmoulin's whorl snail (*Vertigo moulinsiana*) (family Vertiginidae) is located nearby. Part of the SAC known as the Blackwood Feeder connects Ballynafagh Lake to the Grand Canal (National Parks & Wildlife Service, 2013). The proposed location of the new footbridge is immediately to the east of the existing Bonyng Bridge.

The main objective of this work was to complete a vertigo snail survey to determine presence/absence of the target species Desmoulin's whorl snail (*V. moulinsiana*) in the vicinity of the works. *V. moulinsiana* has been assessed as being Endangered (EN (A4c)) in the Irish Red List and is declining in Ireland (Anderson, 2016a; Byrne, Moorkens, Anderson, Killeen and Regan, 2009). This species is also listed in Annex II of the EU Habitats and Species Directive. The focus of survey effort was in areas of potentially suitable habitat for this target species 1km up and downstream of the proposed development. Results from the surveys can be found in the following report with notes being made on the suitability of habitat, with any site management concerns being highlighted and recommendations for mitigation measures being made.

Materials and methods

Allen and Mellon Environmental Ltd completed a targeted survey for Desmoulin's whorl snail (*Vertigo moulinsiana*) at several locations on and near the Grand Canal. The site was visited on 29th June and 26th July 2023 by Anna Hart Consultant Ecologist for Allen and Mellon Environmental and Dr. Roy Anderson, an acknowledged expert in mollusca and co-author of the Irish Red Data list on non-marine molluscs (Byrne et al. 2009). The methodology used was based on Long & Brophy (2013), Annex II snail surveys carried out in 2017 (Anderson, Long, Telfer, Mantell and Hart, 2017) and on surveys for *V. moulinsiana* carried out in 2019 at Corbally Fen (Allen and Mellon Environmental Ltd). A total of 20 sampling points were surveyed. These locations can be found in the table below.

Sampling points	Grid reference
1	N 81184 25314
2	N 81126 25324
3	N 81094 25304
4	N 80988 25285
5	N 80934 25279
6	N 80885 25270
7	N 80771 25250
8	N 81064 25317
9	N 81184 25295
10	N 81110 25293
11	N 80946 25264
12	N 80860 25251
13	N 79171 24966
14	N 81542 25211
15	N 80916 25373
16	N 80827 25400
17	N 80759 25365
18	N 80631 25325
19	N 80587 25331
20	N 81959 25095

Table 1. Sampling points for the 2023 surveys.

All of the sampling locations chosen were situated within potentially suitable habitat for the target species. Most of the survey effort was concentrated on the Western side of Bonyng Bridge as there was found to be more potentially suitable habitat in that area. Habitat along most of the Blackwood feeder was unsuitable, consisting mainly of scrub and bracken.

Most of the habitat adjacent to the water's edge was found to be too dry for snails. Many of the areas surveyed were easy to access being near a public walkway; however access was more difficult to areas away from the path.



Figure 2. Sampling point 1.

Vertigo moulinsiana can generally be identified in the field with a hand lens. In areas of suitable habitat, within an approximate 5m x 5m square, vegetation was beaten over a white tray. This was sorted through with any snails being collected for identification. Although the focus of this work was *V. moulinsiana*, other invertebrate species were recorded as bycatch including Beetles (Coleoptera), Bees, wasps (Hymenoptera) etc. Many of these were removed from the site for identification because of the technical difficulty associated with that. All animals recorded were listed with date, grid reference, habitat, niche and abundance in a separate Excel file. Data obtained in this way and the relevance of individual species records, especially for notable, threatened and introduced species is given. A general grid reference was given for each of the sampling locations and grid references were taken for any significant species found. ArcMap was then used to digitise all surveyed areas. These maps can be found in Appendix 3.





Figure 4. Desmoulin's Whorl Snail (*Vertigo moulinsiana*).

Results

A total of 20 sampling points were established, with efforts being concentrated on potentially suitable habitat for Desmoulin's whorl snail (*Vertigo moulinsiana*). Most of the sampling points were taken to the west of Bonyng Bridge since there was more suitable habitat in this area.

The target species of this survey, *V. moulinsiana*, is usually associated with tall marginal vegetation in calcareous lowland wetlands, swamps, fens and marshes (Anderson, 2016a; Byrne et al. 2009). On the first survey day sampling was focused on marginal vegetation including species such as Greater Pond-sedge (*Carex riparia*) and Water Horsetail (*Equisetum fluviatile*) in the canal itself (Sampling points 1, 2, 3, 4, 5, 6, 7, 9, 10 and 11). Most of the habitat further away from the water's edge was found to be too dry for snails, with the presence of bracken (*Pteridium* spp.), gorse (*Ulex* spp.) and bramble (*Rubus*). Sampling point 8 was taken in an area not covered by these species where conditions were wetter.

Three species of whorl snail were recorded during the surveys including the target species; Desmoulin's whorl snail (*Vertigo moulinsiana*), Marsh whorl snail (*V. antivertigo*) and Common whorl snail (*V. pygmaea*) (all family Vertiginidae). Marsh whorl snail (*V. antivertigo*) has been assessed as being Vulnerable VU (A1c) in the Irish Red List (Byrne et al. 2009) and is associated with fens, marshes, unimproved grassland, lakeshores and riverbanks (Anderson, 2016b). Common whorl snail (*V. pygmaea*) has been assessed as being Near Threatened in the Irish Red List (Byrne et al. 2009) and is associated with damp pastures and the margins of wetlands, though in the north and west it is mainly found in coastal habitats like dune grassland (Anderson, 2016c). All three species were recorded at the roots of dense fen vegetation in a wet meadow to the north of the Canal just outside the SAC (Sampling points 15, 16 and 17). Sampling points 18 and 19 were taken in a fen meadow with shorter vegetation apart from the field borders. *V. antivertigo* was the only species of whorl snail recorded here. Habitat in the Blackwood Feeder part of the SAC was found to be unsuitable for the target species, being too shaded from scrub and trees. Sampling points were not

taken in this part of the SAC for this reason. No Desmoulin's whorl snails (*V. moulinsiana*) were recorded from any of the sampling points taken by the canal.



Figure 5. Sampling point 17.

The Glutinous snail (*Myxas glutinosa*) (family Lymnaeidae) was identified as another potential target species by the surveyors as it is known from the Grand Canal. This species has been assessed as being Endangered (EN (A4c)) in the Irish Red List and is also declining in Ireland (Anderson 2016d; Byrne et. al, 2009). There was evidence of enrichment with clumps of algae throughout the length of the canal surveyed. To determine the extent of the enrichment surveyors walked along the canal to Robertstown to an area where the glutinous snail had previously been recorded. Sampling point 13 was taken at this location (N 79171 24966). It should be noted that there was algae up to this point and beyond and *M. glutinosa* was not recorded during this survey.



Figure 6. Sampling point 13.

Ten other species of snail were recorded during the surveys; Common Bithynia (*Bithynia tentaculata*) and Leach (*B. leachii*) (both family Bithyniidae), Brown-lipped snail (*Cepaea nemoralis*) (family Helicidae), Great pond snail (*Lymnaea stagnalis*) (family Lymnaeidae), Large amber snail (*Succinea putris*) and Pfeiffer's amber snail (*Oxyloma elegans*) (both family Succineidae), Keeled Ramshorn (*Planorbis carinatus*) (family Planorbidae), Acute bladder snail (*Physella acuta*) (family Physidae), Horny orb mussel (*Sphaerium corneum*) (family Sphaeriidae) and the snail *Columella aspera* (family Truncatellinidae). It should be noted that numbers of other more common snail species appeared to be low. Common Bithynia (*B. tentaculata*), a species very tolerant of enrichment, was found to be the most frequent and widely distributed snail species recorded from the margins of the canal. Sampling points 14 and 20 were taken to the east of the bridge. Pfeiffer's amber snail (*O. elegans*), the most widespread amber snail in Ireland, was the only snail species recorded in this area.



Figure 7. Sampling point 14

Another invertebrate of interest recorded was the Heather bug (*Rhacognathus punctatus*) (family Pentatomidae). This is a very localised and rare bug in Ireland that was swept off fen vegetation in the *V. moulinsiana* meadow. Most of the other invertebrates recorded consisted mainly of common species such as the Blue-tailed damselfly (*Ischnura elegans*) (Coenagrionidae), Meadow brown butterfly (*Maniola jurtina*) (family Nymphalidae) and 22-spot ladybird (*Psyllobora vigintiduopunctata*) family Coccinellidae). Photographs from the surveys can be found in Appendix 1, a full species list can be found in Appendix 2 and maps showing the location of sampling points can be found in Appendix 3.



Figure 8. Drier conditions unsuitable for target species.

Habitat Management Issues & Recommendations

Desmoulin's Whorl Snail (*Vertigo moulinsiana*) is highly dependent on the maintenance of existing local hydrological conditions (Anderson, 2016a), with the main threat to this species likely being a loss of habitat through agricultural intensification and drainage (Anderson, 2016a; Byrne et al. 2009). Reduced water quality in lowland wetlands as a result of eutrophication from diffuse pollution, increased siltation and a reduction in dissolved oxygen content also threaten this species (Anderson, 2016a). The species is therefore vulnerable to run-off from fertiliser, slurry and herbicide application. Scrub encroachment shading habitat and thus making it unsuitable for *V. moulinsiana* is another threat to this species.

It was noted that a crop of potatoes had been cultivated directly beside the area where the target species was recorded. Earth excavation works were also taking place elsewhere adjacent to the SAC. These issues are of concern since this isolated population of *V. moulinsiana* is likely to be particularly vulnerable to such activities.

Water quality is a major concern in the canal itself as there is an abundance of algae, evidence of nutrient enrichment. To determine the extent of the issue both surveyors walked to Robertstown, a known location for Glutinous snail (*Myxas glutinosa*), a species intolerant of enrichment (Anderson, 2016d; Byrne et al. 2009). Conditions were found to be no longer suitable at this location. Addressing water quality issues in the canal should be a priority, in particular polluting run-off from agricultural land and efforts to reduce diffuse pollution should be supported.

It is important to note that although the snail has specific microhabitat requirements, adjacent habitats exert a great deal of influence on the quality of the area where it is found. Land snail species that are found in wetland areas are more demanding in their habitat requirements and are particularly vulnerable

to human disturbance (Cameron, 2008). It is vital that any works carried out do not interfere with the hydrological conditions needed by *V. moulinsiana*.



Figure 9. Land being used to grow potatoes beside *V. moulinsiana* habitat.

Our surveys have shown that the snail occurs in an area of fen and sedge-rich wet grassland to the north of the canal, just outside the SAC. This location is more than 250 metres from the nearest part of the proposed development and on the far side of the canal. As no *V. moulinsiana* were recorded in the margins of the canal or adjacent grassland habitat and habitat is unsuitable elsewhere, the development of the new walkway and pedestrian bridge is not predicted to have any impact on the species as long as work is confined to the specified area.



Figure 10. Water showing signs of nutrient enrichment at Robertstown.

Conclusions

- Desmoulin's whorl snail (*Vertigo moulinsiana*) was recorded in a fen meadow to the north of the Canal just outside the SAC. The snail was not recorded from any of the sampling points by the margins of the canal or adjacent grassland.
- Two of the more common species of *Vertigo* were also recorded from the fen meadow to the north of the Canal just outside the SAC.; Marsh whorl snail (*V. antivertigo*) and Common whorl snail (*V. pygmaea*).
- Glutinous snail (*Myxas glutinosa*) was not found in the margins of the canal or at its former site near Robertstown.
- Habitat in the Blackwood Feeder part of the SAC was found to be unsuitable for the target species, being too shaded from scrub and trees. Sampling points were not taken in the SAC for this reason.
- There was a lack of potentially suitable habitat by the canal particularly to the east of the bridge.
- Most of the habitat directly beside the canal was found to be too dry for the target species, while further inland damper conditions were more suitable.
- The proposed development is not predicted to have any negative effects on the *V. moulinsiana* site since this is at least 250 metres away and on the far side of the canal.
- Addressing water quality issues in the canal is a priority, in particular polluting runoff from agricultural land and efforts to reduce diffuse pollution should be supported.



Figure 12. Blue Shieldbug (*Zicrona caerulea*) (family Pentatomidae)

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Appendix 1: Photos



Figure 13. Sampling point 2.



Figure 14. Habitat too dry for target species.



Figure 15. Habitat on opposite side of canal unsuitable for target species.



Figure 16. Marginal vegetation by canal searched for target species.



Figure 17. Earth works by SAC.



Figure 18. Sampling points 18 and 19.



Figure 19. Habitat appears to have damper conditions further inland from the canal.

Appendix 2: Species list

Common name	Species	Family
Leach	<i>Bithynia leachii</i>	Bithyniidae
Common bithynia	<i>Bithynia tentaculata</i>	Bithyniidae
Brown-lipped snail	<i>Cepaea nemoralis</i>	Helicidae
The snail	<i>Columella aspera</i>	Truncatellinidae
Great pond snail	<i>Lymnaea stagnalis</i>	Lymnaeidae
Acute bladder snail	<i>Physella acuta</i>	Physidae
Keeled ramshorn	<i>Planorbis carinatus</i>	Planorbidae
Horny orb mussel	<i>Sphaerium corneum</i>	Sphaeriidae
Pfeiffer's amber snail	<i>Oxyloma elegans</i>	Succineidae
Large amber snail	<i>Succinea putris</i>	Succineidae
Marsh whorl snail	<i>Vertigo antivertigo</i>	Vertiginidae
Desmoulin's whorl snail	<i>Vertigo moulinsiana</i>	Vertiginidae
Common whorl snail	<i>Vertigo pygmaea</i>	Vertiginidae
The plant bug	<i>Capsus ater</i>	Miridae
Common water-measurer	<i>Hydrometra stagnorum</i>	Hydrometridae
Green shield bug	<i>Palomena prasina</i>	Pentatomidae
Heather bug	<i>Rhacognathus punctatus</i>	Pentatomidae
Blue shieldbug	<i>Zicrona caerulea</i>	Pentatomidae
Brown hawker	<i>Aeshna grandis</i>	Aeshnidae
banded demoiselle	<i>Calopteryx splendens</i>	Calopterygidae
Blue-tailed damselfly	<i>Ischnura elegans</i>	Coenagrionidae
Four-spotted chaser	<i>Libellula quadrimaculata</i>	Libellulidae
A red ant	<i>Myrmica ruginodis</i>	Formicidae
A millipede	<i>Cylindroiulus britannicus</i>	Julidae
Blunt-tailed snake millipede	<i>Cylindroiulus punctatus</i>	Julidae
A flat-backed millipede	<i>Polydesmus inconstans</i>	Polydesmidae
Two-spotted water hog-louse	<i>Asellus aquaticus</i>	Asellidae
A freshwater shrimp	<i>Crangonyx pseudogracilis</i>	Crangonyctidae
Common woodlouse	<i>Oniscus asellus</i>	Oniscidae
Common striped woodlouse	<i>Philoscia muscorum</i>	Philosciidae
Common pygmy woodlouse	<i>Trichoniscus pusillus agg.</i>	Trichoniscidae
Small tortoiseshell	<i>Aglais urticae</i>	Nymphalidae
Ringlet	<i>Aphantopus hyperantus</i>	Nymphalidae
Meadow brown	<i>Maniola jurtina</i>	Nymphalidae
Speckled wood	<i>Pararge aegeria</i>	Nymphalidae
Comma	<i>Polygonia c-album</i>	Nymphalidae
Red admiral	<i>Vanessa atalanta</i>	Nymphalidae
A ground beetle	<i>Agonum emarginatum</i>	Carabidae
A ground beetle	<i>Agonum fuliginosum</i>	Carabidae
A ground beetle	<i>Agonum thoreyi</i>	Carabidae
A ground beetle	<i>Paradromius linearis</i>	Carabidae
A ground beetle	<i>Pterostichus strenuus</i>	Carabidae
A ground beetle	<i>Trichocellus placidus</i>	Carabidae
A pear-shaped weevil	<i>Perapion curtirostre</i>	Brentidae
Small Nettle Weevil	<i>Nedyus quadrimaculatus</i>	Curculionidae
Strawberry Root Weevil	<i>Sciaphilus asperatus</i>	Curculionidae
A weevil	<i>Limnobaris dolorosa</i>	Curculionidae
Iris Flea Beetle	<i>Aphthona nonstriata</i>	Chrysomelidae
the flea beetle	<i>Altica lythri</i>	Chrysomelidae

Common name	Species	Family
A reed beetle	<i>Plateumaris discolor</i>	Chrysomelidae
A soldier beetle	<i>Cantharis nigra</i>	Cantharidae
A silken fungus beetle	<i>Atomaria basalis</i>	Cryptophagidae
Ten-spotted ladybird	<i>Adalia decempunctata</i>	Coccinellidae
14-spotted ladybird	<i>Propylea quatuordecimpunctata</i>	Coccinellidae
22-spot ladybird	<i>Psyllobora vigintiduopunctata</i>	Coccinellidae
A ladybird	<i>Rhyzobius litura</i>	Coccinellidae
A predaceous diving beetle	<i>Hyphydrus ovatus</i>	Dytiscidae
The water scavenger beetle	<i>Anacaena globulus</i>	Hydrophilidae
The water scavenger beetle	<i>Anacaena limbata s. str.</i>	Hydrophilidae
A Silvanid flat bark beetle	<i>Psammoecus bipunctatus</i>	Silvanidae
A rove beetle	<i>Hygronoma dimidiata</i>	Staphylinidae
A rove beetle	<i>Oxypoda elongatula</i>	Staphylinidae
A rove beetle	<i>Paederus riparius</i>	Staphylinidae
A rove beetle	<i>Stenus cicindeloides</i>	Staphylinidae
A rove beetle	<i>Tachyporus dispar</i>	Staphylinidae

**Desmoulin's whorl snail (*Vertigo moulinsiana*) survey -
Grand Canal Phase 2 2023**



- Sampling points where *V. moulinsiana* was recorded
- Sampling points
- Ballynafagh Lake SAC



**Desmoulin's whorl snail (*Vertigo moulinsiana*) survey -
Grand Canal Phase 2 2023**

① Sampling points

Ballynafagh Lake SAC



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