

AtkinsRéalis



Natura Impact Statement

Mayo County Council

July 2025

N59 CARROWREVAGH BRIDGE REHABILITATION WORKS



Bonneagar Iompair Éireann
Transport Infrastructure Ireland



Comhairle Contae Mhaigh Eo
Mayo County Council

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1. Introduction

1.1 Background

AtkinsRéalis were appointed by Mayo County Council (MCC) for Eirspan Task Order 315 – Mayo Bridge Assessments and Strengthening 2023, comprising the assessment and rehabilitation of 10 no. bridges in County Mayo; Carrowrevagh Bridge (MO-N59-053.50) lies within the scope of this task order. This report has been prepared to support MCC in their Section 177AE application to An Coimisiún Pleanála in relation to the proposed works at Carrowrevagh Bridge.

AtkinsRéalis were appointed to prepare a Natura Impact Statement on behalf of MCC for the proposed works at Carrowrevagh Bridge (“the proposed works”). AtkinsRéalis were also appointed to prepare an Environmental Impact Assessment Screening, a Construction Environmental Management Plan, and a Waste Management Plan for the proposed works (these documents are accompanying the planning application for the proposed works).

The aim of these works is to rectify the existing scour damage throughout the structure to increase the structural integrity of the existing bridge. The proposed works are located on a second-order stream (EPA name: ROOGHAUN_32) or Derrycraff watercourse (hereafter referred to as Derrycraff watercourse in this report), at the border between the townlands of Carrowkenedy and Carrowrevagh, County Mayo. The proposed works include the reinstatement of original bed levels at the upstream elevation of the structure, increasing the height of the existing parapets using masonry construction, waterproofing the existing concrete deck slab, masonry repairs and repointing to the masonry arch section of the structure, localised concrete repairs to the deck slab soffit, the installation of rock armour to the northeast embankment downstream of the structure, and the installation of safety barriers on both verges over the structure and on approaches. The proposed works are not directly connected with or necessary to the management of any designated site for nature conservation.

This report comprises the Appropriate Assessment Screening Report and associated Natura Impact Statement in respect of the proposed works and is intended to assist the competent authority, by providing it with sufficient evidence to make a properly informed determination in respect of the proposed works.

1.2 Location and Context

The proposed works are located along the N59 national road, at the border between the townlands of Carrowkenedy and Carrowrevagh in County Mayo. The location of the bridge and the surrounding river network, including the second-order stream (EPA name: ROOGHAUN_32 or Derrycraff) over which the bridge crosses, is shown in Figure 1-1.

Carrowrevagh Bridge is a single span masonry arch structure extended to the north by a reinforced concrete slab carrying the N59 National Secondary Road over the Derrycraff/ROOGHAUN_32 watercourse. The masonry arch is formed of random rubble limestone masonry and has a span of 1.7m and a width out to out of 7.5m. The reinforced concrete slab measures 3.8m wide with a square span of 1.85m and a skew span of 1.92m. The overall width out to out of the structure is 11.2m. The bridge is carrying a 5.5m wide single carriageway with raised concrete rubbing strips located at both elevations of the structure. The rubbing strips on both sides of the structure measure 2.6m (north) and 1.8m (south) respectively. The parapets are of 450mm thick masonry construction to the south and 250mm thick concrete construction to the north and have a height of 600mm and 300mm respectively.



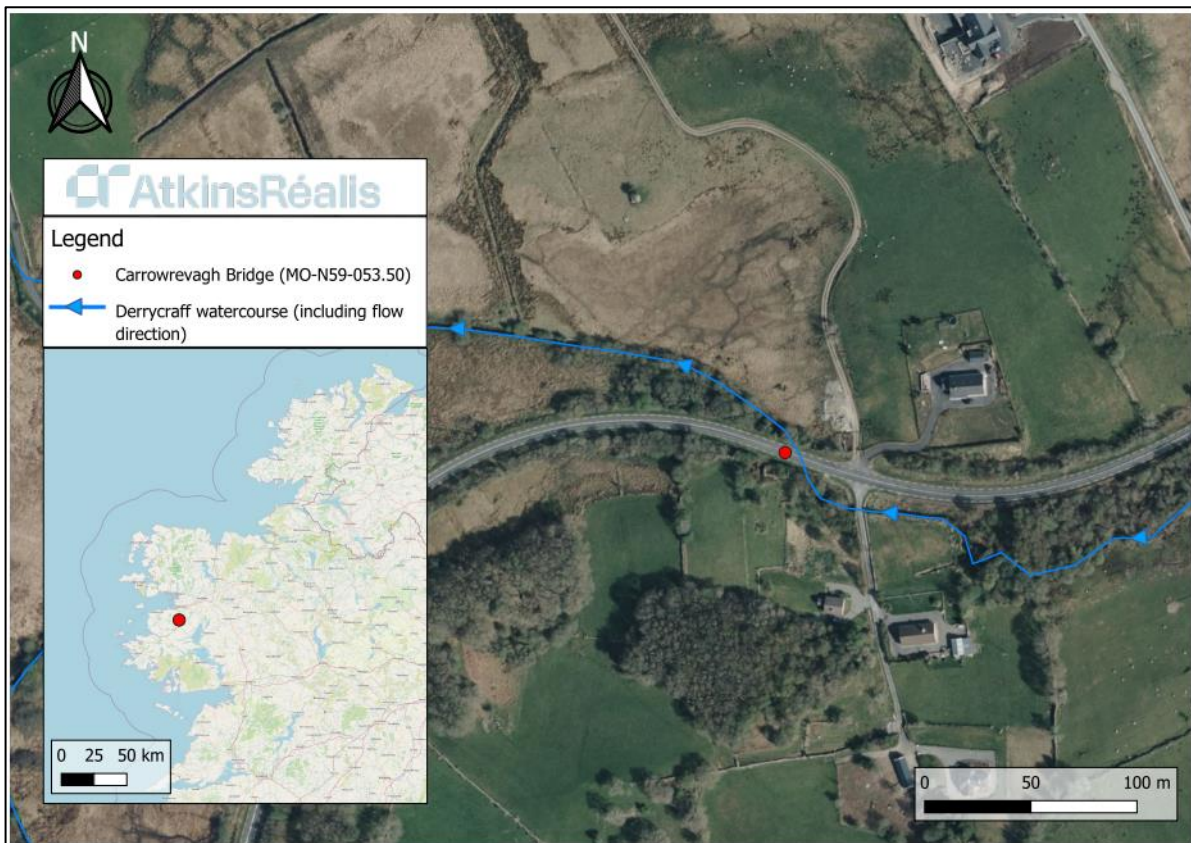
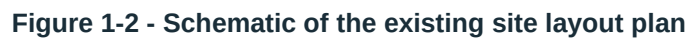


Figure 1-1 – The location of Carrowrevagh Bridge in Co. Mayo.



1.3 Description of Proposed Works

The proposed works to Carrowrevagh Bridge comprise rehabilitation works to the existing bridge structure. The works include the reinstatement of original bed levels at the upstream elevation of the structure, increasing the height of the existing parapets using masonry construction, waterproofing the existing concrete deck slab, masonry repairs and repointing to the masonry arch section of the structure, localised concrete repairs to the deck slab soffit, the installation of rock armour to the northeast embankment downstream of the structure, and the installation of safety barriers on both verges over the structure and on approaches.

Works are comprehensively described in Section 1.4 below. The full set of drawings are provided in Appendix A. The accompanying CEMP (AtkinsRéalis, 2025) details further general requirements for onsite operatives and 'good housekeeping' guidelines to be followed by the appointed Contractor.



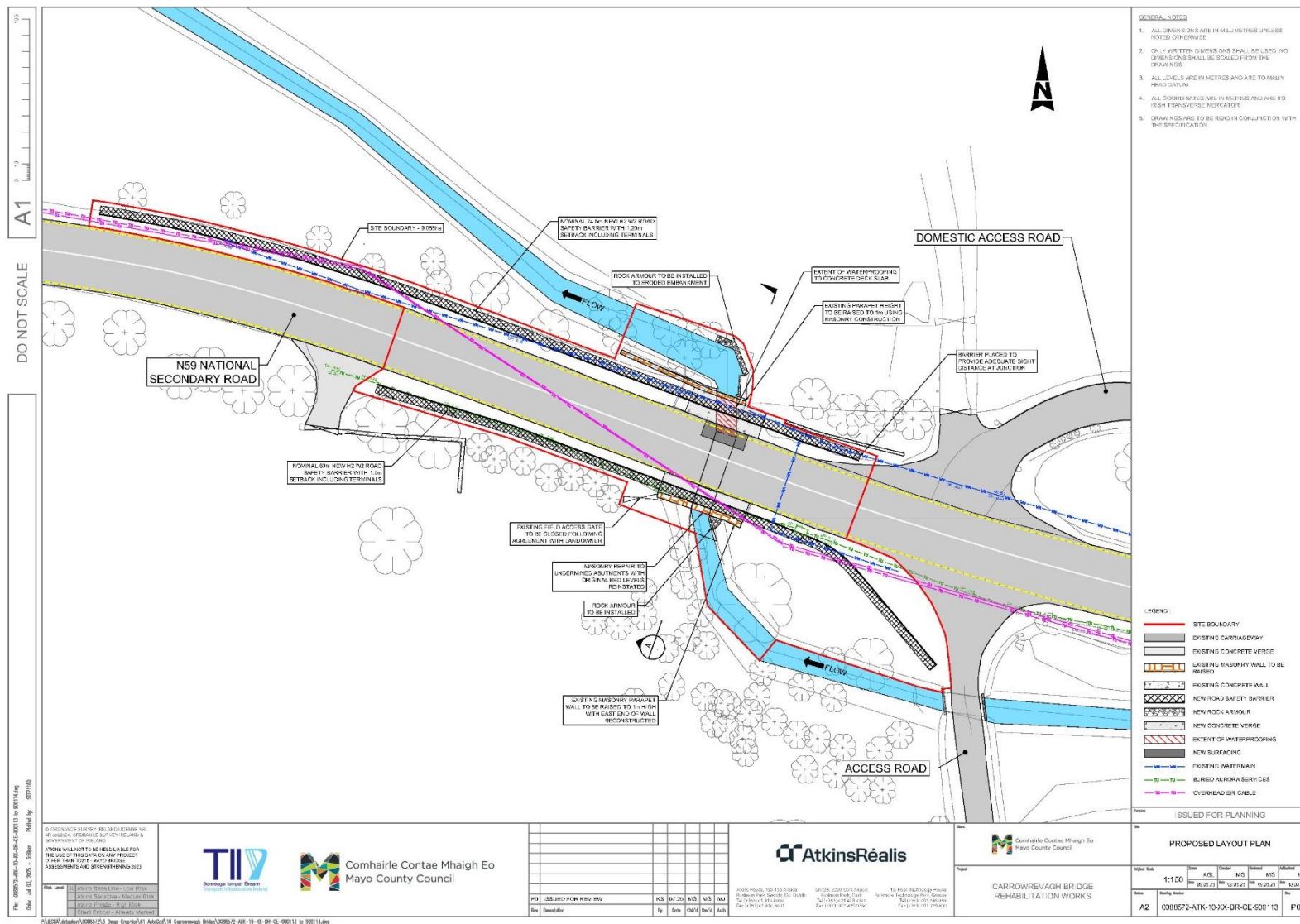


Figure 1-3 – Overview of proposed site layout plan



1.4 Construction Methodology - Detailed Description

The construction methodology and sequence of works are:

1. The site compound will be contained within the site boundary extent. All required machinery and plant will be stored on site for the duration of works..
2. Traffic Management installed at the works location; the proposed works require a single land closure. Detailed Traffic Management Plan will be provided by the successful contractor once appointed.
3. Construction of a dry working area; this requires full dewatering of the channel and will occur prior to all works apart from site setup. The construction of the dry working area is as follows:

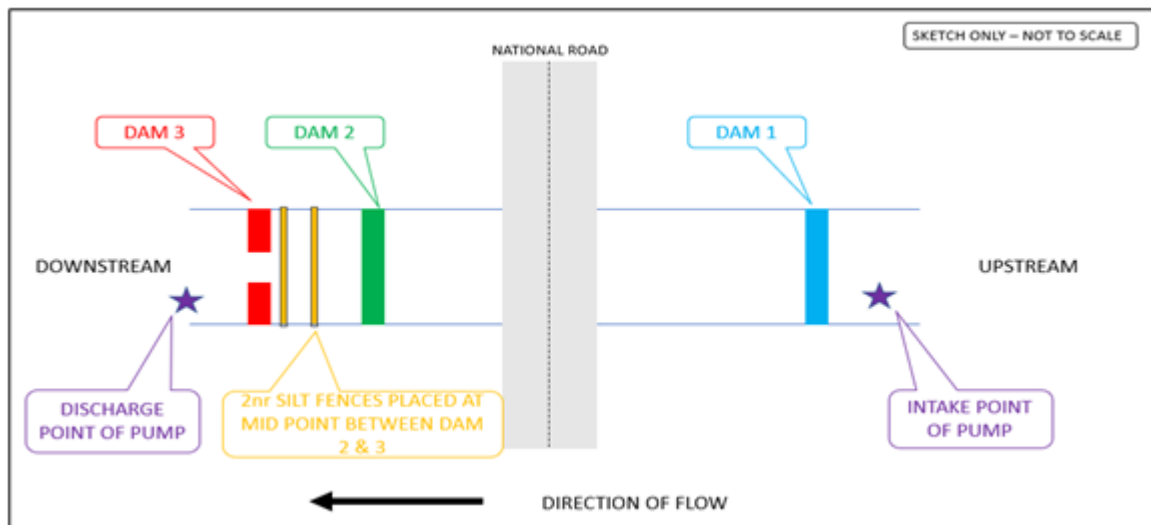


Figure 1-5 - Schematic of three dam dewatering system proposed at Carrowrevagh Bridge.

- There will be three sandbag dams erected in the watercourse; Dam 1 upstream of the bridge and Dams 2 and 3 situated down-stream of the bridge. Dam 2 and Dam 3 will be erected first (300mm high on the riverbed). Dam 1 will then be erected (800mm high on the riverbed), and the river flow pumped downstream of Dam 3. Instream access by operatives is required for the installation of the sandbag dams and silt fences.
- Dams will be constructed of small sandbags filled with pea gravel. Each bag will be double bagged and sealed thoroughly. The base of each dam will be three times the height. The dam will also be wrapped in 1000-gauge polythene. Dam height will depend on water levels at the time of erection and the 14-day predicted rainfall.
- The sandbags for the dam will be carried by hand and placed into position within ten meters downstream of the structure, 500mm in height, across the full width to prevent downstream water returning into the work area. Dam 2 will be constructed by hand upstream of Dam 3; Dam 2 will be raised to 500mm in height. Dam 1 will then be placed within ten metres upstream of the structure on the upstream elevation; Dam 1 will be raised to full height (Dam 2 and Dam 3 are built up more gradually). Dam 2 will be placed on the natural rock lip seen in Figure 1-6 below (circled in red).



Figure 1-6 - Natural rock to be sealed with small sandbags upon the completion of Dam 2 located downstream of Carrowrevagh Bridge.

- The section of river between Dam 1 and Dam 2 is required to be electro-fished by a licensed operator. All fish will be relocated downstream of the works area and discharge point of pump. Upon completion of the electro-fishing, Dam 2 will be raised to full height (of 800mm) and a silt fence will be erected between Dam 2 and Dam 3. A second silt fence will be erected just upstream of Dam 3 (Figure 1-5). These two silt fences will act as a final filter for sediment within potential surface water run-off before it re-enters the live watercourse.
 - An over pumping pipe will be placed into a 225mm non-perforated pipe installed through the bridge at high level. It will be secured by temporary brackets that will be fixed along the existing abutment ledge wall. The pipe will be secured to allow for a gravity fall. The intake hose for over pumping will be positioned on the upstream side of Dam 1 and will be wrapped in a layer of silt fencing. The discharge hose will be position on the downstream side of Dam 3. A silt bag will be placed on the end of the discharge hose to prevent discharge of any suspended solids or unwanted material into the live watercourse.
 - The works area between Dam 1 and Dam 2 will be pumped out and discharged between Dam 2 and 3 and before the silt fences. A small natural sump is located within the works area (between Dam 1 and 2) and a submersible pump will be used to over pump any water collected.
 - All over pumping works will require the use of either a submersible pump or centrifugal dewatering pump which will be used to over pump any water collected. Collected water will be discharged to the upstream side of the silt fences between Dams 2 and 3.
- 4. Following the creation of the dry working area the existing riverbed at the upstream inlet will be excavated by a combination of machine excavated (13-ton excavator positioned on south-eastern embankment) and hand excavated to a depth of 500mm below the final proposed bed level in order to install suitable rock armour (estimated 300mm to 500mm) at the location. The extent of excavation will be 2m upstream and 3m into the structure. The 2.5m³ excavated material will be stored on the southeast embankment for reinstatement upon completion of the works. All excavation works and installation of rock armour will be undertaken within the dry working area.
- 5. The 0.5m³ masonry repairs to the undermined sections of the existing abutments at the south elevation (upstream end) of the structure and the 0.5m³ masonry repairs and 10m² repointing to the arch barrel and abutments will be undertaken using masonry and lime mortar to match the existing. Masonry repairs will be undertaken by hand within the dry working area. Crevices marked for retention (in red) during previous bat surveys of the structure

are not to be infilled or disturbed. A bat and nesting bird survey check is required prior to masonry works (nesting Dipper behind upstream voussoir during May 2025 site survey).

6. On completion of excavation and masonry repairs to the undermined abutments 3.5m³ of suitably sized large cobble (estimated at 300mm – 500mm) will be placed into the excavated area with the removed material reinstated above to align with existing upstream and downstream bed levels. Reinstatement of bed level will use stockpiled excavated material where possible with the provision of additional gravels to match the existing (estimated at 150mm if required).
7. The localised spalled areas of the concrete deck slab will be repaired using a specialist high strength rapid repair mortar with the steel reinforcement abraded and treated with a corrosion protection product prior to the mortar application. Repairs to spalled areas of concrete deck will be undertaken by hand within the dry working area.
8. Installation of 3m³ suitably sized rock armour (estimated at 300mm to 500mm) along the northeast riverbank downstream of the structure for a length of 5m.
9. Light temporary scaffold platforms will be installed at both parapet walls to facilitate parapet works. The temporary scaffold platform requires the provision for in channel footings at both the upstream and downstream faces of the structure however installation of deck will be undertaken within the dry working area. The light working decks will be sealed with plastic and will catch any accidental spillage of materials when undertaking masonry works.
10. Existing concrete rubbing strip on the north verge to be broken out with breaker mounted on 5-ton excavator. 3m³ concrete removed to tip. Works are contained on the bridge carriageway and not over water.
11. The north verge and carriageway to be excavated to deck level of the reinforced concrete slab using a 5t excavator. 0.6m³ surfacing and 3m³ fill material to be removed from site to tip. Single-lane closure will remain in place for these works.
12. Existing north parapet wall demolished by hand with concrete removed from site to tip. Full width masonry construction then to raise parapet to 1m height. Masonry construction using lime mortar and selected masonry to match the existing south parapet. Masonry works to be undertaken by hand over sealed temporary scaffold platform where required and over land where not.
13. The 2m long displaced east end of the south masonry parapet (1.5m³) is to be taken down and reconstructed. The parapet is also to be raised to 1m in height along its full extent with the existing capping stones taken down and reinstated on the new raised parapet. 1.5m³ new masonry and lime mortar to match existing. Masonry works to be undertaken by hand over sealed temporary scaffold platform where required and over land where not.
14. Following the completion of excavations, all aspects of rock armour installation (including re-establishment of bed-levels), installation of light scaffolding and parapet repairs, concrete repair and masonry repair works, the dewatered channel will then be demobilised. The removal of the dams will be completed on a two-stage basis. The level of Dam 1 will be lowered by hand to allow the area between Dam 1 and 2 to partially fill with water. The water within Dams 1 and 2 will be allowed to settle overnight and the remainder of the dams will then be removed completely the following morning to minimise any plumes of silt. The flow of the channel will return to existing condition.
15. Deck surface to be cleared of all dust and debris by sweeping with collected material removed from site to tip.
16. Spray applied epoxy waterproofing system to be installed by hand to the deck surface and existing parapet upstand from on top of the deck surface. 16m² total area. 0.25m³ sand asphalt protection layer installed to protect the deck waterproofing. Epoxy to be sprayed by hand in close proximity to the surface of the deck; works are contained on the bridge surface with no potential for materials to enter the watercourse.



17. Installation of 3m³ granular fill material to north verge and installation of 1m³ binder course on carriageway. Works contained on existing bridge carriageway and not over water.
18. Construction of the new north rubbing strip with 3m³ concrete and completion of the carriageway surfacing course 1m³. Works will be contained on existing bridge carriageway and not over water.
19. New safety barriers to be installed along the length of both verges with embankment construction using suitable imported fill required at the southeast corner of the structure. The embankment construction comprises imported granular fill material. Works are contained on southeast embankment over land.
20. Regrading of both verges along the length of the barriers with imported topsoil. Both verges then seeded. Works along carriageway and not over water.
21. Removal of traffic management.
22. Demobilisation from site and restoration of site compound area to pre-works condition.

1.4.1 Demolition

The demolition works associated with the proposed works at Carrowrevagh Bridge comprise the partial demolition of the existing bridge parapets and the removal of the existing rubbing strip on the north concrete verge in order to undertake the rehabilitation works. New raised height parapets and a new concrete verge will be provided as part of the works.

1.4.2 Machinery

Machinery will be refuelled within site compound area away from watercourse. No refuelling of heavy machinery is permitted at works site (adjacent to the river); all refuelling will be done within the site compound. Small jerry cans for usage for generators are permitted. The appointed Contractor will decide on specific machinery required for works however an indicative list of machinery required for the proposed works is as follows:

- 13-ton excavator
- 5-ton excavator (with mounted breaker)
- Concrete truck
- Cement mixer
- Plate compactor
- Dewatering pump
- Truck and trailer for delivery of material to/from site

1.4.3 Programme

Works will take a total of 4 weeks in total to complete and are anticipated to commence in Q3 of 2026 at the earliest. Works are limited to daytime working hours and follow the standard programme of 8am to 7pm midweek and 8am to 1pm on Saturdays. Instream works are permitted only between the 1st of July and 30th September.

1.4.4 Site Compound

As agreed with MCC, the successful contractor will utilise the area within the site boundary along the N59 national road as a site compound for the duration of works. There may be a requirement for temporary (mobile) lighting within



the site compound area along the N59 should works extend to winter months, however this is not foreseen given the works window of July to September¹ required to facilitate instream works.

Upon completion of works the site compound area will cease to exist and will revert to fully operational road use.

1.4.5 Traffic Management

The proposed works will require an alternating single lane closure on the N59 National Road for an estimated duration of 4 weeks. There is no proposed traffic diversion route, with only a single lane closure required. The successful appointed Contractor will provide and implement a detailed Traffic Management Plan for the duration of works.

¹ <https://www.fisheriesireland.ie/sites/default/files/migrated/docman/2016/Guidelines%20Report%202016.pdf>



2. Scope of Natura Impact Statement

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 and other regularly occurring migratory species. 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 9 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 entity responsible for authorising a plan or project, e.g. local authorities, An Coimisiún Pleanála, a roads authority 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.

2.1.4 Consultation

Consultation with IFI was carried out and the draft design drawings presented to them for comment. These initial drawings included for a concrete apron. Written feedback was received via email dated 26th March which stated from the Barriers Mitigation Team that:

"It is unclear from the drawings but I assume they are not changing the existing bed levels with the installation of the concrete apron. I would have a concern that flow will be conveyed and continue to scour out the bed at the end of the new concrete apron and create step, which could result in an impediment to fish migrating upstream. Installation of stone/cobbles imbedded into the existing bed is a more effective measure to protect scour".

IFI referred the AtkinsRéalis design team to OPW design guidance (2021) for fish passage on small barriers and IFI guidelines on protection of fisheries during construction works in and adjacent to waters (2016).

The design was subsequently altered, and the proposed new concrete apron was excluded in favour of large cobble repairs.

Consultation in the form of a data request for the area at Carrowrevagh Bridge was undertaken with the National Parks and Wildlife Services (NPWS) on the 7th February 2025; there has been no response received as of the 29th May 2025.



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. In *People Over Wind* (C-323/17), the CJEU ruled that measures intended to avoid or minimise harmful effects on a Natura 2000 site cannot be considered in making this 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.



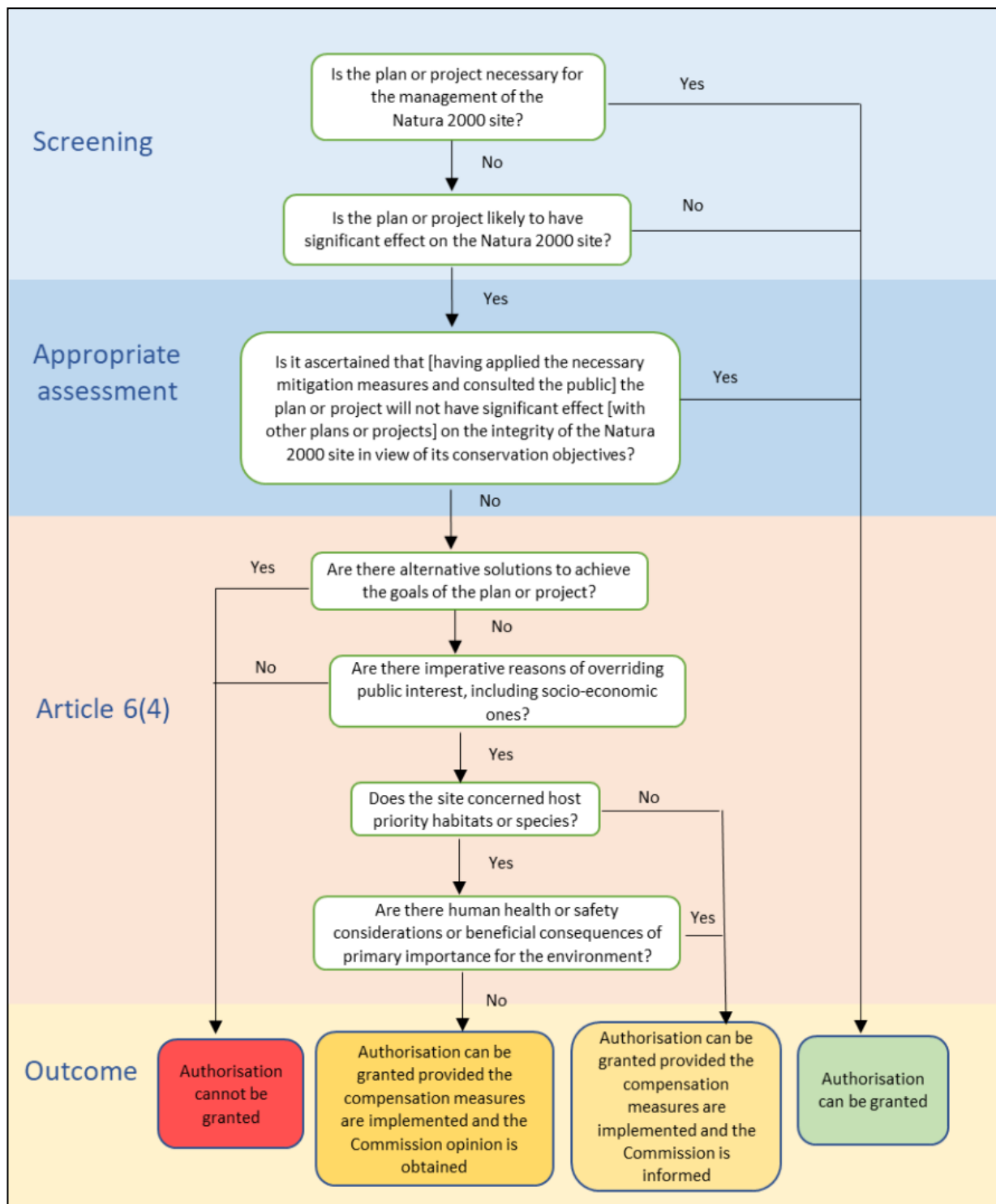


Figure 2-1 - Stages of the Appropriate Assessment process (EC, 2021a).

3. Methods

3.1 Legislative Guidance

This report was prepared with due regard to the relevant European and Irish legislation, case law and guidance, 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 (2022a). 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, Luxembourg.
- 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

A desktop study was carried out to collate information available on European sites in the vicinity of the proposed works at Carrowrevagh Bridge. These areas were viewed using Google Earth², Google maps³ and Bing maps⁴ (last accessed on the 6th of February 2025).

The National Parks and Wildlife Service (NPWS)⁵ and National Biodiversity Data Centre (NBDC)⁶ online databases were reviewed concerning European sites and their features of interest in the vicinity of the proposed project.

Spatial and other data regarding rivers and other waterbodies was obtained from the Environmental Protection Agency (EPA) using its online facility EPA Maps: Water⁷ (EPA, 2025). Other sources consulted included the National Biodiversity Data Centre (NBDC) Biodiversity Maps⁸ (NBDC, 2025) and Tailte Éireann GeoHive Map Viewer⁹ (OSi, 2025). NBDC Maps were consulted in a data gathering capacity to extract species records for the 10km x 10km grid square, which in Carrowrevagh Bridge lies; grid square L97. Results from this information extraction were further assessed in line with protected L97; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened. The conservation status of bird species within Ireland and Europe is further evaluated using the EU Birds Directive 79/409/EEC.

To inform the assessment of potential in-combination effects, planning applications from the surrounding area were reviewed using the *National Planning Application Database* (<https://housinggovie.maps.arcgis.com/apps/webappviewer>), An Coimisiún Pleanála's *Map Search* (<https://www.pleanala.ie/en-ie/map-search>) and the *EIA Portal* (<https://www.gov.ie/en/publication/9f9e7-eia-portal/>). The Mayo County Council planning enquiry system was also consulted. Search criteria were implemented to identify other plans and project with potential, in combination with the proposed works, to adversely affect the integrity of European sites. Other plans and projects in the surrounding area were identified using the Mayo County Council planning enquiry system. Search criteria were implemented to identify other plans and projects with potential, in combination with the proposed works, to adversely affect the integrity of relevant Natura 2000 sites.

3.3 Site Visit

A site visit was conducted on the 7th May 2025 by AtkinsRéalis senior ecologists Owen O'Keefe and Kevin McCaffrey. The primary aim of the survey was to gather baseline data relating to the potential ecological constraints on the proposed works with a particular emphasis on identifying the potential presence of qualifying interests of Natura 2000 sites. The survey also included checks for invasive alien plant species commonly found in riparian habitats, e.g., Japanese Knotweed (*Reynoutria japonica*), and any evidence of protected mammals, as well as recording of any incidental observations or evidence of presence of birds and other fauna. The site visit also included the undertaking of freshwater pearl mussel, crayfish and fish habitat surveys.

Ecological survey methods were in general accordance with those outlined in the following documents, although habitat conditions and the potential impacts of the proposed works also informed the survey methodology:

- A Guide to Habitats in Ireland (Fossitt, 2000).

² <https://earth.google.com/>

³ <https://www.google.com/maps/>

⁴ <https://www.bing.com/maps/>

⁵ <https://www.npws.ie/>

⁶ <https://maps.biodiversityireland.ie/Home>

⁷ <https://gis.epa.ie/>

⁸ <https://maps.biodiversityireland.ie/Map>

⁹ <https://www.arcgis.com/apps/webappviewer/index.html?id=3ae19cc156bf4706a929304bf8fcc4f6>

- Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011).
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009).
- Maitland, P.S. (2003). Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series 5. English Nature, Peterborough.
- Harvey, J. and Cowx, I. (2003). Monitoring the River, Brook and Sea Lamprey, *Lampetra fluviatilis*, *L. planeri* and *Petromyzon marinus*. Conserving Natura 2000 Rivers Monitoring Series 5. English Nature, Peterborough.
- Hendry, K. and Cragg-Hine, D. (2003). Ecology of the Atlantic Salmon. Conserving Natura 2000 Rivers Ecology Series 7. English Nature, Peterborough.
- Cowx, I.G. and Fraser, D. (2003). Monitoring the Atlantic Salmon. Conserving Natura 2000 Rivers Monitoring Series 7. English Nature, Peterborough.
- Reynolds, J.D., O'Connor, W., O'Keeffe, C. and Lynn, D. (2010). A technical manual for monitoring white-clawed crayfish *Austropotamobius pallipes* in Irish lakes. Irish Wildlife Manuals 45. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- O'Connor, W., Hayes G., O'Keeffe, C. and Lynn, D. (2009). Monitoring of white-clawed crayfish *Austropotamobius pallipes* in Irish lakes in 2007. Irish Wildlife Manuals 37. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Peay, S. (2003). Monitoring the White-clawed Crayfish *Austropotamobius pallipes*. Conserving Natura 2000 Rivers Monitoring Series1. English Nature, Peterborough.
- Anon. (2004). *Margaritifera margaritifera* Stage 1 and Stage 2 survey guidelines. Irish Wildlife Manuals 12. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Geist, J., Moorkens, E., Killeen, I., Feind, S., Stoeckle, B.C., O'Connor, Á. and Kuehn, R. (2018). Genetic structure of Irish freshwater pearl mussels (*Margaritifera margaritifera* and *Margaritifera durrovensis*): Validity of subspecies, roles of host fish, and conservation implications. Aquatic Conservation 28(4):769-1022.
- Hastie, L.C., Boon P.J. and Young M.R. (2000). Physical microhabitat requirements of freshwater pearl mussel *Margaritifera margaritifera* (L.). Hydrobiologia 429:59-71. IFI (2010).
- Moorkens, E.A. (1999). Conservation Management of the Freshwater Pearl Mussel *Margaritifera margaritifera* - Part 1: Biology of the species and its present situation in Ireland. Irish Wildlife Manuals 8. Dúchas - The Heritage Service, Department of Arts, Heritage, Gaeltacht and the Islands, Dublin.
- Moorkens, E.A. (2000). Conservation Management of the Freshwater Pearl Mussel *Margaritifera margaritifera* - Part 2: Water Quality Requirements. Irish Wildlife Manuals 9. Dúchas - The Heritage Service, Department of Arts, Heritage, Gaeltacht and the Islands, Dublin.
- Skinner, A., Young, M. and Hastie L. (2003). Ecology of the Freshwater Pearl Mussel. Conserving Natura 2000 Rivers Ecology Series 2, English Nature, Peterborough.
- Biosecurity Protocol for Field Survey Work. December 2010. Inland Fisheries Ireland, Dublin.

Available aerial photos and site maps assisted the ecological walkover survey. The location of the proposed project and the surrounding areas were viewed using Google Earth, Google maps¹⁰ and Bing maps¹¹. The EPA online mapviewer was used to locate watercourse networks and identify hydrological connectivity to larger rivers such as the River Erriff.

3.3.1 Bat Survey

Carrowrevagh Bridge was surveyed by consultant ecologist Caroline Shiel on the 1st of August 2024. Survey methodology was as follows; the bridge structure was inspected thoroughly using a very strong, narrow-beamed

¹⁰ <https://www.google.ie/maps>

¹¹ <https://www.bing.com/maps/?cp=53.154594%7E-6.076126&lvl=11.0>



rechargeable torch (LEDLENSER –Rechargeable System) to investigate any crevices and joints for roosting bats and assess their suitability as bat roosts. An endoscope was also used to survey deep crevices. A step ladder was used to survey high crevices. Chest waders, an automatically-inflating lifejacket and disposable light-weight gloves were worn while surveying. Evidence of bat presence is usually taken as bats being visible but also records were taken of crevices with bat droppings or staining from urine or oil in the bats' fur. Crevices with evidence of bat usage were clearly marked with red paint. Records were also taken of any bird species associated with the bridge. A range of photographs were taken to include both upstream and downstream elevations, marked crevices and any birds' nests recorded.



3.4 Statement of Authority

This NIS was prepared by Alec Schmidt and Caroline Downey, Graduate Ecologists at AtkinsRéalis, with support from Eimear Egan, Senior Ecologist, and peer review and support from Kevin McCaffrey, Senior Ecologist, and Paul O'Donoghue, Associate Director (Ecology) at AtkinsRéalis. Ecology surveys, including targeted aquatic surveys were undertaken by AtkinsRéalis ecologists Owen O'Keefe and Kevin McCaffrey in May 2025.

Caroline Downey is a Graduate Ecologist holding a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Caroline has worked in ecological consultancy since the beginning of 2023, with a broad knowledge of Appropriate Assessment, Natura Impact Statements, Ecological Impact Statements and ecological theory and legislation, resultant of her BSc and work to date. A focus of Caroline's has been assisting Appropriate Assessment Screenings, supporting the preparation of AA and NIS, and undertaking of a range of surveys including invasive species, mammals, habitats and botanical surveys.

Alec Schmidt is a Graduate Ecologist at AtkinsRéalis, holding a BSc (Hons) in Zoology from University College Cork (2023) and a MSc in Biodiversity and Conservation from Trinity College Dublin (2024). Alec is also a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The main focus of Alec's work at AtkinsRéalis involves contributing to the surveying and reporting requirements necessitated by the Appropriate Assessment process.

Eimear Egan has a BSc in Environmental Science, a PhD in Ecology and an Advanced Diploma in Planning and Environmental Law. She has 12 years' experience in environmental and ecological consulting and research in the UK, New Zealand and Ireland in the water and energy sectors.

Owen O'Keefe is a Senior Ecologist at AtkinsRéalis. Owen 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 9 years' professional experience in ecological consultancy, specialising in river ecosystems and Appropriate Assessment.

Kevin McCaffrey has a BSc (Hons) in Applied Freshwater and Marine Biology and a MSc in Environmental Sustainability. He is a Senior Ecologist with over 12 years' experience in freshwater and marine ecology, environmental surveying, impact assessment and as an Ecological clerk of Works. He has prepared and reviewed a wide range of technical reports including Environmental Impact Assessment, AA screening, Natura Impact Assessment, and sanitary surveys.

Paul O'Donoghue is an Associate Director at Atkins. Paul holds a BSc (Zoology), MSc (Behavioural Ecology) and a PhD (Avian Ecology and Genetics). Paul is a Chartered member of the Society for the Environment (CEnv) and a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Paul has over 26 years' experience in ecology; including extensive experience in the preparation of Habitat Directive Assessments / Natura Impact Statements (i.e., Appropriate Assessment under Article 6(3) of the EU Habitats Directive).



4. Existing Environment

4.1 Desktop Review

This section provides a description of baseline conditions in the receiving natural environment in terms of ecology. Aspects of the receiving environment which are directly relevant to the Natura 2000 sites with connectivity to the proposed project (and, as such, are of consequence in terms of the AA process) are described in full detail.

4.1.1 Designated Sites

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) forms the basis for the designation of Special Areas of Conservation. Similarly, Special Protection Areas are classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). The Habitats and Birds Directives are transposed into Irish law by the EC (Birds and Natural Habitats) Regulations 2011 (Statutory Instrument No. 477/2011). Collectively, Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are referred to as the Natura 2000 network. In general terms, they are considered to be of exceptional importance for rare, endangered, or vulnerable habitats and species within the European Community. Both SACs and SPAs are commonly referred to as “European sites” or “Natura 2000 sites”. Carrowrevagh Bridge (which is located in western Co. Mayo at the border of the townlands of Carrowkennedy and Carrowrevagh) lies ca. 304m upstream of the Mweelrea/Sheeffry/Erriff Complex SAC (site code: 001932). There is also hydrological connectivity to the Maumturk Mountains SAC (002008) and the West Connaught Coast SAC (002998), both greater than 20km from the site of the proposed works via Killary Fjord.

Natural Heritage Areas (NHAs) are nationally designated sites, which are considered important for the habitats, species, or geological heritage that they support. NHAs are legally protected under the Wildlife Amendment Act 2000. Proposed Natural Heritage Areas (pNHAs) are sites that are of significance for wildlife and habitats, but which have not as yet been statutorily designated; however, their ecological value is recognised by Planning and Licencing Authorities. The closest NHA to Carrowrevagh Bridge is the Mweelrea/Sheeffry/Erriff Complex NHA (site code: 001932) which lies ca. 304 m downstream and largely overlaps with the site boundary of the Mweelrea/Sheeffry/Erriff Complex SAC. The Mweelrea/Sheeffry/Erriff Complex pNHA (site code: 001932) lies ca. 304m downstream from Carrowrevagh Bridge. The boundary of the Mweelrea/Sheeffry/Erriff Complex pNHA largely overlaps with that of the Mweelrea/Sheeffry/Erriff Complex NHA and the Mweelrea/Sheeffry/Erriff Complex SAC.

Ireland currently has 6 no. nationally recognised National Parks. The site does not lie within any of these sites and there is no hydrological or ecological connectivity between the site or any National Park. The closest National Park is Connemara National Park which lies ca. 27km over land from Carrowrevagh Bridge.

There are 68 no. designated Wildfowl Sanctuaries in Ireland which are areas that have been excluded from the ‘Open Season Order’ so that game birds can rest and feed undisturbed e.g., shooting of birds is banned all year round. There are currently 6 no. of these sites in County Mayo (Moynagh WFS-63) lies partially within Galway). Lough Carra (c. 17.87km to the east of Carrowrevagh Bridge over land) is designated as a Wildfowl Sanctuary (WFS-39).



4.1.2 Waterbodies

Carrowrevagh Bridge is located on a second-order stream, the Derrycraff watercourse (EPA name: ROOGHAUN 32), a tributary of the River Erriff, the confluence of which lies approximately 6.6km downstream from the bridge. The bridge lies within the Erriff_SC_010 sub catchment, within the Erriff-Clew Bay catchment and hydrometric area (no. 32); as described by the EPA mapping service.

The Q-Value system is a biotic metric used by the EPA to categorise river water quality using macroinvertebrate assemblages as indicators. The second-order stream over which the Carrowrevagh Bridge crosses has not been assessed by the EPA using this system. The closest monitoring station for which Q-Values have been obtained lies ca. 6.2km downstream of the bridge, near the confluence of the River Erriff and the Derrycraff. This station was last surveyed in 2023 and received a Q-value score of 4, which reflects 'Good' water quality. The second-order stream over which Carrowrevagh Bridge crosses, is categorised as 'Good status under the Water Framework Directive (WFD) (2016-2021) both upstream, downstream and at Carrowrevagh Bridge, and transitions to 'Good' status downstream just before joining with the Erriff River. High and good status in relation to the WFD is defined by the EPA as '*Slight difference from reference condition – Slight change in community structure, fewer sensitive species present, but increase in species richness and productivity. Ecological processes functioning normally*'.

31% of rivers within the Erriff-Clew Bay catchment are categorised as 'High' status while 54% are categorised as 'Good' status, under the WFD.

There are no records of historical flooding events within 2.5km of Carrowrevagh Bridge according to Flood Maps¹² and flood risk has not been assessed within the immediate vicinity of the bridge. National Indicative Fluvial Mapping indicates that high flood levels further downstream along the Erriff River are classed at 'Medium' probability (once in one hundred years). Additionally, there are no current flood management procedures in place within the vicinity of the structure.

4.1.3 Fauna

4.1.3.1 Aquatic Fauna

The closest area to Carrowrevagh Bridge was most recently surveyed by Inland Fisheries Ireland (IFI) in 2022 at a site ca. 8.24km downstream for an IFI catchment-wide assessment. Species recorded included Atlantic salmon (*Salmo salar*), Sea Trout (*Salmo trutta*), Brown trout (*Salmo trutta*), European Eel (*Anguilla anguilla*), Minnow (*Phoxinus phoxinus*), and Stickleback (*Gasterosteus aculeatus*). At the closest surveyed site, numbers of salmon fry recorded ranged between 10 and 17 individuals per 5 minutes of electrofishing.

A search of the NBDC database of 10km grid square L97 (within which Carrowrevagh Bridge is situated), other species recorded include the marine species *Cryptopsaras couesii*, although this consists of a singular record from 1989.

Records for Freshwater pearl mussel (*Margaritifera margaritifera*) exist within the Erriff-Clew Bay catchment (NBDC, 2025).

4.1.3.2 Mammals

Otter (*Lutra lutra*) are widespread throughout Ireland, including within the second-order stream over which Carrowrevagh Bridge crosses the Erriff River and its tributaries. Otter are protected under the Wildlife Acts, 1976 (as amended) and are a listed species on Annexes II and IV of the EU Habitats Directive. Otter use watercourses as commuting routes and foraging areas, with their banks offering places of shelter and breeding. Records of otter exist

¹² <https://www.floodinfo.ie/map/floodmaps/>

in both the NBDC and NPWS databases downstream of Carrowrevagh Bridge. The closest otter record to Carrowrevagh Bridge is 1.97km downstream, dating from 1980. Agricultural land use is dominant in the immediate vicinity of Carrowrevagh Bridge, with residential properties in isolated spots throughout. High disturbance levels to the river corridor (like levels which would occur in urban areas) is unlikely to occur. Therefore, the second-order stream flowing under Carrowrevagh Bridge holds some potential for commuting, holting and foraging otter, with vegetated, largely undisturbed banks and a supply of fish (see Section 4.2 below). It is understood that otter occur within this river system although they may not occur as far upstream as the immediate vicinity of Carrowrevagh Bridge.

All bat species in Ireland, and their roosts, are protected under the Wildlife Act, 1976 (as amended) and are also afforded strict protection under Article 12 of the Habitats Directive (as they are listed on Annex IV). Three bat species have been recorded within 10km grid square L97, including Lesser Noctule (*Nyctalus leisleri*), Soprano pipistrelle (*Pipistrellus pygmaeus*) and Daubenton's bat (*Myotis daubentonii*). Landscape association models have been constructed to provide a landscape conservation guide for Irish bats (Lundy *et al.*, 2011). There are no records of any bat species within the immediate vicinity of Carrowrevagh Bridge. The site of the proposed works has a bat suitability score of 24%; the highest suitability scores were for Soprano Pipistrelle, Daubenton's and Lesser Noctule bats. Therefore, there is potential for bats to use the landscape in the surrounds of Carrowrevagh Bridge for foraging and commuting purposes. A targeted bat survey was undertaken by Caroline Shiels in 2024 at Carrowrevagh Bridge and is discussed further below in Section 4.2.1.

Other species recorded within L97 grid square, listed within the Habitats Directive include Irish Hare (*Lepus timidus* subsp. *hibernicus*) and Pine Marten (*Martes martes*); both are Annex V listed species and most recent records for each occur from 2023 (Irish hare) and 2020 (pine marten). The baseline habitats in the surrounding lands are predominantly agricultural lands (as noted above) for which it is known that species such as Irish Hare widely utilise in foraging, commuting and burrowing capacities.

All recorded mammals as listed above are classed as Least Concern according to Ireland's Red List (Marnell *et al.*, 2019).

4.1.3.3 Reptiles and Amphibians

Smooth Newt (*Lissotriton vulgaris*) and Common Frog (*Rana temporaria*) are both protected under the Wildlife Acts, while Common Frog is additionally protected under Annex V of the Habitats Directive. Both species have been recorded within the L97 grid square, from 2019 and 2023 respectively. Both species are classed as Least Concern on Ireland's Red List (Marnell *et al.*, 2019).

No reptile species are recorded in the L97 10km grid square.

4.1.3.4 Invertebrates

Several invertebrate species listed on Ireland's Red List No. 4 (Regan *et al.*, 2010), Red List No. 7 (Kelly-Quinn & Regan, 2012), and the Regional Red List of Irish Bees (Fitzpatrick *et al.*, 2006) are within the L97 grid square (NBDC). These include threatened butterfly species such as Large Heath (*Coenonympha tullia*), Small Heath (*Coenonympha pamphilus*) and Wall (*Lasiommata megera*). A single mayfly species *Leptophlebia marginata*, which is classed as Vulnerable, was also recorded within the 10km grid square in which Carrowrevagh Bridge lies. There are no records of any threatened invertebrate species in the vicinity of the bridge.

4.1.3.5 Birds

All bird species are afforded protection under the Wildlife Act, 1976 (as amended). A subset of these species are also afforded varying levels of protection under the Birds Directive. The search for birds on the NBDC was undertaken for 10km x 10km hectad L97, given the mobile nature of these species. Records > 15 years old have not been included due to relevance.



A large number of birds on the *Birds of Conservation Concern in Ireland 4: 2020-2026* (BoCCI¹³) Amber and Red Lists (Gilbert *et al.*, 2021) have been recorded. This list also includes species listed on Annex I of the Birds Directive (Table 4-1). However, given L97 is a 10km grid square, it likely includes many habitats not present at Carrowrevagh Bridge. Therefore, suitable habitat for many of these species is not present at or in the vicinity of the bridge site.

Table 4-1 - Bird species within L97 grid square (colour coded according to Birds of Conservation Concern in Ireland (2020–2026 classifications). This table follows a traffic light system relative to BoCCI designations (red = red list, yellow = amber list).

Species Name	Date of Last Record	Birds Directive
Kingfisher (<i>Alcedo atthis</i>)	31/12/2011	Annex I
Hen Harrier (<i>Circus cyaneus</i>)	31/12/2011	Annex I
Greater White-fronted Goose (<i>Anser albifrons</i>)	31/12/2011	Annex I
Merlin (<i>Falco columbarius</i>)	31/12/2011	Annex I
Whooper Swan (<i>Cygnus cygnus</i>)	31/12/2011	Annex I
Kestrel (<i>Falco tinnunculus</i>)	31/12/2011	-
Snipe (<i>Gallinago gallinago</i>)	01/06/2013	-
Yellowhammer (<i>Emberiza citrinella</i>)	31/12/2011	-
Woodcock (<i>Scolopax rusticola</i>)	31/12/2011	-
Barn Swallow (<i>Hirundo rustica</i>)	24/04/2021	-
Linnet (<i>Carduelis cannabina</i>)	31/12/2011	-
Sandpiper (<i>Actitis hypoleucos</i>)	31/12/2011	-
Starling (<i>Sturnus vulgaris</i>)	31/12/2011	-
Eurasian Teal (<i>Anas crecca</i>)	31/12/2011	-
Cormorant (<i>Phalacrocorax carbo</i>)	31/12/2011	-
House Martin (<i>Delichon urbicum</i>)	31/12/2011	-

¹³ <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/>

Species Name	Date of Last Record	Birds Directive
House Sparrow (<i>Passer domesticus</i>)	16/03/2023	-
Mallard (<i>Anas platyrhynchos</i>)	31/12/2011	-
Mew Gull (<i>Larus canus</i>)	31/12/2011	-
Mute Swan (<i>Cygnus olor</i>)	31/12/2011	-
Sand Martin (<i>Riparia riparia</i>)	31/12/2011	-
Spotted Flycatcher (<i>Muscicapa striata</i>)	31/12/2011	-
Sky Lark (<i>Alauda arvensis</i>)	31/12/2011	-

4.1.4 Flora

Flora species listed on the Flora (Protection) Order, 2022 ("the FPO"¹⁴) recorded within the L97 10km grid square include Narrow-leaved Helleborine (*Cephalanthera longifolia*) and Slender Naiad (*Najas flexilis*).

Both the NPWS FPO Bryophyte Viewer¹⁵ and FPO Vascular Plants, Charophytes and Lichens Viewer were consulted. No records for any protected flora species occurred at or in the wider environs of Carrowrevagh Bridge (within a 2km radius).

4.1.5 Invasive Species

Invasive Alien Species (IAS) are non-native species that threaten the biological diversity and are introduced and/or spread outside their natural distribution and may cause economic or environmental harm. While non-native invasive species are not an ecological feature of value, they are considered as a potential ecological constraint. The EU Regulation 1143/2014 on Invasive Alien Species entered into force on 1st January 2015 and was transposed into Irish law by the IAS Regulations¹⁶ in 2024. This IAS Regulation provides a set of measures to prevent, minimise and mitigate the adverse impacts of the introduction and spread (both with and without intention) of invasive alien species on biodiversity as well as other adverse impacts on human health or the economy (European Commission, 2017). The core of the Regulation is the list of Invasive Alien Species of Union concern (Union List). The species included on this list are subject to restrictions and measures set out in the Regulation. These include restrictions on keeping, importing, selling, breeding, growing, and releasing into the environment. The Third Schedule list of the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I.477/2011]¹⁷ identifies species of which there is prohibition on introduction, dispersal, breeding or selling.

As according to the NBDC species search for the L97 grid square, 'High-impact' Third Schedule, which are species of Union Concern that have been recorded include: American Mink (*Mustela vison*), New Zealand Flatworm

¹⁴ Flora (Protection) Order, 2022. SI No. 235/2022. <https://www.irishstatutebook.ie/eli/2022/si/235/>

¹⁵ <http://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=71f8df33693f48edbb70369d7fb26b7e>

¹⁶ <https://www.irishstatutebook.ie/eli/2024/si/374/made/en/print>

¹⁷ https://invasives.ie/app/uploads/2021/10/S.I.477-ThirdSchedule_SppLists_FromSource.pdf



(*Arthurdendyus triangulates*), Canadian Waterweed (*Elodea canadensis*), Himalayan balsam (*Impatiens glandulifera*), Invasive Rhododendron (*Rhododendron ponticum*) and Wild Boar (*Sus scrofa*). These records do not occur in the vicinity of Carrowrevagh Bridge. No additional legally restricted species were noted upon review of Google Street View along the N59, nor during review of bridge inspection photos (AtkinsRéalis, 2025).

Additional 'Medium-impact' invasive species (O'Flynn *et al.*, 2014) recorded within the L97 grid square include: Sycamore (*Acer pseudoplatanus*) and Jenkins' Spire Snail (*Potamopyrgus antipodarum*). This tree species can be seen growing on the western banks of the river at Carrowrevagh Bridge on Google Street View and within bridge inspection photos. A cotoneaster (*Cotoneaster* sp.) plant is growing adjacent to the bridge (noted in bridge inspection photos) however it was unable to be identified to a species level through desktop review alone.

Furthermore, no invasive species, whether aquatic or terrestrial were identified during the site visit (see Section 4.2).

4.2 Site Visit

A site visit was undertaken by AtkinsRéalis ecologists Kevin McCaffrey and Owen O'Keefe on the 7th May 2025 which also included the undertaking of freshwater pearl mussel, crayfish and fish habitat surveys.

There was no evidence of freshwater pearl mussel (*Margaritifera margaritifera*) or white-clawed crayfish (*Austropotamobius pallipes*) within the vicinity of the bridge structure. The riverbed at the location of the bridge structure is generally poor given the presence of filamentous algae and is therefore unlikely to support these species. However, there is moresuitable habitat for white-clawed crayfish further downstream of the bridge structure where the channel is deeper. No other aquatic species, particularly those of qualifying interest to the Mweelrea/Sheeffry/Erriff Complex SAC were recorded during the site visit.

Dipper (*Cinclus cinclus*) was recorded within the vicinity of the bridge. A nest was recorded behind the voussoir on the upstream side of bridge structure. No other breeding bird species identified within the vicinity of the bridge structure. Furthermore, there was no evidence of other terrestrial fauna recorded during the site visit.

There was no evidence of protected or invasive alien species, either aquatic or terrestrial, within the vicinity of the bridge structure.

4.2.1 Bat Survey

Carrowrevagh Bridge was also surveyed by sub-contracted ecologist Caroline Shiel on the 1st of August 2024 for the purpose of bat survey of the bridge. Results of the survey found no bats roosting in the bridge but a single crevice had old droppings and therefore evidence of previous usage by bats. These crevices were marked for retention at the time of the survey. No incidental sightings or evidence of otter, freshwater white-clawed crayfish, freshwater pearl mussel or invasive plant species were recorded at the time of the survey.





Plate 4-1 – Downstream face of Carrowrevagh Bridge showing concrete section of bridge.



Plate 4-2 – Upstream of Carrowrevagh Bridge facing upstream.



Plate 4-3 - Masonry section of Carrowrevagh Bridge with mass concrete section visible in the background.



Plate 4-4 - Bed condition of the river immediately downstream of Carrowrevagh Bridge.



Plate 4-5 - River channel condition downstream of Carrowrevagh Bridge (Note: river on the left hand side of the channel in this image is c 1 to 1.5m deep).

5. Connectivity to Natura 2000 sites

5.1 Zone of Influence

The “Zone of Influence” of a plan or project 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 or project, 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 Natura 2000 sites to include in AA, *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 (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, 2021a) recommends consideration of Natura 2000 sites hosting fauna which could move to the plan or project area or its zone(s) of impact, and the potential for the plan or 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 when selecting Natura 2000 sites for inclusion in AA.

Based on the above considerations, the Zone of Influence for the proposed works was defined as the combination of the following zones of impact:

- For direct impacts, all areas within and immediately adjoining the works area.
- For temporary disturbance to birds and other fauna, as well as effects associated with the spread of invasive alien species, all areas within a precautionary buffer of 500m from the works area.
- For water quality impacts, the Derrycraff watercourse, within and downstream of the works area, the River Erriff and the Mweelrea/Sheeffry/Erriff Complex SAC.
- For indirect effects, all other areas with potential ecological connectivity to the above zones of impact, i.e. the Erriff catchment.

Using QGIS, spatial data for waterbodies and catchments from *EPA Geoportal* were viewed in conjunction with aerial imagery from *Bing Maps* to identify pathways and zones of impact from the proposed works, and other potential ecological connections to the wider landscape. These were then mapped in relation to Natura 2000 sites using spatial data from *NPWS: Maps and Data*.

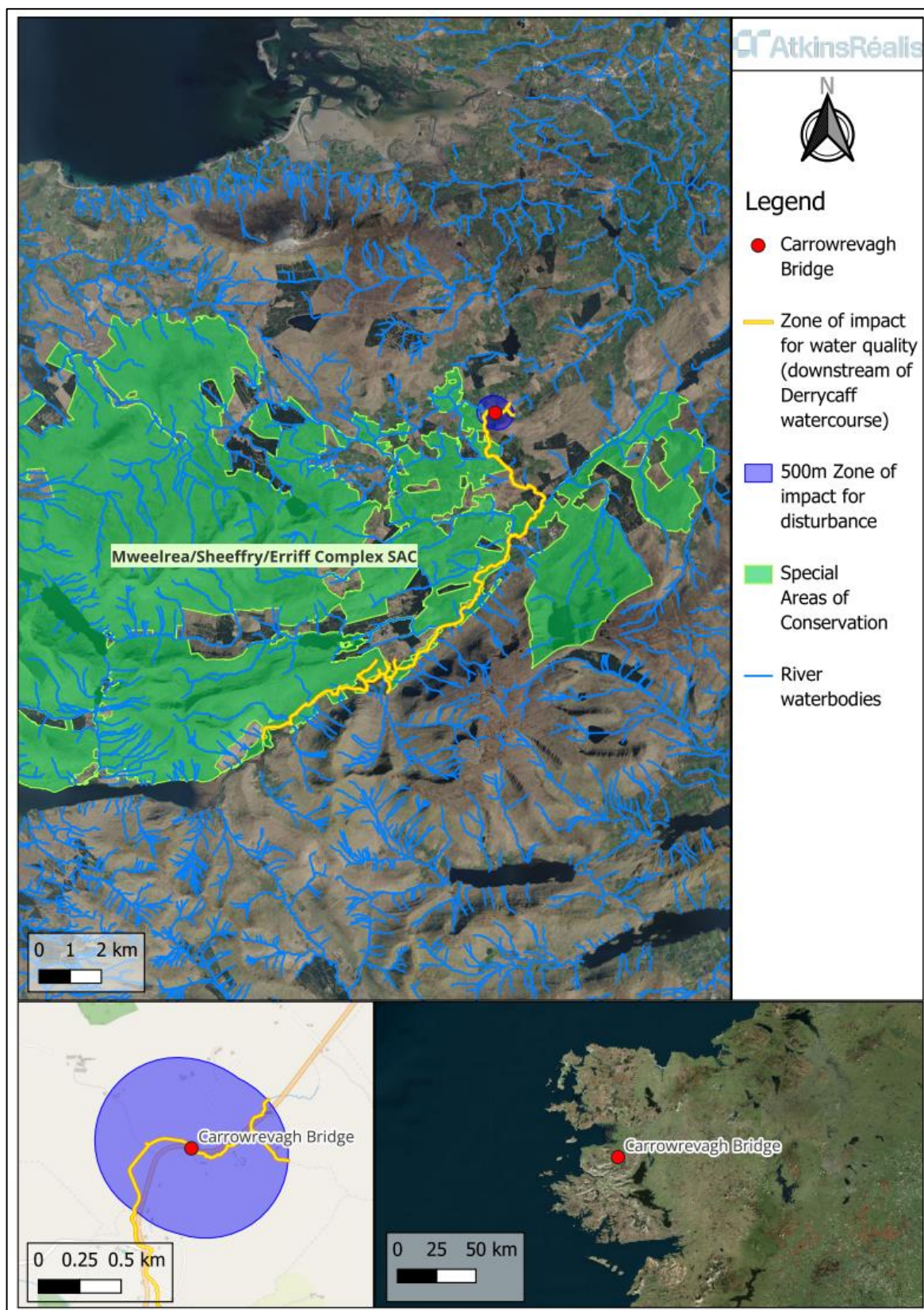


Figure 5-1 - Zone of Influence of the proposed works at Carrowrevagh Bridge.

5.2 Identification of Sites

5.2.1 Direct Impacts

Direct impacts include those such as habitat loss and fragmentation which occur as a direct result of works, change of land use or management, or presence of new structures. Such impacts are limited to the works area and the immediate vicinity of the bridge structure. The Mweelrea/Sheeffry/Erriff Complex SAC occurs 340m downstream of Carrowrevagh Bridge. Therefore, this SAC does not overlap with the proposed works area and so there can be no direct impacts on the SAC.

5.2.2 Disturbance and Invasive Alien Species

Disturbance impacts include noise, visual and other forms of disturbance to animal species. The extent of such impacts is highly dependent on their magnitude and the sensitivity of the receptors. In the case of the proposed works a precautionary distance of 500m from the works was used. The proposed works are 304m upstream of the Mweelrea/Sheeffry/Erriff Complex SAC, which is selected for a number of aquatic species which are sensitive to disturbance from human activities. Therefore, there is potential for disturbance impacts to this Natura 2000 site. There are no other Natura 2000 sites within the precautionary 500m buffer for such impacts.

Given the uncertainty and complexity of effects relation to the spread of invasive alien species it is not possible to define a zone of impact. However, species such as Rhododendron (*Rhododendron ponticum*) and Japanese Knotweed (*Reynoutria japonica*) are considered to pose a threat to the integrity of riparian habitats, alluvial forests and other woodland habitats along the wider River Erriff system. However, given that the proposed works do not entail any works or other activities near any example of these forest habitat types, along with the routine biosecurity measures to be followed, the risk of an inadvertent spread of invasive alien species of concern within the Mweelrea/Sheeffry/Erriff Complex SAC.

5.2.3 Water-related Impacts

Water quality impacts include pollution of surface waters and groundwater by sediment, hydrocarbons (e.g. diesel, hydraulic oils and lubricating oils), concrete and other cementitious materials, and other deleterious matter arising during construction and operation. In the case of the proposed works, these could include dust and fine sediment arising from concrete and mortar repairs to the bridge structure, fuels and other hydrocarbons from vehicles, plant and machinery, cementitious materials required for construction, waste from on-site welfare facilities, and surface water run-off during operation. The zone of impact covers the Derrycraff watercourse and the downstream River Erriff catchment area. The Mweelrea/Sheeffry/Erriff Complex SAC occurs within this zone of impact and is designated for aquatic species and habitats sensitive to water-quality impacts.

5.2.4 Indirect and Uncertain Effects

There are several additional Natura 2000 sites within or intersecting zone of impact for indirect impacts, i.e. the River Erriff catchment. Natura 2000 sites within the wider zone of impact include:

- Maumturk Mountains SAC (002008)
- West Connaught Coast SAC (002998)

Both sites lie >20km west of the proposed works via watercourses. There is weak hydrological connectivity between these sites and the proposed works via Killary Fjord, the geographic distance is large such that there are no pathways for impacts from the proposed works to these Natura 2000 sites.



5.2.5 Summary

Based on the above examination of the zone of impacts and hydrological connectivity between the proposed works at Carrowrevagh Bridge and the Mweelrea/Sheeffry/Erriff Complex SAC and that in-stream works will occur, this SAC cannot be screened out for potential impacts at this stage, in relation to disturbance to fauna and water-related impacts. Therefore, a single European site has been selected for the inclusion in the screening assessment –

- Mweelrea/Sheeffry/Erriff Complex SAC(site code: 002298)

The sections below outline the qualifying interests of this European site and discusses whether further consideration is necessary in relation to the potential for likely significant effects on this SAC as a result of the proposed works.

Figure 5-1 above shows the location of the proposed works in relation to the Mweelrea/Sheeffry/Erriff Complex SAC.

5.3 Description of Natura 2000 Sites

The description of the Natura 2000 sites presented here are based on the Site Synopsis, Conservation Objectives and Natura 2000 Standard Data Form documents for the sites concerned, augmented by information from the supporting documents available on the site-specific pages of the NPWS website.

Annex I habitat types marked with an asterisk (*) are “priority habitat types”, i.e., natural habitat types in danger of disappearing and for the conservation of which the EU has a particular responsibility given the proportion of their natural ranges falling within the European territory of Member States.

5.3.1 Mweelrea/Sheeffry/Erriff Complex SAC

5.3.1.1 Overview

The Site Synopsis (NPWS, 2021)¹⁸ states:

“The Mweelrea/Sheeffry/Erriff Complex SAC covers a large area of the scenic hills of south Co. Mayo. The western limit of the site is at Dooaghtry, south of Kinnadoohy. The southern margin is bounded by Killary Harbour and the Erriff River, including the corrie of Lough Glenawough. The Aille River forms the eastern limit, and to the north the boundary includes the main massifs of the Sheeffry Hills and the Mweelrea Mountains. Several river catchments are encompassed within the site, including the Bundorragha and Glenummera Rivers, as well as Fin Lough, Doo Lough and Glencullin Lough, the upper catchment of the Bunowen River and parts of the Derrycraff and Owenmore Rivers...

*... A number of lowland blanket bog sites are located within the complex, including bogs at Knockeen, Srahroosky, Kinnakillew, Bunowen, Glenkeen, Muingatogher, Owennaglogh and Laghta Eighter in the Mweelrea/Sheeffry Hills region, and Derryaun, Srahlea, Derrinkee, Derrintin and Glenawough in the Erriff Valley. Lowland blanket bog was formerly more extensive in the area but is now fragmented by coniferous forestry plantations, particularly in the Erriff Valley. Typically, areas of lowland blanket bog within this site are dominated by Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*), Cross-leaved Heath (*Erica tetralix*) and various bog moss (*Sphagnum* spp.) species. A number of rare or uncommon bog moss species are found in the site, such as *S. subsecundum*, *S. strictum*, *S. imbricatum* and *S. pulchrum*. Upland areas of blanket bog are much less common at the site, and some areas are known to be degraded, with Deergrass (*Scirpus cespitosus*), Heath Rush (*Juncus squarrosus*) and Mat-grass (*Nardus stricta*) being the most common species.*

¹⁸ <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY001932.pdf>

Rhynchosporion vegetation is best developed in the lowland blanket bog areas, where pools, wet hollows and quaking areas occur. White Beak-sedge (*Rhynchospora alba*) occurs in association with such species as Common Cottongrass (*Eriophorum angustifolium*), Bogbean, Oblong-leaved Sundew (*Drosera intermedia*), and a range of bog mosses, including *Sphagnum auriculatum* and *S. cuspidatum*. In some places, *Rhynchosporion* vegetation occurs on areas of wet cutover bog.

Areas of quaking bog are often associated with soakways which flow through lowland blanket bog areas. These are found at the site in a number of places, and vegetation consists of Purple Moor-grass, Black Bog-rush, Bog Pondweed (*Potamogeton polygonifolius*), Bogbean (*Menyanthes trifoliata*), White Beak-sedge, Bog-sedge (*Carex limosa*), Slender Sedge (*Carex lasiocarpa*), Bog Asphodel (*Narthecium ossifragum*) and Bog-myrtle (*Myrica gale*). Tall reedswamp species such as Common Reed (*Phragmites australis*) and Great Fen-sedge (*Cladium mariscus*) are also found in these areas. These habitats correspond with the E.U. Annex I listed habitat 'Transition mires and quaking bogs'.

Dystrophic lakes occur at this site in association with the extensive tracts of lowland blanket bogs, particularly in the northern and eastern parts of the site. They range in size from tens of square metres to two hectares. There is typically a peat base, and the water is usually brown-tinged. Species such as Lesser Bladderwort (*Utricularia minor*), Intermediate Bladderwort (*U. intermedia*), Many-stalked Spike-rush (*Eleocharis multicaulis*), the bog mosses *Sphagnum cuspidatum*, *S. auriculatum* and *S. tenellum*, Oblong-leaved Sundew, White Beak-sedge and Bogbean are common.

Wet heath occurs at this site in upland regions, where peat depth is restricted. Vegetation can be similar to lowland blanket bog, and is typically dominated by Deergrass, Cross-leaved Heath, Purple Moor-grass, Bog-myrtle and bog mosses (*Sphagnum* spp., but most notably *S. palustre*). Dry heaths also occur, and are best developed at low to moderate altitudes, in areas of shallow, sloping, well-drained peat. Typical dominant plant species are Heather, Tormentil (*Potentilla erecta*), Bell Heather (*Erica cinerea*), Deergrass and the mosses *Hypnum cupressiforme*, *Rytidiadelphus loreus* and *Hylocomium splendens*. The habitat supports a number of unusual plant species, including a large stand of Irish Heath (*Erica erigena*) on the Killary side of Mweelrea Mountain, and a range of rare mosses and liverworts.

Species typical of alpine and subalpine heaths have been recorded from Mweelrea and the Sheeffry range. These include Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Crowberry (*Empetrum nigrum*), the moss *Racomitrium lanuginosum*, Dwarf Willow (*Salix herbacea*), Stiff Sedge (*Carex bigelowii*) and Alpine Clubmoss (*Diphasiastrum alpinum*). Juniper (*Juniperus communis*) has also been recorded as a component of subalpine heath at the site. This species, however, also occurs in other areas, where it is considered to form areas of 'Juniper scrub'. These include the middle of Knockeen bog, where it is found on small islands in pools as well as in flat areas of blanket bog between the pools. It is also found in the Creganawoody townland in the north-west of the site on shallow blanket bog where there is much outcropping rock. Associated species here are Heather, Tormentil, Purple Moor-grass and Rowan (*Sorbus aucuparia*). Juniper has also been recorded from the summit above the main corrie on the east face of Mweelrea.

At high elevations within the site there are cliffs, scree slopes, corrie walls and other exposures of Mweelrea grits and Ordovician and Silurian shales and slates. These support communities of montane plants such as Roseroot (*Rhodiola rosea*), Beech Fern (*Phegopteris connectilis*), Mountain Sorrel (*Oxyria digyna*), Alpine Meadow-rue (*Thalictrum alpinum*), Lesser Meadow-rue (*Thalictrum minus*), Green Spleenwort (*Asplenium viride*), and also the threatened species Purple Saxifrage (*Saxifraga oppositifolia*) and Alpine Saw-wort (*Saussurea alpina*), both of which are listed in the Irish Red Data Book. An upland ledge aspect of the Annex I habitat *Hydrophilous tall herb communities* has been recorded from the site...

... As mentioned already, this site contains a number of extensive and important river systems. The species Bulbous Rush (*Juncus bulbosus* var. *fluitans*), Alternate Water-milfoil (*Myriophyllum alterniflorum*), Broad-leaved Pondweed (*Potamogeton natans*), Lesser Spearwort and the moss *Fontinalis squamosa* have been recorded from the Erriff River, and Broad-leaved Pondweed, water-starworts (*Callitriche* spp.), Branched Bur-

reed (*Sparganium erectum*), *Spiked Water-milfoil* (*M. spicatum*) and *Bulbous Rush* from the Carrownisky River in the north-west of the site.

The aquatic plant *Slender Naiad* (*Najas flexilis*) has been recorded from the river north of Fin Lough, and probably also occurs in Doo Lough. This species is protected in Ireland under the Flora (Protection) Order, 2015, and is listed in Annex II of the E.U. Habitats Directive.

Petrifying springs are found in wet depressions with flowing water in areas of sand dune to the north of Dooaghtry. These are bryophyte-rich, with *Cratoneuron commutatum* being the most dominant species in some springs. There are a number of petrifying springs in the Sheeffry mountain range also.

The best examples of alkaline fen at this site are to be found both to the north and south of the lake at Dooaghtry. These areas are species-rich and occur on a gradual slope down to the lake where there are transitions to freshwater marsh. The most prominent vascular plants are *Few-flowered Spike-rush* (*Eleocharis quinqueflora*), *Carnation Sedge* (*Carex panicea*), *Water Mint* (*Mentha aquatica*), *Jointed Rush* (*Juncus articulatus*) and *Grass-of-parnassus* (*Parnassia palustris*). The uncommon orchid *Marsh Helleborine* (*Epipactis palustris*) is a prominent component of this vegetation. Moss cover is high, and the most common species are *Campylium stellatum*, *Calliergonella cuspidata*, *Scorpidium revolvens*, *Aneura pinguis* and *Philonotis fontana*.

The coastal plain at Dooaghtry represents perhaps the finest example of machair habitat in Ireland. This area includes dunes, machair, oak (*Quercus* sp.)/birch (*Betula* sp.) woodland, freshwater lakes, lagoon, marsh and saltmarsh, and supports a rich flora, including the orchids *Marsh Helleborine*, *Narrow-leaved Helleborine* (*Cephalanthera longifolia*) and *Irish Lady's-tresses* (*Spiranthes romanzoffiana*), all listed in the Irish Red Data Book, and the latter two protected under the Flora (Protection) Order, 2015. The rare liverwort, *Petalwort* (*Petalophyllum ralfsii*), a species listed under Annex II of the E.U. Habitats Directive and also protected under the Flora (Protection) Order, 2015, has been recorded from this area also. There is an unconfirmed record of the rare species *Starry Stonewort* (*Nitellopsis obtusa*) from a machair lake at Dooaghtry - this species is listed in the Red Data Book...

... The E.U. Annex I habitat type 'Annual vegetation of drift lines' is found at Dooaghtry. It occurs on dry, flat sand in front of embryonic dune vegetation. Typical species occurring include *Sea-holly*, *Sand Couch*, *oraches* (*Atriplex* spp.) and *Prickly Saltwort* (*Salsola kali*).

The whorl snails, *Vertigo angustior* and *V. geyeri*, both of which are listed on Annex II of the E.U. Habitats Directive, occur at Dooaghtry. Freshwater Pearl Mussel (*Margaritifera margaritifera*), also an Annex II species, is found in several rivers within the site. The Erriff River system supports an important population of *Salmon* (*Salmo salar*), also listed on Annex II. Arctic Char has been recorded from Doo Lough and there is a pre-1930 record of this fish species from Lough Glenawough. Arctic Char is listed in the Irish Red Data Book as threatened in Ireland. Otters are known to breed in the lakes at this site, and this species is also listed on Annex II of the E.U. Habitats Directive.

Bird counts made over three seasons (1984/85 - 1986/87) for the coastal wetlands from Emlagh Point to Killary Harbour indicate nationally important numbers of *Ringed Plover* (average peak 245) and regionally/locally important numbers (average peaks) of *Mute Swan* (42), *Whooper Swan* (38), *Barnacle Goose* (38), *Golden Plover* (403), *Wigeon* (119), *Teal* (72), *Mallard* (56), *Tufted Duck* (37), *Dunlin* (292) and *Curlew* (220). Dooaghty itself is also a nesting area for *Chough*. Several of these bird species are listed on Annex I of the E.U. Birds Directive.

The shallow lakes at Dooaghtry are used by a great variety of wintering waterfowl, waders and passage migrants...

... The Mweelrea/Sheeffry/Erriff Complex is an extremely large site containing a wide range of habitats, including many that are listed on Annex I of the E.U. Habitats Directive. Five of these are listed with priority



status - blanket bog, petrifying springs, lagoons, machair and decalcified dune heath. The site supports populations of rare and threatened plants (mosses, liverworts, stoneworts, ferns and flowering plants) and animals (invertebrates, fish, birds and mammals). Overall it is of exceptional conservation interest and value"

5.3.1.2 Qualifying Interests and Site-Specific Conservation Objectives

The Mweelrea/Sheeffry/Erriff Complex SAC was selected for the following qualifying interests:

- Coastal lagoons [1150]
- Annual vegetation of drift lines [1210]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150]
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170]
- Humid dune slacks [2190]
- Machairs (* in Ireland) [21A0]
- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]
- Natural dystrophic lakes and ponds [3160]
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation [3260]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- European dry heaths [4030]
- Alpine and Boreal heaths [4060]
- *Juniperus communis* formations on heaths or calcareous grasslands [5130]
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]
- Blanket bogs (* if active bog) [7130]
- Transition mires and quaking bogs [7140]
- Depressions on peat substrates of the *Rhynchosporion* [7150]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]
- Alkaline fens [7230]
- Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110]
- Calcareous rocky slopes with chasmophytic vegetation [8210]
- Siliceous rocky slopes with chasmophytic vegetation [8220]
- *Vertigo geyeri* (Geyer's Whorl Snail) [1013]
- *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]
- *Petalophyllum ralfsii* (Petalwort) [1395]
- *Najas flexilis* (Slender Naiad) [1833]



The site specific conservation objectives of the Mweelrea/Sheeffry/Erriff Complex SAC for the habitats for which the site was selected are to restore the favourable conservation condition of 'Coastal lagoons [1150]', 'Atlantic salt meadows [1330]', 'Mediterranean salt meadows [1410]', 'Machairs [21A0]', 'Northern Atlantic wet heaths [4010]', 'European dry heaths [4030]', 'Alpine and Boreal heaths [4060]', 'Blanket bogs [7130]', 'Transition mires [7140]', 'Rhynchosporion depressions [7150]', 'Alkaline fens [7230]', 'Siliceous scree [8110]', 'Siliceous rocky slopes [8220]', and to maintain the favourable conservation condition of 'Annual vegetation of drift lines [1210]', 'Embryonic shifting dunes [2110]', 'Shifting dunes along the shoreline with *Ammophila arenaria* [2120]', 'Atlantic decalcified fixed dunes [2150]', 'Dunes with *Salix repens* ssp. *Argentea* [2170]', 'Oligotrophic waters [3110]', 'Ogliotrophic to mesotrophic standing waters [3130]', 'Dystrophic lakes [3160]', 'Watercourses of plain to montane levels [3260]', 'Juniper scrub [5130]', 'Hydrophilous tall herb communities [6430]', 'Petrifying springs [7220]', and 'Calcareous slopes [8210]'.

The site specific conservation objectives of the Mweelrea/Sheeffry/Erriff Complex SAC for the species for which the site was selected are to restore the favourable conservation condition of 'Freshwater Pearl Mussel [1029]', and 'Salmon [1106]', and maintain the favourable conservation condition of 'Greyers Whorl Snail [1013]', 'Narrow-mouthed Whorl Snail [1014]', 'Otter [1355]', 'Petalwort [1395]', and 'Slender Naiad [1833]'.

5.3.1.3 Threats, Pressures and Activities

As according to the Site Synopsis of the Mweelrea/Sheeffry/Erriff Complex SAC (NPWS, 2021) land use within the site is as follows:

“Extensive areas of hillside vegetation at this site have been over-grazed by sheep in the past, and in some areas this continues. Peat erosion occurs in places. The vast areas which were formerly covered by lowland blanket bog are now fragmented, often by coniferous forestry plantations.”

Table 5-1 below lists the lists the threats, pressures and activities with negative impacts on the site, as per its Nature 2000 Standard Data Form¹⁹.

¹⁹ <https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF001932.pdf>

Table 5-1 - Threats, pressures, and activities with negative impacts on the Mweelrea/Sheeffry/Erriff Complex SAC (NPWS,2010)

Rank	Threat, pressure, or activity [code]	Threat, pressure, or activity [description]	Inside / Outside / Both [i / o / b]
M	A08	Fertilisation	i
H	C01.03.02	mechanical removal of peat	i
H	A04.01.02	intensive sheep grazing	i
M	A02.01	agricultural intensification	i
H	H01	Pollution to surface waters (limnic, terrestrial, marine & brackish)	i

6. Assessment of Adverse Effects

6.1 Identification of potential impacts

This section identifies potential impacts on the qualifying interests of the Natura 2000 sites concerned following the source-pathway-receptor model, i.e. by identifying the impacts from the proposed project (sources) to which the qualifying interests (receptors) are sensitive and establishing whether there are pathways for those impacts.

6.1.1 Mweelrea/Sheeffry/Erriff Complex SAC

Table 6-1 - Identification of potential impacts on the Mweelrea/Sheeffry/Erriff Complex SAC.

Qualifying Interest	Identification of potential impacts	Potential impact
Coastal lagoons [1150]	The closest example of this marine aquatic habitat occurs >20km over land from Carrowrevagh Bridge (see also Map 3 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although aquatic in nature, this habitat shares no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Annual vegetation of drift lines [1210]	The closest example of this habitat occurs >20km over land from Carrowrevagh Bridge (see also Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat undergoes periods of seasonal inundation during Spring high-tides. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest.	No

Qualifying Interest	Identification of potential impacts	Potential impact
	Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	The closest example of this saline aquatic habitat occurs >20km downstream from Carrowrevagh Bridge (see Map 4 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although aquatic in nature, the weak hydrological connectivity between this habitat type, nature of works and geographical distance between this habitat type and the site of proposed works; there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	The closest example of this saline aquatic habitat occurs >20km downstream from Carrowrevagh Bridge (see Map 4 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although aquatic in nature, the weak hydrological connectivity between this habitat type, nature of works and geographical distance between this habitat type and the site of proposed works; there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Embryonic shifting dunes [2110]	The closest example of this coastal habitat occurs >15km over land from Carrowrevagh Bridge (see also Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to	No

Qualifying Interest	Identification of potential impacts	Potential impact
	the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	The closest example of this coastal habitat occurs >23km over land from Carrowrevagh Bridge (see Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	The closest example of this coastal habitat occurs >23km over land from Carrowrevagh Bridge (see Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No

Qualifying Interest	Identification of potential impacts	Potential impact
Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150]	The closest example of this coastal habitat occurs >23km over land from Carrowrevagh Bridge (see Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170]	The closest example of this coastal habitat occurs >23km over land from Carrowrevagh Bridge (see Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Humid dune slacks [2190]	The closest example of this coastal habitat occurs >23km over land from Carrowrevagh Bridge (see Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works.	No

Qualifying Interest	Identification of potential impacts	Potential impact
	Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Machairs (* in Ireland) [21A0]	The closest example of this coastal habitat occurs >23km over land from Carrowrevagh Bridge (see Map 5 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to marine environments. However, the examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110]	This type of waterbody is restricted to sandy plains that are acidic and low in nutrients, and are therefore very scarce.²¹ The closest example of this habitat type (see Map 6 of Conservation Objectives document (NPWS, 2017) lies c. 8.3km from the site of proposed works over land. No closer examples of this habitat type were identified during the desk study or field surveys which informed this NIS. The examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No

²¹ <https://sac.jncc.gov.uk/habitat/H3110/>

Qualifying Interest	Identification of potential impacts	Potential impact
Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130]	The clear soft water which characterises this habitat type contains low to moderate levels of plant nutrients and supports a characteristic assemblage of plant species ²². The closest example of this habitat type (see Map 6 of Conservation Objectives document (NPWS, 2017)) lies >23km from the site of proposed works over land. No closer examples of this habitat type were identified during the desk study or field surveys which informed this NIS. The examples of this habitat within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Natural dystrophic lakes and ponds [3160]	Dystrophic systems most often occur on blanket bogs and may include isolated seasonal pools, random collections of irregularly-shaped more-or-less permanent waters, and ordered linear or concentric arrays of pools and small lochs. Dystrophic pools may be also found on raised bogs situated mainly on plains and valley bottoms²³. The closest example of this habitat type to the site of proposed works lies c. 2km over land (see Map 6 of Conservation Objectives document (NPWS, 2017)). No closer examples of this habitat type were identified during the desk study or field surveys which informed this NIS. Examples of this habitat type within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No

²² <https://sac.jncc.gov.uk/habitat/H3130/>

²³ <https://sac.jncc.gov.uk/habitat/H3160/>

Qualifying Interest	Identification of potential impacts	Potential impact
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]	This habitat type is characterised by the abundance of water-crowfoots <i>Ranunculus</i> spp.; floating mats of these white-flowered species are characteristic of river channels in early to mid-summer. They may modify water flow, promote fine sediment deposition, and provide shelter and food for fish and invertebrate animals ²⁴ . This habitat type is understood to be widespread within Irelands river systems and is sensitive to water quality impacts which may arise, particularly during construction. As such, there is a complete source -pathway-receptor chain for impacts from the proposed works to this qualifying interest and therefore, adverse effects on the conservation objectives for this qualifying interest cannot be ruled out at this stage. The likelihood of adverse effects on these qualifying interests is assessed in more detail in Section 6.2 below.	Yes
Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	This habitat type usually occurs on acidic, nutrient-poor substrates, such as shallow peats or sandy soils with impeded drainage. The vegetation is typically dominated by mixtures of cross-leaved heath <i>Erica tetralix</i>, heather <i>Calluna vulgaris</i>, grasses, sedges and <i>Sphagnum</i> bog-mosses. The closest example of this habitat occurs downstream of the proposed site c. 320m. No closer examples of this habitat type were identified during the desk study or field surveys which informed this NIS. This habitat type naturally drains to the watercourses which run through it. While terrestrial in nature, wet heath habitat has connectivity with watercourses through the drainage from this habitat to relevant watercourses. Drainage in the opposite direction from watercourses to this habitat type is not considered to occur (given the direction of drainage systems upstream to downstream) such that examples of this habitat type within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
European dry heaths [4030]	The closest example of this habitat with connectivity to the proposed works site occurs >4km downstream from Carrowrevagh Bridge (see Map 8 of Conservation Objectives	No

²⁴ <https://sac.jncc.gov.uk/habitat/H3260/>

Qualifying Interest	Identification of potential impacts	Potential impact
	document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. While terrestrial in nature, dry heath habitat has connectivity with watercourses through the drainage from this habitat to relevant watercourses. Drainage in the opposite direction from watercourses to this habitat type is not considered to occur (given the direction of drainage systems upstream to downstream) such that examples of this habitat type within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Alpine and Boreal heaths [4060]	The closest example of this habitat to the proposed works site occurs >1.8km over land from Carrowrevagh Bridge (see Map 9 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat lies in close proximity to riparian environments but there is no hydrological connectivity between the site of proposed works and any example of this habitat. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]	The closest example of this terrestrial habitat occurs >22km over land from Carrowrevagh Bridge (according to NPWS available spatial data²⁵). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. Although largely terrestrial in nature, this habitat can lie in close proximity to riparian environments, however there is no	No

²⁵ <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17/2019>

Qualifying Interest	Identification of potential impacts	Potential impact
	hydrological connectivity between the site of proposed works and any example of this habitat. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	This habitat type is typically found on ungrazed upland cliff ledges, occasionally extending on to open ground, and is restricted to base-rich substrates and somewhat sheltered situations.²⁶ The closest example of this habitat occurs c. 5km over land from Carrowrevagh Bridge (see Map 10 of Conservation Objectives document (NPWS, 2017)). Although largely terrestrial in nature, this habitat can lie in close proximity to riparian environments, however there is no hydrological connectivity between the site of proposed works and any example of this habitat. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Blanket bogs (* if active bog) [7130]	These extensive peatlands have formed in areas where there is a climate of high rainfall and a low level of evapotranspiration, allowing peat to develop not only in wet hollows but over large expanses of undulating ground.²⁷ The closest example of this habitat occurs downstream of the proposed site c. 320m. Given the proximity of this qualifying interest habitat and its sensitivity sensitive to water quality impacts which may arise, particularly during construction; there is a complete source -pathway-receptor chain for impacts from the proposed works to this qualifying interest and therefore, adverse effects on the conservation objectives for this qualifying interest cannot be ruled out at this stage. The likelihood of adverse effects on these qualifying interests is assessed in more detail in Section 6.2 below.	Yes

²⁶ <https://sac.jncc.gov.uk/habitat/H6430/>

²⁷ <https://sac.jncc.gov.uk/habitat/H7130/>

Qualifying Interest	Identification of potential impacts	Potential impact
Transition mires and quaking bogs [7140]	This habitat is in general a transitional habitat between acid bogs and alkaline fens, in which the surface conditions range from markedly acidic to slightly base-rich. ²⁸ The closest example of this habitat type lies c. 3km downstream from Carrowrevagh Bridge (see Map 12 of Conservation Objectives document (NPWS, 2017)). Given the proximity of this qualifying interest habitat and its sensitivity sensitive to water quality impacts which may arise, particularly during construction; there is a complete source -pathway-receptor chain for impacts from the proposed works to this qualifying interest and therefore, adverse effects on the conservation objectives for this qualifying interest cannot be ruled out at this stage. The likelihood of adverse effects on these qualifying interests is assessed in more detail in Section 6.2 below.	Yes
Depressions on peat substrates of the <i>Rhynchosporion</i> [7150]	This terrestrial habitat type occurs in complex mosaics with lowland wet heath and valley mire vegetation, in transition mires, and on the margins of bog pools and hollows in both raised and blanket bogs²⁹. The closest example of this terrestrial habitat with connectivity occurs 5.7km downstream of Carrowrevagh Bridge (according to Map 13 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. While terrestrial in nature, <i>Rhynchosporion</i> depression habitat has connectivity with watercourses through the drainage from this habitat to relevant proximate watercourses. Drainage in the opposite direction from watercourses to this habitat type is not considered to occur (given the direction of drainage systems upstream to downstream) such that examples of this habitat type within the SAC share no direct hydrological links to the site of the proposed works. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220]	Tufa formation is associated with hard-water springs, where groundwater rich in calcium bicarbonate comes to the surface. On contact with the air, carbon dioxide is lost from the water and a hard deposit of calcium carbonate (tufa) is formed. These	No

²⁸ <https://sac.jncc.gov.uk/habitat/H7140/>

²⁹ <https://sac.jncc.gov.uk/habitat/H7150/>

Qualifying Interest	Identification of potential impacts	Potential impact
	conditions occur most often in areas underlain by limestone or other calcareous rocks³⁰. Examples of this habitat occur exclusively within the SAC >23km over land from Carrowrevagh Bridge (see Map 14 of Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. There is no hydrological connectivity between the site of proposed works and any example of this habitat. Thus, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Alkaline fens [7230]	The closest example of this terrestrial habitat occurs c. 19km over land from Carrowrevagh Bridge (according to Map 15 of the Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. There is no hydrological connectivity to any example of this habitat type as according to available datasets. Therefore, considering the terrestrial nature of this habitat, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110]	The closest example of this terrestrial montane habitat occurs > 5km over land from Carrowrevagh Bridge (according to Map 16 of the Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. There is no hydrological connectivity to any example of this habitat type as according to available datasets. Therefore,	No

³⁰ <https://sac.jncc.gov.uk/habitat/H7220/>

Qualifying Interest	Identification of potential impacts	Potential impact
	considering the terrestrial nature of this habitat, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
Calcareous rocky slopes with chasmophytic vegetation [8210]	The closest example of this terrestrial montane habitat occurs > 5km over land from Carrowrevagh Bridge (according to Map 17 of the Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. There is no hydrological connectivity to any example of this habitat type as according to available datasets. Therefore, considering the terrestrial nature of this habitat, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
Siliceous rocky slopes with chasmophytic vegetation [8220]	The closest example of this terrestrial montane habitat occurs > 5km over land from Carrowrevagh Bridge (according to Map 18 of the Conservation Objectives document (NPWS, 2017)). No nearer examples outside of the SAC were identified during the desk study or field surveys which informed this NIS. There is no hydrological connectivity to any example of this habitat type as according to available datasets. Therefore, considering the terrestrial nature of this habitat, there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No

Qualifying Interest	Identification of potential impacts	Potential impact
<i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013]	Geyer's whorl snail is local and found in relatively exposed, constantly humid calcareous flush-fens (including the Annex I habitat type 7230 Alkaline fens) that are fed by tufa-depositing springs (including 7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)).³¹ Records of this species within the SAC are limited to >22km over land close to the coast and along the distribution of 7220 Petrifying springs within the SAC (see Map 19 of the Conservation Objectives document (NPWS, 2017)). This species or habitat capable of supporting this species was further not identified during site surveys undertaken to inform this NIS. Given the geographical distance between records of this species and the site of proposed works, lack of hydrological connectivity, and lack of habitat capable to support this species; there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
<i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014]	The tiny narrow-mouthed whorl snail is found primarily in marshy ground of high, even humidity, with flowing groundwater, but subject neither to deep or prolonged flooding nor to periodic desiccation. This species requires unshaded conditions and lives amongst short vegetation, composed of grasses, mosses or low herbs, that is quickly warmed by the sun.³² Records of this species within the SAC are limited to >22km over land close to the coast and along the distribution of 7220 Petrifying springs within the SAC (see Map 19 of the Conservation Objectives document (NPWS, 2017)). T Given the geographical distance between records of this species and the site of proposed works, lack of hydrological connectivity, and lack of habitat capable to support this species; there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest.	No

³¹ <https://sac.jncc.gov.uk/species/S1013/>

³² <https://sac.jncc.gov.uk/species/S1014/>

Qualifying Interest	Identification of potential impacts	Potential impact
	Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	
<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]	The freshwater pearl mussel is a bivalve mollusc that lives in clean, fast flowing rivers and streams. It is one of the longest lived invertebrates in the world, and with a lifespan of up to 130 years is Ireland's longest living animal.³³ The largest population of freshwater pearl mussel within the SAC is contained within the Fin Lough and its connected rivers (Owengarr River upstream and Bundorragha River downstream) (see Map 20 of Conservation Objectives document (NPWS, 2017)); however, individual records of this species occurs downstream of Carrowrevagh Bridge, the closest within 5km. Freshwater pearl mussel are sensitive to disturbance and water quality impacts which may arise, particularly during construction. As such, there is a complete source-pathway-receptor chain for impacts from the proposed works to these qualifying interest and therefore, adverse effects on the conservation objectives for this qualifying interest cannot be ruled out at this stage. The likelihood of adverse effects on these qualifying interests is assessed in more detail in Section 6.2 below.	Yes
<i>Salmo salar</i> (Salmon) [1106]	This species is known to occur within the Erriff-Clew Bay catchment, the Erriff River, and its tributaries which includes the Derrycraff watercourse.³⁴ During the aquatic survey undertaken to inform this NIS no suitable habitat or individuals of this species were identified. Salmon are sensitive to disturbance and water quality impacts which may arise, particularly during construction. As such, there is a complete source-pathway-receptor chain for impacts from the proposed works to these qualifying interest and therefore, adverse effects on the conservation objectives for this qualifying interest cannot be ruled out at this stage. The likelihood of adverse effects on these qualifying interests is assessed in more detail in Section 6.2 below.	Yes
<i>Lutra lutra</i> (Otter) [1355]	This species is known to occur widely in Ireland, using rivers and riparian corridors for commuting, foraging and holting purposes. This species is likely to occur on the Derrycraff watercourse system. Otter is sensitive to noise and visual disturbance which may arise, particularly during construction. As such, there is a complete source -pathway-receptor chain for impacts from the proposed works to these qualifying interest and therefore,	Yes

³³ <https://irelandswildlife.com/freshwater-pearl-mussel-margaritifera-margaritifera/>

³⁴ <https://fishingreportstoday.com/reports/erriff/>

Qualifying Interest	Identification of potential impacts	Potential impact
	adverse effects on the conservation objectives for this qualifying interest cannot be ruled out at this stage. The likelihood of adverse effects on these qualifying interests is assessed in more detail in Section 6.2 below.	
<i>Petalophyllum ralfsii</i> (Petalwort) [1395]	This flora species is a pale green thalloid liverwort with erect lamellae on its upper surface, that grows in open, damp, calcareous dune slacks, often on low hummocks rather than on the very wet ground, on compacted sandy/muddy bryophyte-rich turf; there is correlation between the occurrence of this species to Annex I habitat 2190 Humid dune slacks.³⁵ The population of this species for which the SAC is designated is contained >22km over land from Carrowrevagh Bridge (see Map 22 of the Conservation Objective documents (NPWS, 2017)). This species or suitable supporting habitat were not recorded during site surveys undertaken to inform this NIS. Given the geographical distance between records of this species and the site of proposed works, lack of hydrological connectivity, and lack of habitat capable to support this species; there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	No
<i>Najas flexilis</i> (Slender Naiad) [1833]	This aquatic flora species is usually permanently submerged in freshwater deeper than 1m but shallower than 5m. It is a delicate, much branched, hairless annual to 30cm. Leaves are unstalked, opposite or whorled with a sheathing base, to 25mm long, narrow, linear.³⁶ The population of this species for which the SAC is designated is contained >17km over land from Carrowrevagh Bridge (see Map 23 of the Conservation Objective documents (NPWS, 2017)). This species or suitable supporting habitat were not recorded during site surveys undertaken to inform this NIS. Given the geographical distance between records of this species and the site of proposed works, lack of hydrological	No

³⁵ <https://sac.jncc.gov.uk/species/S1395/>

³⁶ https://www.npws.ie/sites/default/files/publications/pdf/1833_Najas_flexilis_Article_17_Backup_Document_AOC_Apr_2013_FINAL.pdf

Qualifying Interest	Identification of potential impacts	Potential impact
	connectivity, and lack of habitat capable to support this species; there are no pathways for impacts to this habitat type from the area of proposed works. Given the lack of pathways, there is no source-pathway receptor chain for impacts from the proposed works to this qualifying interest. Therefore, adverse effects on the conservation objectives for this qualifying interest can be ruled out at this stage.	

6.1.2 Summary

As detailed in Table 6-1 above, it has been possible at this stage to rule out impacts from the proposed project on the following qualifying interests:

- Coastal lagoons [1150]
- Annual vegetation of drift lines [1210]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150]
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170]
- Humid dune slacks [2190]
- Machairs (* in Ireland) [21A0]
- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]
- Natural dystrophic lakes and ponds [3160]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- European dry heaths [4030]
- Alpine and Boreal heaths [4060]
- *Juniperus communis* formations on heaths or calcareous grasslands [5130]
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]
- Depressions on peat substrates of the *Rhynchosporion* [7150]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]
- Alkaline fens [7230]
- Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110]
- Calcareous rocky slopes with chasmophytic vegetation [8210]
- Siliceous rocky slopes with chasmophytic vegetation [8220]
- *Vertigo geyeri* (Geyer's Whorl Snail) [1013]
- *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014]

- *Petalophyllum ralfsii* (Petalwort) [1395]
- *Najas flexilis* (Slender Naiad) [1833]

The qualifying interests for which adverse effects could not be ruled out at this stage are as follows:

- Water courses of plain to montane levels with the *Ranunculon fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Blanket bogs (* if active bog) [7130]
- Transition mires and quaking bogs [7140]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]

The potential impacts on these qualifying interests are analysed and the significant of their effects evaluated in Section 6.2.

6.2 Analysis and Evaluation of Effects

This section analyses the potential impacts identified in Section 6.1 and evaluates the significance of their effects in view of the relevant conservation objectives, as defined by their specific attributes and targets.

6.2.1 ‘Do Nothing’ Impact

In the case of the proposed works, the ‘do nothing’ approach would involve no scour or masonry repairs such that further damage would persist at the bridge such that in the future, more extreme rehabilitation works are likely and could ultimately result in structural failure of the structure.

6.2.2 Current Status of Qualifying Interests

6.2.2.1 Water courses of plain to montane levels with the *Ranunculon fluitantis* and *Callitricho-Batrachion* vegetation

In Ireland, this habitat type is characterised by watercourses with submerged or floating vegetation including species like Floating water-crowfoot (*Ranunculus fluitans*), *Callitriche* species, and *Fontinalis* mosses. It is typically found in plain to montane regions across all of Europe, and is widespread in river systems throughout Ireland.³⁷ According to EUNIS, the conservation status of this habitat type in Ireland is Poor; this indicates a habitat in a situation where change in management or policy is required to return the habitat to favourable conservation status but there is no danger or habitat disappearance in the foreseeable future. Water courses of plain to montane levels of river vegetation faces several threats including water pollution from agricultural run-off, introduction of invasive species, hydrological changes (including those caused by damming, drainage and water abstraction), and changes in land use³⁸.

As according to the Mweelrea/Sheeffry/Erriff Complex SAC Conservation Objectives (CO) document (NPWS, 2017), the CO for this habitat type within the SAC is to maintain the favourable conservation condition of the species, as defined by the attributes including habitat area and distribution, hydrological regime (river flow, groundwater discharge), substratum composition (particle size range), water quality, typical species, floodplain connectivity (area), and riparian habitat (area and condition).

³⁷ <https://eunis.eea.europa.eu/habitats/10077>

³⁸ https://biodiversity.europa.eu/resources/case-study-hub/water_courses_of_plain_to_montane_levels

6.2.2.2 Blanket bogs

Blanket bogs are a type of peatland characterised by waterlogged, acidic soils and a distinctive vegetation community dominated by *Sphagnum* mosses, heathers and sedges; in Ireland these are found primarily in the western and upland regions. Blanket bogs are, as noted, considered a priority habitat under the Habitats Directive due to their ecological importance.³⁹ According to the NPWS, no peatland habitat (including blanket bogs) is in good conservation condition in Ireland (Conaghan *et al*, 2000). Further assessments conducted in 2006 and 2013 found that blanket bogs in Ireland were in 'bad' condition due to external pressures, loss of their area, structure and function. The main pressures on this habitat type in Ireland include turf cutting, afforestation, overgrazing and invasive species.⁴⁰ Ireland currently has implemented measures to address the conservation challenges facing blanket bogs including the Wild Atlantic Nature LIFE IP⁴¹ which is a nine year initiative (2021-2029) aiming to improve the conservation status of blanket bogs in the northwest (including those within the Mweelrea/Sheeffry/Erriff Complex SAC) by working with landowners to focus on habitat restoration, and sustainable land management.

As according to the Mweelrea/Sheeffry/Erriff Complex SAC Conservation Objectives (CO) document (NPWS, 2017), the CO for this habitat type within the SAC is to restore the favourable conservation condition of the species, as defined by the attributes including habitat area, habitat distribution, ecosystem function (soil nutrients, peat formation, hydrology), community diversity, vegetation composition (positive indicator species, lichens and bryophytes, potential dominant species, negative indicator species, non-native species, native trees and shrubs), vegetation structure (*Sphagnum* condition, signs of browsing, burning), physical structure (disturbed bare ground, drainage, erosion), and indicators of local distinctiveness.

6.2.2.3 Transition mires

Transition mires and quaking bogs are wetland ecosystems characterised by peat-forming vegetation, such as *Carex* species, *Menyanthes trifoliata*, and *Sphagnum* mosses (O'Neill *et al*, 2023). These habitats typically develop in areas with a moderate influx of nutrients and are often found at the interfaces between bogs and fens.⁴² Transition mires are an Annex I habitat as listed under the Habitats Directive due to their ecological significance. According to EUNIS (2025) the status of Transition Mires in Ireland overall is 'good' however in the area of the Mweelrea/Sheeffry/Erriff Complex SAC specifically, the conservation status is 'bad'. 'Bad' refers to a habitat that is in serious danger of disappearing. Similar to the above listed upland habitats, threats to transition mire habitat include drainage and land reclamation, agricultural intensification, and invasive species⁴³.

As according to the Mweelrea/Sheeffry/Erriff Complex SAC Conservation Objectives (CO) document (NPWS, 2017), the CO for this habitat type within the SAC is to restore the favourable conservation condition of the species, as defined by the attributes including habitat area, habitat distribution, ecosystem function (soil nutrients), community diversity, vegetation composition (number of positive indicator species, number of core positive indicator species, cover of positive indicator species, negative indicator species, non-native species), vegetation structure (height), physical structure (disturbed bare ground, drainage), and indicators of local distinctiveness.

6.2.2.4 Freshwater Pearl Mussel

Freshwater pearl mussel (*Margaritifera margaritifera*) is a protected species in Ireland under Annex II and IV of the Habitats Directive. This species is also classed as 'critically endangered' (Byrne *et al*, 2009). This species occurs within several catchments in Ireland the Erriff-Clew Bay catchment. In Ireland, under the Habitats Directive, freshwater

³⁹ <https://www.ipcc.ie/a-to-z-peatlands/peatland-habitat-types/blanket-bogs/>

⁴⁰ <https://www.ipcc.ie/a-to-z-peatlands/irelands-peatland-conservation-action-plan/peatland-action-plan/habitat-loss-of-peatlands/>

⁴¹ <https://www.wildatlanticnature.ie/>

⁴² <https://eunis.eea.europa.eu/habitats/10145>

⁴³ <https://www.wetlandsurveys.ie/wetlands-fen>

pearl mussel populations are classed as 'unfavourable/bad' indicating declining population ranges (NPWS, 2008).⁴⁴ In Ireland, 27 populations are protected within SACs, with eight of these containing 80% of the total Irish population (this does not include the Erriff-Clew Bay catchment).⁴⁵ The primary threats to freshwater pearl mussel in Ireland include siltation, nutrient enrichment, and hydrological changes as a result of land use practices such as agriculture, forestry and flooding relief works (NPWS, 2008).

To address the issue of declining populations, in Ireland initiatives include the Pearl Mussel Project ⁴⁶ and a ten million euro scheme implemented by the Department of Agriculture, Food and the Marine (DAFM), which aims to support farmers in implementing practices to improve water quality and habitat conditions for freshwater pearl mussel⁴⁷.

As according to the Mweelrea/Sheeffry/Erriff Complex SAC Conservation Objectives (CO) document (NPWS, 2017), the CO for Freshwater pearl mussel within the SAC is to restore the favourable conservation condition of this species, as defined by its attributes including distribution, population size, population structure (recruitment, adults mortality), suitable habitats (extent, condition), water quality (macroinvertebrate and phytobenthos (diatoms), substratum quality (filamentous algae (macroalgae); macrophytes (rooted higher plants), sediment, oxygen availability), hydrological regime (flow variability), host fish, and fringing habitat (area and condition).

6.2.2.5 Atlantic Salmon

Atlantic salmon (*Salmo salar*) are widespread in river systems in Ireland and are protected under Annex II and V of the Habitats Directive. Salmon are also classed as 'Vulnerable' in Ireland (King *et al*, 2011). As noted in Section 4 above, IFI most recently surveyed downstream of Carrowrevagh Bridge in 2022; this survey recorded numbers of salmon fry ranging from 10 no. to 17 no. individuals per five minutes of electrofishing. No fish of any age bracket were identified during aquatic surveys undertaken to inform this NIS in May 2025 at Carrowrevagh Bridge. Salmon are widespread throughout the Erriff-Clew Bay catchment, the River Erriff, and its tributaries including the Derrycraff watercourse.

According to the Marine Institutes published document 'Year in Review 2023' (MI, 2024) which included a comprehensive count of wild salmon across Ireland, demonstrates the declining population of wild salmon across a period from 2019 to 2023. The report highlights that poor adult return rates and productivity is negatively affected by environmental factors in freshwater.

As according to the Mweelrea/Sheeffry/Erriff Complex SAC Conservation Objectives (CO) document (NPWS, 2017), the CO for Atlantic salmon within the SAC is to restore the favourable conservation condition of this species, as defined by attributes including distribution (extent of anadromy), adult spawning fish, salmon fry abundance, out-migrating smolt abundance, number and distribution of redds, and water quality.

The closest area to Carrowrevagh Bridge was most recently surveyed by Inland Fisheries Ireland (IFI) in 2022 at a site ca. 8.24km downstream for an IFI catchment-wide assessment. Species recorded included Atlantic salmon (*Salmo salar*), Sea Trout (*Salmo trutta*), Brown trout (*Salmo trutta*), European Eel (*Anguilla anguilla*), Minnow (*Phoxinus phoxinus*), and Stickleback (*Gasterosteus aculeatus*). At the closest surveyed site, numbers of salmon fry recorded ranged between 10 and 17 individuals per 5 minutes of electrofishing.

⁴⁴ <https://www.npws.ie/research-projects/animal-species/invertebrates/freshwater-pearl-mussel/conservation-status>

⁴⁵ [Irish Pearl Mussel Project: List of Catchments – Useful Data for Irish River Conservation / Water Quality](#)

⁴⁶ <https://www.pearlmusselproject.ie/>

⁴⁷ <https://www.gov.ie/en/department-of-agriculture-food-and-the-marine/press-releases/creed-launches-new-10-million-scheme-to-serve-native-freshwater-pearl-mussel/>

6.2.2.6 Otter

Otter is the only mammalian qualifying interest species of the Mweelrea/Sheeffry/Erriff Complex SAC. Otter are taken to be widespread across Irelands riparian habitats, using even narrow, shallow streams as commuting routes (Bailey & Rochford, 2006; Reid *et al*, 2013). This species is protected under the Wildlife Acts and Annex II and IV of the Habitats Directive. There are multiple records for otter within the Erriff River and its tributaries include the Derrycraff watercourse (NBDC, 2025). As noted in Section 4 above, the closest record of otter to Carrowrevagh Bridge is from 1980, c. 1.97km downstream, however this species is understood to occur widely in the Erriff catchment. The Erriff-Clew Bay catchment was identified in a 2005 study of otters in Ireland (Bailey & Rochford, 2006). In Ireland, despite a decline in status from 88% in 1980/1981 to c. 70% at present, otter as a species remains widespread throughout the country with no apparent reduction in range⁴⁸.

As according to the Mweelrea/Sheeffry/Erriff Complex SAC Conservation Objectives (CO) document (NPWS, 2017), the CO for otter within the SAC is to maintain the favourable conservation condition of the species, as defined by the attributes including distribution, extent of terrestrial, marine, freshwater (river and lake) habitat, couching and holting sites, fish biomass availability and barriers to connectivity.

6.2.3 Potential Impacts during Construction

6.2.3.1 Direct Impacts

Given the nature and scale of proposed works; i.e., requiring full dewatering of channel over a period of four weeks, and their location upstream of the boundary of the Mweelrea/Sheeffry/Erriff Complex SAC, there are no risks for potential direct impacts to mobile species for which the SAC is designated as works are located outside of the SAC. No examples of qualifying interest habitats occur within the zone of impact of proposed works such that there will be no direct impact upon any of these habitats (as ruled out in Section 5.2 above).

6.2.3.2 Indirect Impacts

Given the nature and scale of proposed works; i.e., dewatering of channel to facilitate scour repair and masonry repair works over a period of four weeks with use of heavy machinery and plant in proximity to the river there is a risk of impact to water quality. However, mitigation measures to prevent the introduction of hydrocarbons and cementitious material into the watercourse are considered necessary in relation to preventing adverse effects on mobile species Otter and Salmon, as well as habitats including floating river vegetation, wet heaths, blanket bogs and *Rhynchosporion* depressions.

There is the potential for the accidental release of polluting matter, e.g. hydrocarbons and oils, from equipment and machinery. All machinery and equipment will be located within the existing road footprint at the bridge location and therefore and potential accidental release of pollutants is limited. However, to remove any risk to the river appropriate mitigation measures are set out below.

The proposed works involve placement of large cobble and rock armour using heavy machinery for the scour repairs at Carrowrevagh Bridge. Other machinery including a concrete truck, truck and trailer, 13-ton excavator and 5-ton excavator will be present on site and in proximity to the watercourse and dewatered river channel; this machinery will give rise to noise disturbance at the site of proposed works and within the zone of impact disturbance buffer of 500m. However, to remove any risk to the riparian environment and associated species appropriate mitigation measures are set out below.

⁴⁸ <https://www.npws.ie/sites/default/files/general/otter-conservation-status-report.pdf>

There are no otter holts within the environs of Carrowrevagh Bridge (as of May 2025). A pre-construction survey for holting otter is required prior to the commencement of construction works⁴⁹. It is also considered likely that this mobile species utilises the Derrycraff watercourse corridor and downstream Erriff River for commuting, foraging and breeding purposes. Otter are sensitive to noise and visual disturbance, therefore there is potential for indirect disturbance to otter that may forage or commute along the Derrycraff watercourse due to the presence of personnel and machinery at this river section.

No invasive species, aquatic or terrestrial, were recorded at Carrowrevagh Bridge during site visits. There are no records for any legally restricted invasive species within the zone of impact of works at Carrowrevagh Bridge thus it is considered there is no potential for the spread of IAPS due to the proposed works. Given the instream access required for the facilitation of works, biosecurity protocols as a mitigation measure to prevent the spread of aquatic diseases are detailed below.

6.2.4 Potential Impacts during Operation

No impacts are anticipated during the operational phase of the project.

⁴⁹ <https://www.tii.ie/media/wsmlbxmv/guidelines-for-the-treatment-of-otters-prior-to-the-construction-of-national-road-schemes.pdf>

7. Mitigation

7.1 Requirement and Approach

As demonstrated in Section 6 above, the proposed works have the potential to adversely affect the integrity of a Natura 2000 site, specifically the Mweelrea/Sheeffry/Erriff Complex SAC, in view of its conservation objectives. This section prescribed mitigation measures to further control any impacts from the proposed works to minimise the potential for such effects in combination with other plans or projects.

The development of the mitigation measures has followed the “mitigation hierarchy”, which prioritises avoidance over reduction, and actions at source over pathway over receptor, as follows:

1. Eliminate the source of the impact,
2. Minimise or reduce the impact at its source,
3. Block or weaken the pathway for effects, and
4. Abate effects at the receptor.

This approach assists with more complete removal of the effects, minimises the risk of effects occurring by less obvious pathways, also protects non-target receptors, and minimises the risks of unintended harm associated with measures focussed at or near the receptors.

7.2 Mitigation Measures

7.2.1 General Measures

- An Ecological Clerk of Works (ECoW) will be appointed and will supervise all aspects of the critical works on site, in particular initial site set up, dam/ silt fence installation, and pouring of concrete. The ECoW will be a suitably qualified and experienced ecologist, which will be appointed by the successful Contractor. The ECoW will ensure compliance of mitigation measures on site and liaise with IFI and NPWS staff where required.
- All operations will be in accordance with, but not limited to, the following guidelines: -
 - C532 Control of water pollution from construction sites. Guidance for consultants and contractors (Masters-Williams et al., 2001),
 - SP156 Control of water pollution from construction sites – guide to good practice (Murnane, 2002),
 - C750 Groundwater control: design and practice (Preene et al., 2016)
 - Guidance on Protection of Fisheries during Construction Works in and Adjacent to Waters (IFI, 2016).
- The site manager will monitor the 10-day weather forecast. The works are not permitted take place during high river flows or prior to forecasts of heavy rainfall. High river flows constitute river flows that will top the dams or will be in excess of pumping capabilities. If such conditions are forecast, the works area will be secured and all materials, including the elements of the dam system (sandbags, silt fences, pumps and associated pipes and silt socks) will removed from the works area and riverbanks. Upon subsidence of flows, the dam system shall be re-instated upstream and downstream of the culvert and the works area de-watered before works can re-commence. This shall be supervised by the ECoW.



- All site staff will be informed of best practice methodologies to be employed on site via the dissemination of a tool-box talk. This shall include the requirement for protection of aquatic habitats, the sensitivity of the SAC and the potential presence of invasive species pending a pre-construction survey.
- Works will be carried out during standard working day-time hours.
- Any chemical, fuel and oil stores will be located on an impervious base within a secured bund with a storage capacity 110% of the stored volume.
- Only biodegradable oils and fuels are permitted to be used.
- Drip trays will be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Refuelling of vehicles and machinery will be carried out on an impermeable surface in one designated area well away from any watercourse or drainage (at least 20m).
- Emergency spill kits will be available on site and staff will be trained in their use. A reporting system will be established on site to record accidents and/or spillages on site and the resultant action taken to remedy the incident.
- Operators will check all equipment, machinery and vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately and addressed.
- Daily checks will be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective will be removed from site immediately or positioned in a place of safety until such time that it can be removed. All items of plant will be checked prior to use before each shift for signs of wear/damage.
- There shall be no excavation of the riverbed within the dry working area, nor is access to the riverbed permitted by heavy machinery at any stage.

7.2.2 Specific Measures

7.2.2.1 Protection for Fauna

- As there is no Otter holt near the bridge, no physical damage or disturbance to an otter holt shall occur. However, a pre-construction survey for otter will be carried out upstream and downstream of the culvert within one month of commencement of works on site. Should any Otter signs be recorded, all works will be undertaken in accordance with the TII guidelines⁵⁰ (Guidelines for the treatment of otter prior to the construction of national road schemes).
- If a new otter holt is recorded during the pre-construction survey and is likely to be damaged or disturbed by the proposed works, a derogation licence will be applied for from NPWS. Any further mitigation measures required by the derogation licence shall be implemented.
- To mitigate potential impacts to otter, working hours shall be restricted to standard working hours only and there shall be no overnight artificial lighting of the site.
- The river channel and riverbanks will not be artificially lit during hours of dusk and darkness.

⁵⁰ <https://www.tii.ie/media/wsmlbxmv/guidelines-for-the-treatment-of-otters-prior-to-the-construction-of-national-road-schemes.pdf>

7.2.2.2 Watercourse Protection

- A dry working area will be achieved at the bridge site by setting up a dam system. There will be 3no. dams in total; one upstream of the bridge and two downstream of the bridge. Each dam will consist of tightly packed sandbags that are filled with clean sand. The sandbags will be double lined and sealed by tying. Only sealed sandbags will be used to create the dams. No clay or soil material is permitted to 'seal' the sandbag dams. A geotextile membrane may be used to aid the creation of a watertight dam.
- The integrity of the sandbag dams must be monitored to ensure that the works area is isolated from the live channel. This shall be monitored by the Site Manager twice daily; in the morning before the commencement of works and at the end of the day prior to leaving site.
- Two silt fences shall be installed between the two sandbag dams situated downstream of the culvert. Any water pumped into this dammed area shall be in advance of the silt fences. Thus, all water pumped from the work area must pass through both silt fences before re-entering the river.
- The pipe used to flume flows through the works area will be fitted with a filter to ensure no fish enter the pipe. The outfall of the pipe will be fitted with a silt sock. The silt sock shall be changed and/ or cleaned at regular intervals. The interval for replacing the silt sock will be dependent on the turbidity of the watercourse and therefore this shall be monitored by the site manager twice daily at a minimum; in the morning before the commencement of works and at the end of the day prior to leaving site.
- The temporary working platform, i.e. heavy-duty geotextile layer and 250mm thick layer of granular capping, must be clean and free of any foreign debris before being installed on the existing riverbed gravels.
- There can be no entry of debris and/ or waste material from the works area to the live channel. The debris must be collected within the dry work area, removed from the work area and disposed of appropriately off site at a licenced waste facility.
- Any water arising in the work area, as seepage through the upstream dam, will be pumped from the working area into the area between the two downstream dams in advance of the silt fences. The pump will be located on the temporary working platform and fitted with a drip tray. All associated pipes will be fitted with a silt sock and/ or de-watering bag.
- Primer products or products requiring curing shall be applied to surfaces in the morning of a workday. This is to ensure that the required 6-hour curing time can be achieved before leaving the site at the end of the day. Primer products shall not be applied to surfaces within 48 hours of a heavy rain forecast.
- Only quantities of primer products required for use in that working day shall be available at the site. These shall be kept in a bunded container located at least 20m from the watercourse until required for use.
- At no point will any equipment be washed out within the work area or adjacent to a watercourse.
- Sandbag dam no. 3 (further downstream) and the silt fences shall be left in place until any unforeseen sediment plume has dissipated.
- The gravel area on which the temporary working platform was located will be loosened, as it may have been compacted during the works. This area will be reinstated with washed and clean gravel. Gravel being sourced off site will be of the same type and pH as the existing gravel, as pH is an important factor in riverine environments.
- All material used on site, including the sandbags, silt fences and components of the temporary working platform, will be removed from site and disposed of at a licenced waste facility.



7.2.2.3 Noise Control

Works will give rise to noise disturbance due to the requirement of heavy machinery on site, this example best practice mitigation measures to be considered are as follows:

- All plant and equipment to be switched off when idling.
- The use of white noise reversing alarms.
- Restriction on the dropping and loading of materials to less sensitive hours.
- The use of local screening for noisy activities or works with hand tools.
- Ensure all plant and equipment is well maintained and clean, all lubrication in line with manufacturers' guidelines.

7.2.3 Biosecurity Protocols

The following biosecurity protocols shall be implemented during the proposed project to prevent the introduction of invasive species. Biosecurity protocols implemented on site will follow the 'Clean-Check-Dry' principle.

It should be noted that the biosecurity risk with respect to the proposed project is the potential introduction of non-native species and diseases, such as crayfish plague, to the site via machinery and equipment and the spread of crayfish plague to other aquatic environments post-completion of the works. The field survey for the proposed works did not record any non-native invasive plant species listed on the 3rd Schedule of the EC (Birds and Natural Habitats) Regulations 2011, as amended.

- The excavator intended to be used at the site shall be dry, clean and free from debris prior to being brought to site. The excavator will have been dried for a minimum of 48 hours prior to being brought to site. This will be inspected by the Site Manager on site on arrival.
- There are no instream works associated with the proposed works and no machinery or plant equipment is anticipated to come in contact with the Derrycraff watercourse. Other equipment including dam materials will be washed down using a power washer at a suitable remote location away from the river. Under no circumstances is power washing of any equipment permitted to be carried out adjacent to the river channel and watercourse.
- All washed equipment will then be left unused for 48 hours once dry. Equipment is not permitted be used until 48 hours have elapsed from when it is dry.

Operatives who have entered the Derrycraff watercourse (upon which works are proposed) to install silt fences and sandbags dams will disinfect their boots and waders using a disinfectant. The disinfectant that will be used is Milton, Virkon Aquatic (3mg/l), or Proxitane (30mg/l). Disinfection of PPE will be carried out a minimum of 20m from the riverbank. The disinfectant will be allowed to soak to ground. Under no circumstances will disinfection of PPE be carried out adjacent to the river channel.

8. Assessment of Residual Effects

Table 8-1 to Table 8-6 below summarise the potential for adverse effects to screened-in species of the Mweelrea/Sheeffry/Erriff Complex SAC assuming the implementation of mitigation measures, which have been integrated into the design of how works will be undertaken.

Table 8-1 - Attributes of 3260 Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation, and comments on potential for impact.



3260	Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation		
To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
Habitat area	Kilometres	Area stable or increasing, subject to natural processes	There will be no loss of habitat as a result of the works as the proposed works are located c. 340m upstream of the SAC.
Habitat distribution	Occurrence	No decline, subject to natural processes	There will be no impact on the occurrence of habitat as a result of the works as the proposed works are located c. 340m upstream of the SAC.
Hydrological regime: river flow	Metres per second	Maintain/restore appropriate hydrological regimes	The nature of the proposed works involves the temporary creation of a dry working area and over pumping. There will be a minor change in river flow in the works area, however the works are located c. 340m upstream of the SAC such that there will be no adverse effect on river flow within the SAC.
Hydrological regime: groundwater discharge	Metres per second	Maintain appropriate hydrological regime	The nature of proposed works involves no disruption to groundwater bodies. Further works lie c. 340m upstream of the SAC such that there will be no adverse effect on groundwater discharge within the SAC.
Substratum composition: particle size range	Millimetres	Maintain/restore appropriate substratum particle size range, quantity and quality, subject to natural processes	The order of works and implementation of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the scale of the works, distance to the SAC and mitigation measures to be implemented there will be no adverse effects on the substratum composition within the SAC.
Water quality	Various	Maintain/restore appropriate water quality to support the natural structure and functioning of the habitat	There is potential for accidental input of hydrocarbons and sediment to the watercourse given the nature of works (heavy machinery, minor excavation). However, the order of works, use of silt fences and implementation of watercourse protection measures will prevent the release of any inputted material in levels that could cause

3260	Water courses of plain to montane levels with the Ranunculon fluitantis and Callitricho-Batrachion vegetation		
To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculon fluitantis and Callitricho-Batrachion vegetation in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
			adverse effects on the SAC c. 340m downstream. Given the scale of works, stated mitigation measures and location of works outside the SAC, there will be no adverse effects on nutrient levels within the SAC.
Typical species	Occurrence	Typical species of the relevant habitat sub-type should be present and in good condition	The order or works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition further downstream in the SAC.
Floodplain connectivity : area	Hectares	The area of active floodplain at and upstream of the habitat should be maintained	The proposed works will cause minor changes to flood regime within the immediate works area. Given the scale of the works and location outside the SAC, there will be no adverse effects on the floodplain connectivity of the SAC.
Riparian habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the habitat and its sub-types	There is no riparian woodland to be removed or impacted on as a result of the proposed works.

NPWS, 2017

Table 8-2 - Attributes of 7130 Blanket bogs (* if active bog), and comments on potential for impact.

7130	Blanket bogs (* if active bog)		
To restore the favourable conservation condition of Blanket bogs (* if active bog) in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets			
Attribute	Measure	Target	Comment
Habitat area	Hectares	Area stable or increasing, subject to natural processes	There will be no loss of habitat as a result of the works as the proposed works are located c. 340m upstream of the SAC.



7130	Blanket bogs (* if active bog)		
To restore the favourable conservation condition of Blanket bogs (* if active bog) in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets			
Attribute	Measure	Target	Comment
Habitat distribution	Occurrence	No decline, subject to natural processes. See Map 11 of Conservation Objectives document	There will be no impact on the occurrence of habitat as a result of the works as the proposed works are located c. 340m upstream of the SAC.
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	Works proposed will not give rise to any change in soil pH or nutrient levels within this habitat type given that works are occurring outside the SAC and the correct implementation of watercourse protection measures.
Ecosystem function: peat formation	Active blanket bog as a proportion of the total area of Annex I blanket bog habitat	At least 99% of the total Annex I blanket bog area is active	Works proposed will not give rise to any change in peat formation within this habitat type given that works are occurring outside the SAC and the correct implementation of watercourse protection measures.
Ecosystem function: hydrology	Flow direction, water levels, occurrence of drains and erosion gullies	Natural hydrology unaffected by drains and erosion	Works are not located within the SAC (c. 340m upstream). The works area involves the use of the existing road infrastructure as a site compound and given the correct implementation of watercourse protection measures and the short duration of works (4 weeks); works will give no rise to any change in hydrological function within this habitat type within the SAC.
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition or variety of communities further downstream in the SAC within this habitat type.
Vegetation composition: positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species present at each monitoring stop is at least seven	This habitat was not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream.

7130	Blanket bogs (* if active bog)		
To restore the favourable conservation condition of Blanket bogs (* if active bog) in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets			
Attribute	Measure	Target	Comment
			Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation composition: lichens and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of bryophytes or lichens, excluding <i>Sphagnum fallax</i> , at least 10%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation composition: potential dominant species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of each of the potential dominant species less than 75%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could

7130	Blanket bogs (* if active bog)		
To restore the favourable conservation condition of Blanket bogs (* if active bog) in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets			
Attribute	Measure	Target	Comment
			cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no introduction of non-native species or adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation composition : native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the distribution and occurrence on native trees and shrubs within this habitat type within the SAC.
Vegetation structure: <i>Sphagnum</i> condition	Condition at a representative number of 2m x 2m monitoring stops	Less than 10% of the <i>Sphagnum</i> cover is crushed, broken and/or pulled up	This species within this habitat type was not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation structure of <i>Sphagnum</i> within the SAC.
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Last complete growing season's shoots of ericoids, crowberry (<i>Empetrum nigrum</i>) and bog-myrtle (<i>Myrica gale</i>) showing signs of browsing collectively less than 33%	The works will give rise to no adverse effects in terms of mammal browsing to the SAC.
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning	The works will give rise to no adverse effects in terms of burning to the SAC.

7130	Blanket bogs (* if active bog)		
To restore the favourable conservation condition of Blanket bogs (* if active bog) in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets			
Attribute	Measure	Target	Comment
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	The works will give rise to no increase in disturbed bare ground within the SAC.
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	The works area involves the use of the existing road infrastructure as a site compound such that they will give no rise to an increase in drainage from trampling or tracking of machinery, further works are not located within the SAC (c. 340m upstream).
Physical structure: erosion	Percentage area in local vicinity of a representative number of monitoring stops	Less than 5% of the greater bog mosaic comprises erosion gullies and eroded areas	The works are not located within the SAC (c. 340m downstream). The works area involves the use of the existing road infrastructure as a site compound such that they will give no rise to an increase in erosion of this habitat type within the SAC.
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	Works are occurring outside the SAC such that the order or works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the population sizes or distribution of rare, threatened or scarce species downstream in the SAC.

NPWS, 2017

Table 8-3 - Attributes of 7140 Transition Mires, and comments on potential for impact.

7140	Transition mires and quaking bogs		
To restore the favourable conservation condition of Transition mires and quaking bogs in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
Habitat area	Hectares	Area stable or increasing, subject to natural	There will be no loss of habitat as a result of the works as the proposed works are located c. 340m upstream of the SAC.



7140	Transition mires and quaking bogs		
To restore the favourable conservation condition of Transition mires and quaking bogs in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
		processes	
Habitat distribution	Occurrence	No decline, subject to natural processes. See Map 12 of CO document.	There will be no impact on the occurrence of habitat as a result of the works as the proposed works are located c. 340m upstream of the SAC.
Ecosystem function: soil nutrients	Soil pH and appropriate nutrients levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	Works proposed will not give rise to any change in soil function within this habitat type given that works are occurring outside the SAC and the correct implementation of watercourse protection measures.
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition or variety of communities further downstream in the SAC within this habitat type.
Vegetation composition: number of positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species at each monitoring stop is at least three for infilling pools and flushes and at least six for fens	This habitat was not recorded at the site of proposed works; works are further not within the SAC. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation composition: number of core positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	At least one core positive indicator species present	This habitat was not recorded at the site of proposed works. Works are further not located within the SAC. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation

7140	Transition mires and quaking bogs		
To restore the favourable conservation condition of Transition mires and quaking bogs in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
			composition (specifically in terms of cover of core positive indicator species) of this habitat type within the SAC.
Vegetation composition: cover of positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of positive indicator species is at least 25%	This habitat was not recorded at the site of proposed works. Works are further not located within the SAC. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Further, given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition (specifically in terms of cover of positive indicator species) of this habitat type within the SAC.
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the vegetation composition in terms of negative indicator species within this habitat type within the SAC.
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	These species types within this habitat type were not recorded at the site of proposed works. The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no introduction of non-native species or adverse effects on the vegetation composition of this habitat type within the SAC.
Vegetation structure: height	Percentage of leaves/shoots at a representative	Proportion of live leaves and/or flowering shoots of vascular plants that	Works proposed will not occur within the SAC and involve no removal or cutting of leaves/shoots within the SAC.

7140	Transition mires and quaking bogs		
To restore the favourable conservation condition of Transition mires and quaking bogs in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
	number of 2m x 2m monitoring stops	are more than 15cm above the ground surface should be at least 50%	The order of works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no effects to emerging leave/shoots or adverse effects on the vegetation structure of this habitat type within the SAC.
Physical structure : disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	The works will give rise to no increase in disturbed bare ground within the SAC.
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	The works area involves the use of the existing road infrastructure as a site compound such that they will give no rise to an increase in drainage from trampling or tracking of machinery, further works are not located within the SAC (c. 340m upstream).
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	Works are occurring outside the SAC such that the order or works and use of silt fences will prevent the release of sediment in levels that could cause adverse effects on the SAC c. 340m downstream. Given the biosecurity measures to be implemented, there will be no adverse effects on the population sizes or distribution of rare, threatened or scarce species downstream in the SAC.

NPWS, 2017

Table 8-4 - Attributes of 1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*), and comments on potential for impact.

1029	Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)		
To restore the favourable conservation condition of Freshwater Pearl Mussel in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
Distribution	Kilometres	Maintain distribution at 4.34km. Note that the distribution target length includes the perimeter of Fin Lough. See Map 20 of CO objectives document.	This species was not identified during targeted aquatic surveys which informed this NIS. Works are not being undertaken within the SAC and are remote from Fin Lough; such that there will be no adverse effects on the distribution of this species within the SAC due to proposed works.
Population size	Number of adult mussels	Restore populations to at least 2 million adult mussels	This species was not identified during targeted aquatic surveys which informed this NIS. Therefore given that works will have no direct impact to any freshwater pearl mussel populations and any indirect impacts via water quality will be mitigated by implemented watercourse protection measures; there will be no adverse effects to population size due to the proposed works.
Population structure: recruitment	Percentage per size class	Restore to at least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length	This species was not identified during targeted aquatic surveys which informed this NIS. Therefore given that works will have no direct impact to any freshwater pearl mussel populations and any indirect impacts via water quality will be mitigated by implemented watercourse protection measures; there will be no adverse effects on recruitment (in relation to population structure) due to the proposed works.
Population structure: adult mortality	Percentage	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution	This species was not identified during targeted aquatic surveys which informed this NIS. Therefore given that works will have no direct impact to any freshwater pearl mussel populations and any potential indirect impacts via water quality will be mitigated by implemented watercourse protection measures; there will be no adverse effects on this species in terms of adult mortality due to the proposed works.
Suitable habitat: extent	Kilometres	Maintain suitable habitat extent in 2.67km of the Bundorragha (see Map 20 of CO document) and any additional stretches	Suitable habitat for this species was not recorded during targeted aquatic surveys which informed this NIS. Therefore given the lack of suitable habitat, works are outside the SAC and that works are remote from Bundorragha and Fin Lough (for which this attribute is targeted); there

1029	Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)		
To restore the favourable conservation condition of Freshwater Pearl Mussel in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
		necessary for salmonid spawning. Note that the suitable habitat target length includes the perimeter of Fin Lough	will be no adverse effects on the extent of suitable habitat for this species due to proposed works.
Suitable habitat: condition	Kilometres	Restore condition of suitable habitat	Suitable habitat for this species was not recorded during targeted aquatic surveys which informed the NIS. Works are located outside the SAC such that no works can have direct impact on the condition of suitable habitat. Any potential indirect impacts via water quality will be mitigated by implemented watercourse protection measures; therefore there will be no adverse effects on habitat condition due to the proposed works.
Water quality: macroinvertebrate and phytobenthos (diatoms)	Ecological quality ratio (EQR)	Restore water quality – macroinvertebrates: EQR greater than 0.90 (Q4-5 or Q5); phytobenthos: EQR greater than 0.93	Given that works are not occurring within the SAC (for which this attribute is relevant) and mitigation/watercourse protection measures to be implemented (order of works and dams and silt fences) and scale of works; there will be no adverse effects on Water quality (specifically relating to macroinvertebrates and phytobenthos) within the SAC.
Substratum quality: filamentous algae (macroalgae); macrophytes (rooted higher plants)	percentage	Restore substratum quality – filamentous algae: absent or trace (less than 5%); macrophytes: absent or trace (less than 5%)	Given that works are not occurring within the SAC (for which this attribute is relevant) and mitigation/watercourse protection measures to be implemented (order of works and dams and silt fences) and scale of works; there will be no adverse effects on Substratum quality (relating to an increase in filamentous algae and macrophytes) within the SAC.
Substratum quality: sediment	Occurrence	Restore substratum quality – stable cobble and gravel substrate with very little fine material: no artificially elevated levels of fine sediment	Given that works are not occurring within the SAC (for which this attribute is relevant) and mitigation/watercourse protection measures to be implemented (order of works and dams and silt fences) and scale of works; there will be no adverse effects on Substratum quality (relating to increases in fine sediment) within the SAC.

1029	Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)		
To restore the favourable conservation condition of Freshwater Pearl Mussel in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
Substratum quality: oxygen availability	Redox potential	Restore to no more than 20% decline from water column to 5cm depth in substrate	Given that works are not occurring within the SAC (for which this attribute is relevant) and mitigation/watercourse protection measures to be implemented (order of works and dams and silt fences) and scale of works; there will be no decrease in oxygen availability and thus no adverse effects on oxygen availability for this QI species within the SAC.
Hydrological regime: flow variability	Metres per second	Restore appropriate hydrological regime	There will be no adverse effects on flow variability within the SAC given that works are occurring outside the SAC. Further mitigation measures (timing and order of works, instream barriers only during open season from July 1 st to September 30 th) will negate any potential indirect downstream impacts to flow variability.
Host fish	Number	Atain sufficient juvenile salmonids to host glochidial larvae	Given that as discussed below in Table 8-5 there will be no impact to salmon due to proposed works given watercourse protection measures to be implemented; there will be no adverse effects to the number of host fish within the SAC due to proposed works.
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the population	There is no removal or disturbance of fringing habitat associated with the proposed works such that there will be no adverse effects to fringe habitat due to proposed works given implementation of mitigation measures.

NPWS, 2017

Table 8-5 - Attributes of 1106 Salmon (*Salmo salar*), and comments on potential for impact.

1106	Atlantic Salmon (<i>Salmo salar</i>)		
To restore the favourable conservation condition of Atlantic Salmon in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment
Distribution: extent of anadromy	Percentage of river accessible	100% of river channels down to second order accessible from estuary	There will be no adverse effects on extent of anadromy given the mitigation measures (timing and order of works, instream barriers only during open season from July 1 st to September 30 th).



1106	Atlantic Salmon (<i>Salmo salar</i>)		
To restore the favourable conservation condition of Atlantic Salmon in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Adult fish spawning	Number	Conservation Limit (CL) for each system consistently exceeded	This species or suitable spawning habitat were not recorded during the site survey. Given that works are not taking place directly within the SAC (for which this attribute is relevant) and mitigation measures (order of works and dams and silt fences) and scale of works there will be no adverse effects on spawning habitat within the SAC.
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling	This species was not recorded during the site survey. Given that works are not taking place directly within the SAC (for which this attribute is relevant) and mitigation measures (order of works and dams and silt fences) and scale of works there will be no adverse effects on salmon fry abundance within the SAC.
Out-migrating smolt abundance	Number	No significant decline	This species was not recorded during the site survey. Given the watercourse protection measures to be implemented (order of works, instream barriers only during open season from July 1 st to September 30 th) there will be no adverse effects on Out-migrating smolt abundance.
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes	Given that the works will not occur directly within the SAC and mitigation measures (order of works and dams and silt fences) and scale of works there will be no adverse effects on Number and distribution of redds within the SAC.
Water quality	EPA Q value	At least Q4 at all sites samples by EPA	Given that works are not occurring within the SAC (for which this attribute is relevant) and mitigation measures to be implemented (order of works and dams and silt fences) and scale of works; there will be no adverse effects on Water quality within the SAC.

NPWS, 2017

Table 8-6 - Attributes of 1355 Otter (*Lutra lutra*), and comments on potential for impact.

1355	Otter (<i>Lutra lutra</i>)		
To maintain the favourable conservation condition of Otter in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Comment



1355	Otter (<i>Lutra lutra</i>)		
To maintain the favourable conservation condition of Otter in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
Distribution	Percentage positive survey sites	No significant decline	No signs of otter were recorded during site survey. The proposed works are temporary and are to be carried out during day-time hours with instream works restricted from July 1 st to September 30 th . No works are required at any identified holting or couching site. As such there will be no adverse effects on the distribution of otters.
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 826.0ha along river banks/lake shoreline/ around ponds and 26.3ha above high water mark (HWM)	There will be no loss of terrestrial habitat due to the works.
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 118.0ha	There will be no loss of marine habitat due to the works.
Extent of freshwater (river) habitat	Kilometres	No significant decline. Area mapped and calculated as 397.9km	There will be no loss of river habitat associated with the works.
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 244.2ha	There is no lake or lagoon habitat near the works area.
Couching sites and holts	Numbers	No significant decline	No couching sites were recorded at the site of proposed works. As such there will be no adverse effects on couching sites or holts.
Fish biomass available	Kilograms	No significant decline	IFI have been consulted and will be further informed prior to works. Further, as the will be no adverse effects on the availability of salmon species there will not be no adverse effects on the availability of fish as

1355	Otter (<i>Lutra lutra</i>)		
To maintain the favourable conservation condition of Otter in Mweelrea/Sheeffry/Erriff Complex SAC, which is defined by the following list of attributes and targets:			
			a food source for otter as a result of the works.
Barriers to connectivity	Number	No significant increase. For guidance, see map 21	This refers to barriers within the SAC which the proposed works are not directly in but are rather upstream of. There will be no impact given correct implementation of mitigation measures and daylight working hours.

NPWS, 2017

8.1 Overall Assessment of Residual Effects

In view of best scientific knowledge, and on the basis of objective information, and given the full and proper implementation of the mitigation prescribed above, the proposed works at Carrowrevagh Bridge, individually, will not adversely affect any of the qualifying interests of the Mweelrea/Sheeffry/Erriff Complex SAC, or on any European site.

9. Potential In-combination Effects

9.1 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 European 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 European 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.

9.2 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 European 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.

9.2.1 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 European site(s) concerned. As such, two or more effects relating to the same conservation objective for a given European 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 European 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.

As assessed in Section 5, the proposed works provide for no impacts whatsoever on ‘Coastal lagoons’, ‘Annual vegetation of drift lines’, ‘Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)’, ‘Mediterranean salt meadows (*Juncetalia maritimi*)’, ‘Embryonic shifting dunes’, ‘Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)’, ‘Fixed coastal dunes with herbaceous vegetation (grey dunes)’, ‘Atlantic decalcified fixed dunes (*Calluno-Ulicetalia*)’, ‘Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*)’, ‘Humid dune slacks’, ‘Machairs (* in Ireland)’, ‘Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)’, ‘Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetalia*’, ‘Natural dystrophic lakes and ponds’, ‘Water courses of plain to montane levels with the *Ranunculum fluitantis* and *Callitricho-Batrachion* vegetation’, ‘Northern Atlantic wet heaths with *Erica tetralix*’, ‘European dry heaths’, ‘Alpine and Boreal heaths’, ‘*Juniperus communis* formations on heaths or calcareous grasslands’, ‘Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels’, ‘Blanket bogs (* if active bog)’, ‘Transition mires and quaking bogs’, ‘Depressions on peat substrates of the *Rhynchosporion*’, ‘Petrifying springs with tufa formation (*Cratoneurion*)’, ‘Alkaline fens’, ‘Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)’, ‘Calcareous rocky slopes with *chasmophytic* vegetation’, ‘Siliceous rocky slopes with *chasmophytic* vegetation’, ‘*Vertigo geyeri* (Geyer's Whorl Snail)’, ‘*Vertigo angustior* (Narrow-mouthed Whorl Snail)’, ‘*Petalophyllum ralfsii* (Petalwort)’, ‘*Najas flexilis* (Slender Naiad)’ in the Mweelrea/Sheeffry/Erriff Complex SAC. As

the proposed works will have no impacts whatsoever on these qualifying interests, there is no possibility of likely significant effects thereon in combination with other plans or projects.

The proposed works do provide for some impacts (not constituting likely significant effects) on 'Margaritifera margaritifera (Freshwater Pearl Mussel)', 'Salmo salar (Salmon)' and 'Lutra lutra (Otter)' in the Mweelrea/Sheeffry/Erriff Complex SAC. Thus, the geographical scope of the in-combination assessment covered all areas which influence the conservation condition of these qualifying interests in the Zone of Influence of the proposed works.

9.2.2 Timescale

As stated in Section 1, the proposed works are to be undertaken over a 4 no. week period. As explained in the preceding sections, impacts potentially arising from the proposed works include disturbance to fauna, as well as impacts on water quality. Any non-significant effects arising from disturbance to species, or water quality impacts, will be brief or temporary, i.e. there will be full recovery of any effects within one year.

On that basis, other plans and projects considered in this assessment included those with effects arising from disturbance to fauna or water quality.

9.2.3 Sources of Information

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

- Local authority development plans and their AA documents.
- Local authority online planning enquiries (Mayo County Council).
- *EIA Portal* < <https://housinggov.ie/maps.arcgis.com/home/index.html> >
- *Flood Maps* <<https://www.floodinfo.ie/map/floodmaps/>>

The threats, pressures and activities with negative impacts on the Mweelrea/Sheeffry/Erriff Complex SAC are listed in Section 5, along with the relative importance of each threat, pressure or activity and whether it occurs inside or outside the site concerned. This information was used to identify plans and projects which, by their nature, are likely to give rise to potential impacts on the sites concerned.

9.3 Assessment

9.3.1 Plans

The **Water Action Plan 2024**: A River Basin Management Plan for Ireland provides a comprehensive overview of Ireland's strategy to protect and restore water quality under the Water Framework Directive. This Water Action Plan sets out a roadmap to restore Ireland's water bodies to the equivalent of 'good status' or better and to protect water from any further deterioration. Ireland's water quality has declined in spite of actions taken to date. This decline in water quality is putting Ireland's 'clean and green' image at risk – as well as the livelihoods of farmers and those working in industries such as food and tourism that depend directly on this green image of Ireland. This plan focuses on protecting and restoring water quality by preventing and reducing pollution, by restoring the natural ecosystem functions of rivers and by continuing to invest in water infrastructure.

The Mayo County Development Plan (2022-2028) sets out the vision, core strategy, aims and policy objectives for the proper planning and sustainable development of County Mayo. The plan contains a large number of policy objectives relating to biodiversity. The plan was subject to AA, including the preparation of a Natura Impact Report



which assessed, at a strategic level, the implications of the plan for European sites, including the Mweelrea/Sheeffry/Erriff Complex SAC. Where potential adverse effects were identified, the plan was amended to mitigate those effects. Following these amendments, the adopted plan now contains specific text in relation to the protection of these and other European sites, as well as river corridors, floodplains and wetlands. These includes restrictions on development within riparian corridors, requirement for assessment under Article 6 of the Habitats Directive for development likely to have a significant effect on European sites, use of sustainable urban drainage systems (SUDS), and commitments to develop green infrastructure to support European sites and biodiversity generally, in line with Article 10 of the Habitats Directive and Article 3 of the Birds Directive.

The policy objectives in the Mayo County Development Plan contribute to mitigating the negative effects of development on the Mweelrea/Sheeffry/Erriff Complex SAC and other European sites and provide for the enhanced resilience of these sites through the development of green infrastructure/ecological networks. Therefore, there will be no adverse effects from the proposed works in combination with this plan, which will itself mitigate any in-combination effects arising from other projects.

9.3.2 Projects

There were no projects identified on the *EIA Portal* within the geographical scope of this assessment. Searches of the Mayo County Council Planning portal found that, since 1st January 2024, there have been fewer than ca. 1000 no. planning applications to the local authority for projects within c. 1km of the Mweelrea/Sheeffry/Erriff Complex SAC and connected waterbodies.

The nature and scale of these projects vary considerably, but they are generally of less concern in terms of their potential environmental effects than those identified through the *EIA Portal* (though there is some overlap). They include a large number of domestic projects such as retention of existing dwelling houses and associated structures, or modifications to same, or the construction of new domestic dwellings or extensions to dwellings, including new connections to the public wastewater network, or associated septic tanks or other on-site treatment.

Regarding potential impacts to water quality, such projects must comply with the EPA's *Code of Practice: Domestic Waste Water Treatment Systems (Population Equivalent ≤ 10)* (EPA, 2021). Therefore, such projects are not likely to have any significant effects in combination with the proposed works.

9.3.2.1 Small-scale Projects

Searches of *Mayo County Council Planning Viewer*⁵² found that in the past five years (c. April 2020), there have been over 500 planning applications to this local authority for projects within c. 1km of the Erriff River and connected waterbodies, downstream of Carrowrevagh Bridge.

The nature and scale of these projects vary considerably, but they are of less importance in terms of their potential environmental effects than those identified through the *EIA Portal* (though there is some overlap). They include a large number of domestic projects such as retention of existing dwelling houses and associated structures, or modifications to same, or the construction of new domestic dwellings or extensions to dwellings, including new connections to the public wastewater network, or associated septic tanks or other on-site treatment. Regarding potential impacts to water quality, such projects must comply with the EPA's *Code of Practice Domestic Waste Water Treatment Systems (Population Equivalent ≤ 10)* (EPA, 2021).

9.3.3 Other activities

Farmers and landowners undertake general agricultural operations in areas adjacent to the second-order stream which flows under the Carrowrevagh bridge, the River Erriff and its tributaries that could potentially give rise to effects

⁵² <https://mayococo.maps.arcgis.com/apps/webappviewer/>

on the same qualifying interests the proposed works. Most such operations are periodic, not continuous, and qualify as 'activities requiring consent' that require prior consultation with the NPWS, e.g. reclamation, infilling or land drainage within 30 m of a river, removal of trees or any aquatic vegetation within 30 m of a river, and harvesting or burning of reed or willow (NPWS, 2023a). Such operations must also comply with the European Communities (Environmental Impact Assessment) (Agriculture) Regulations, 2011 (as amended) in relation to:

Restructuring of rural land holdings,

Commencing use of uncultivated land or semi-natural areas for intensive, and

Land drainage works on lands used for agriculture.

Stage 2 AA is required under Section 9 of those Regulations if the activity is likely to have a significant effect on a European site. The drainage or reclamation of wetlands is controlled under the Planning and Development (Amendment) (No. 2) Regulations, 2011 and the European Communities (Amendment to Planning and Development) Regulations, 2011. Therefore, any in-combination effects from agricultural operations and the proposed works are not likely to be significant.

9.4 Conclusion

As detailed in the preceding sections within this NIS, it can be concluded that, based on the scale of the proposed works at each location, the mitigation measures that will be followed to minimise adverse effects and the brief duration of both the works themselves and any impacts arising from them, they will not give rise to likely significant effects on the Mweelrea/Sheeffry/Erriff Complex SAC or any other European site, in combination with other plans or projects.

10. Conclusion

This NIS has examined the details of the proposed works at Carrowrevagh Bridge, Co. Mayo, and the Natura 2000 sites in its Zone of Influence. It has analysed the potential impacts of the proposed works on the receiving natural environment and evaluated their effects, both individually and in combination with other plans and projects, in view of the conservation objectives of the relevant Natura 2000 sites. This report has been prepared in line with the Habitats Directive, as transposed into Irish law by the Habitats Regulations, relevant case law and guidance from the European Commission, the Department of the Environment, Heritage and Local Government and the Office of the Planning Regulator, on the basis of objective information and adhering to the precautionary principle.

Given the prescription of the mitigation measures detailed in Section 7 of this NIS, it can be concluded beyond reasonable scientific doubt that the proposed project will not, either individually or in combination with other plans or projects, give rise to any impacts which would constitute adverse effects on the Mweelrea/Sheeffry/Erriff Complex SAC or any other Natura 2000 site, in view of their conservation objectives. Therefore, it is the recommendation of the authors of this report that An Coimisiún Pleanála, as the competent authority in this case, may determine that the proposed project, either individually or in combination with other plans or projects, will not adversely affect the integrity of any Natura 2000 site, provided that the mitigation prescribed in this NIS is fully and properly implemented.



11. References

- AtkinsRéalis (2025a) *Construction Environmental Management Plan for Carrowrevagh Bridge*. AtkinsRéalis, House 150-155, Airside Business Park, Dublin, K67 K5W4.
- Bailey, M. and Rochford J. (2006) *Otter Survey of Ireland 2004/2005*. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Brian Holohan and Others v. An Bord Pleanála* [2018] CJEU C-461/17.
- Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) *Ireland Red List No. 2 – Non-Marine Molluscs*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- CIEEM (2024). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3*. Chartered Institute of Ecology and Environmental Management, Winchester.
- Conaghan, J., Douglas, C., Grogan, H., O' Sullivan, A., Kelly, L., Garvey, L., Van Doorslaer, L., Scally, L., Dunnells, D., & Wyse Jackson, M., Goodwillie, R., Mooney, E. 2000. *Distribution, Ecology and Conservation of Blanket Bog in Ireland*. National Parks and Wildlife Service, Dublin Ireland.
- Coll, J., Skeffington, M. S., Bourke, D., and Gormally, M. 2016. *Projected climate change impacts on upland heaths in Ireland*. National University of Ireland.
- 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.
- 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.
- DG Env (2013). *Interpretation Manual of European Union Habitats – EUR28. April 2013*. Directorate-General for the Environment, European Commission, Brussels.
- 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.
- Eamon (Ted) Kelly v. An Bord Pleanála and Others* [2014] IEHC 400.
- EC (2018). *Managing European sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission, Brussels.
- EC (2021). *Assessment of plans and projects in relation to European sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Commission, Brussels.
- Eionet (2025). *Reference Portal for European* <<https://cdr.eionet.europa.eu/help/natura2000>> [accessed 08/05/2025]. European Environment Information and Observation Network, European Environment Agency, Copenhagen.
- Eoin Kelly v. An Bord Pleanála* [2019] IEHC 84.



- EPA (2009). *Code of Practice: Wastewater Treatment Systems and Disposal Systems serving Single Houses (p.e. ≤10)*. Environmental Protection Agency, Wexford.
- EPA (2018). *Code of Practice: Domestic Waste Water Treatment Systems (Population Equivalent ≤10) Draft 26 November 2018*. Environmental Protection Agency, Wexford.
- EPA (2025). *EPA Maps: Water* <<https://gis.epa.ie/EPAMaps/Water>> [accessed 08/05/2025]. Environmental Protection Agency, Wexford.
- ETC/BD (2025a). *Article 17 web tool* <<https://nature-art17.eionet.europa.eu/article17/>> [accessed 08/05/2025]. European Topic Centre on Biological Diversity, European Environment Agency, Copenhagen.
- ETC/BD (2025b). *Article 12 web tool* <<https://nature-art12.eionet.europa.eu/article12/>> [accessed 08/05/2025]. European Topic Centre on Biological Diversity, European Environment Agency, Copenhagen.
- European Commission v. Federal Republic of Germany* [2017] CJEU C-142/16.
- European Communities (Birds and Natural Habitats) (Amendment) Regulations, 2013. *S.I. No. 499/2013*.
- European Communities (Birds and Natural Habitats) (Amendment) Regulations, 2015. *S.I. No. 355/2015*.
- European Communities (Birds and Natural Habitats) Regulations, 2011. *S.I. No. 477/2011*.
- European Communities (Environmental Impact Assessment) (Agriculture) Regulations, 2011. *S.I. No. 456/2011*.
- European Communities (Environmental Impact Assessment) (Agriculture) (Amendment) Regulations 2017. *S.I. No. 407/2017*.
- European Communities (Quality of Salmonid Waters) Regulations, 1988. *S.I. No. 293/1988*.
- European Union (Birds and Natural Habitats) (Amendment) Regulations, 2021. *S.I. No. 293/2021*.
- Fitzpatrick, Ú., Murray, T.E., Byrne, A., Paxton, R.J., & Brown, M.J.F. (2006) *Regional Red List of Irish Bees*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.
- Fleming, C., McCollom, A. and O'Leary, C. (2024) *Environmental Drainage Maintenance Research Programme Catchment-wide Assessment 2023*. Inland Fisheries Ireland, 3044 Lake Drive, Citywest, Dublin 24, Ireland.
- Fossitt, J.A (2000). *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.
- Gallagher, T., O'Gorman, N.M., Rooney, S.M., Coghlan, B., and King, J.J. (2019). *National Programme: Habitats Directive and Red Data Book Species Summary Report 2017*. Inland Fisheries Ireland, 3044 Lake Drive, Citywest, Dublin 24, Ireland.
- Gilbert, G., Stanbury, A., and Lewis, L. (2021) *Birds of Conservation Concern in Ireland 4: 2020 – 2026*. Birdwatch Ireland, Unit 20, Block D, Bulford Business Campus, Kilcoole, Greystones, Co. Wicklow.
- Heather Hill Management Company CLG v. An Bord Pleanála* [2019] IEHC 450.
- IFI (2016). *Guidance on Protection of Fisheries During Construction Works in and Adjacent to Waters*. Inland Fisheries Ireland. Dublin, Ireland.
- Kelly-Quinn, M. & Regan, E.C. (2012) *Ireland Red List No. 7: Mayflies (Ephemeroptera)*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

- King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) *Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.
- Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v. Staatssecretaris van Landbouw, Natuurbeheer en Visserij [2004] CJEU C-127/02.
- Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N., (2011) *Landscape conservation for Irish bats & species specific roosting characteristics*. Bat Conservation Ireland.
- Marine Institute (2024). *Year in Review 2023*. Marine Institute, Rinville, Oranmore, Co. Galway.
- Marnell, F., Looney, D. & Lawton, C. (2019) *Ireland Red List No. 12: Terrestrial Mammals*. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland
- Masters-Williams, H., Heap, A. & Kitts, H. (2001). C532 Control of water pollution from construction sites. Guidance for consultants and contractors. Construction Industry Research and Information Association. London, Great Britain.
- Moorkens, E.A. (2000). *Conservation Management of the Freshwater Pearl Mussel Margaritifera margaritifera - Part 2: Water Quality Requirements*. Irish Wildlife Manuals 9. Dúchas - The Heritage Service, Department of Arts, Heritage, Gaeltacht and the Islands, Dublin.
- Murnane, E. (2002). *SP156 Control of water pollution from construction sites – guide to good practice*. Construction Industry Research and Information Association. London, Great Britain.
- NBDC (2025). *Biodiversity Maps* <<https://maps.biodiversityireland.ie/Map>> [accessed 08/05/2025]. National Biodiversity Data Centre, Waterford.
- NPWS (2008) *The Status of EU Protected Habitats and Species in Ireland*. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2017) *Conservation Objectives: Mweelrea/Sheeffry/Erriff Complex SAC 001932*. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2019a). *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview*. National Parks & Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin.
- NPWS (2019b). *The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments*. National Parks & Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin.
- NPWS (2019c). *The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments*. National Parks & Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin.
- NPWS (2021a). *Site Synopsis: Mweelrea/Sheeffry/Erriff Complex SAC 001932*. Version 28/10/2021. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.
- NPWS (2021b). *European Standard Data Form: Mweelrea/Sheeffry/Erriff Complex SAC. Update October 2021..* National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.
- NPWS (2025a). *Development Consultations* <<https://www.npws.ie/development-consultations>> [accessed 08/05/2025]. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.



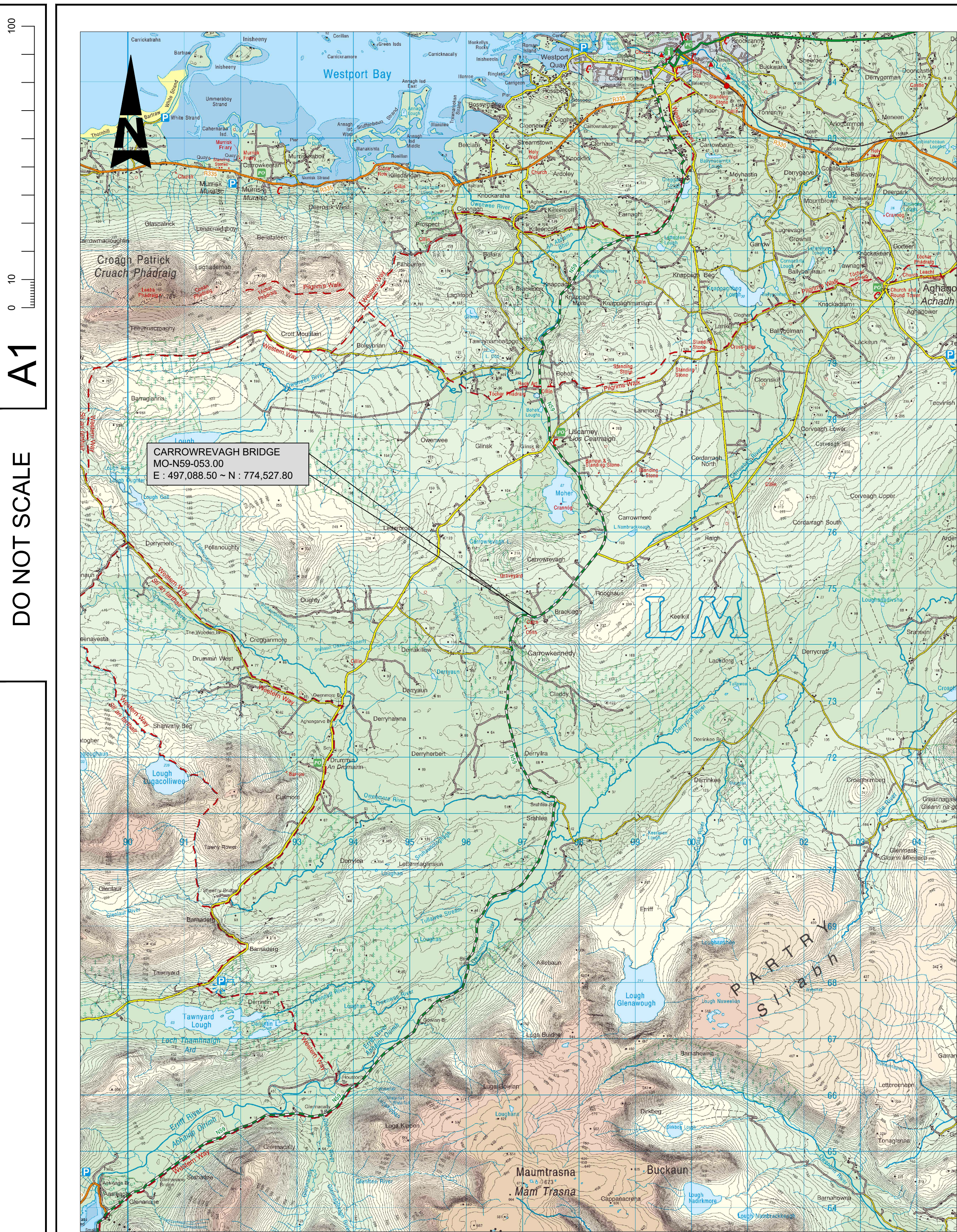
- NPWS (2025b). *Activities Requiring Consent* <<https://www.npws.ie/farmers-and-landowners/activities-requiring-consent>> [accessed 08/05/2025]. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.
- NPWS (2025c). *NPWS Designations Viewer* <<https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba>> [accessed 08/05/2025]. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.
- NPWS (2025d). *The status and trends of Ireland's bird species – Article 12 Reporting* <<https://www.npws.ie/status-and-trends-ireland%E2%80%99s-bird-species-%E2%80%93-article-12-reporting>> [accessed 08/05/2025]. National Parks & Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.
- NRA (2009) *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*. National Roads Authority, Dublin.
- O'Connor, W., and McDonnell, D. (2008) *Ecological assessment of the significance of impacts of proposed scheduled arterial drainage scheme channel and embankment maintenance works on SACs and SPAs*. A Report to the Office of Public Works, November 2008.
- O'Connor, W., Hayes G., O'Keeffe, C. & Lynn, D. (2009) *Monitoring of white-clawed crayfish Austropotamobius pallipes in Irish lakes in 2007*. Irish Wildlife Manuals, No 37. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- O'Connor, W., Hayes G., O'Keeffe, C. & Lynn, D. (2009) *Monitoring of white-clawed crayfish Austropotamobius pallipes in Irish lakes in 2007*. Irish Wildlife Manuals, No 37. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- O'Flynn, C., Kelly, J. and Lysaght, L. (2014). *Ireland's invasive and non-native species – trends in introductions*. National Biodiversity Data Centre, Waterford.
- O'Neill, F.H., Perrin, P.M., Denyer, J., Martin, J.R., Brophy, J.T. & Daly, O.H. (2023). *Scoping study and pilot survey of fens: Appendices*. Irish Wildlife Manuals, No. 143. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
- OPR (2021). *Appropriate Assessment Screening for Development Management. OPR Practice Note PN01*. Office of the Planning Regulator, Dublin.
- OSi (2025). *GeoHive Map Viewer* <<https://www.arcgis.com/apps/webappviewer>> [accessed 08/05/2025]. Ordnance Survey Ireland, Dublin.
- People Over Wind and Peter Sweetman v. Coillte Teoranta* [2018] CJEU C-323/17.
- Perrin, P.M. and Daly, O.H. (2010). A provisional inventory of ancient and long-established woodland in Ireland. *Irish Wildlife Manuals* 46. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Peter Sweetman and Others v. An Bord Pleanála* [2013] CJEU C-258/11.
- Planning and Development Act, 2000. No. 30 of 2000 (as amended). In: *Revised Acts* <<http://revisedacts.lawreform.ie/eli/2000/act/30/revised/en/html>> [accessed 08/05/2025]. Law Reform Commission, Dublin.
- Preene, M., Roberts, T.O.L & Powrie, W. (2016). *C750 Groundwater control: design and practice*.

- Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010) *Ireland Red List No. 4 – Butterflies*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland.
- Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. and Montgomery, W.I. (2013). National Otter Survey of Ireland 2010/12. *Irish Wildlife Manuals* 76. National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.
- Reynolds, J.D. (1998) *Conservation management of the white-clawed crayfish, Austropotamobius pallipes*. Part 1. *Irish Wildlife Manuals*, No. 1.
- Reynolds, J.D., O'Connor, W., O'Keeffe, C. and Lynn, D. (2010). *A technical manual for monitoring white-clawed crayfish Austropotamobius pallipes in Irish lakes*. *Irish Wildlife Manuals* 45. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants (2006). *Appropriate Assessment of Plans*.
- Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011). *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

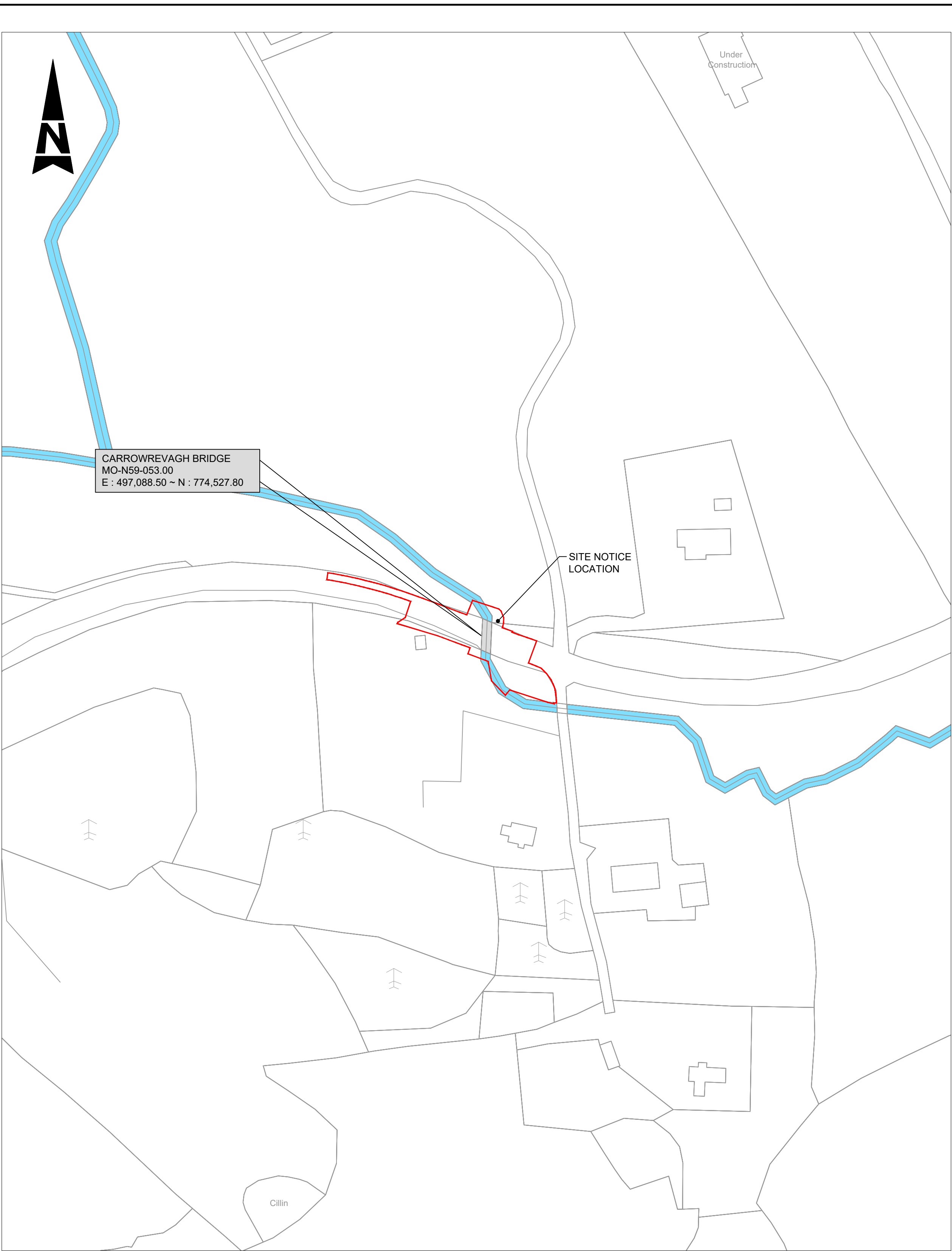
APPENDICES

Appendix A. Drawings





SITE LOCATION MAP
Scale at A1 1:50,000
Scale at A3 1:100,000



SITE LOCATION PLAN
Scale at A1 1:1,000
Scale at A3 1:2,000

- GENERAL NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
 2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
 3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
 4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
 5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

LEGEND :

— SITE BOUNDARY

Purpose ISSUED FOR PLANNING

Title SITE LOCATION

Original Scale	Drawn	Checked	Reviewed	Authorised
As Shown	AGL	MG	MG	MJ
Status	Drawing Number	Date	Date	Date
A2	0088572-ATK-10-XX-DR-CE-900111	09.05.25	09.05.25	09.05.25
Rev				
				P0

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Risk Level	Atkins Base Line - Low Risk
	Atkins Sensitive - Medium Risk
	Atkins Private - High Risk
	Client Critical - Already Marked



Comhairle Contae Mhaigh Eo
Mayo County Council



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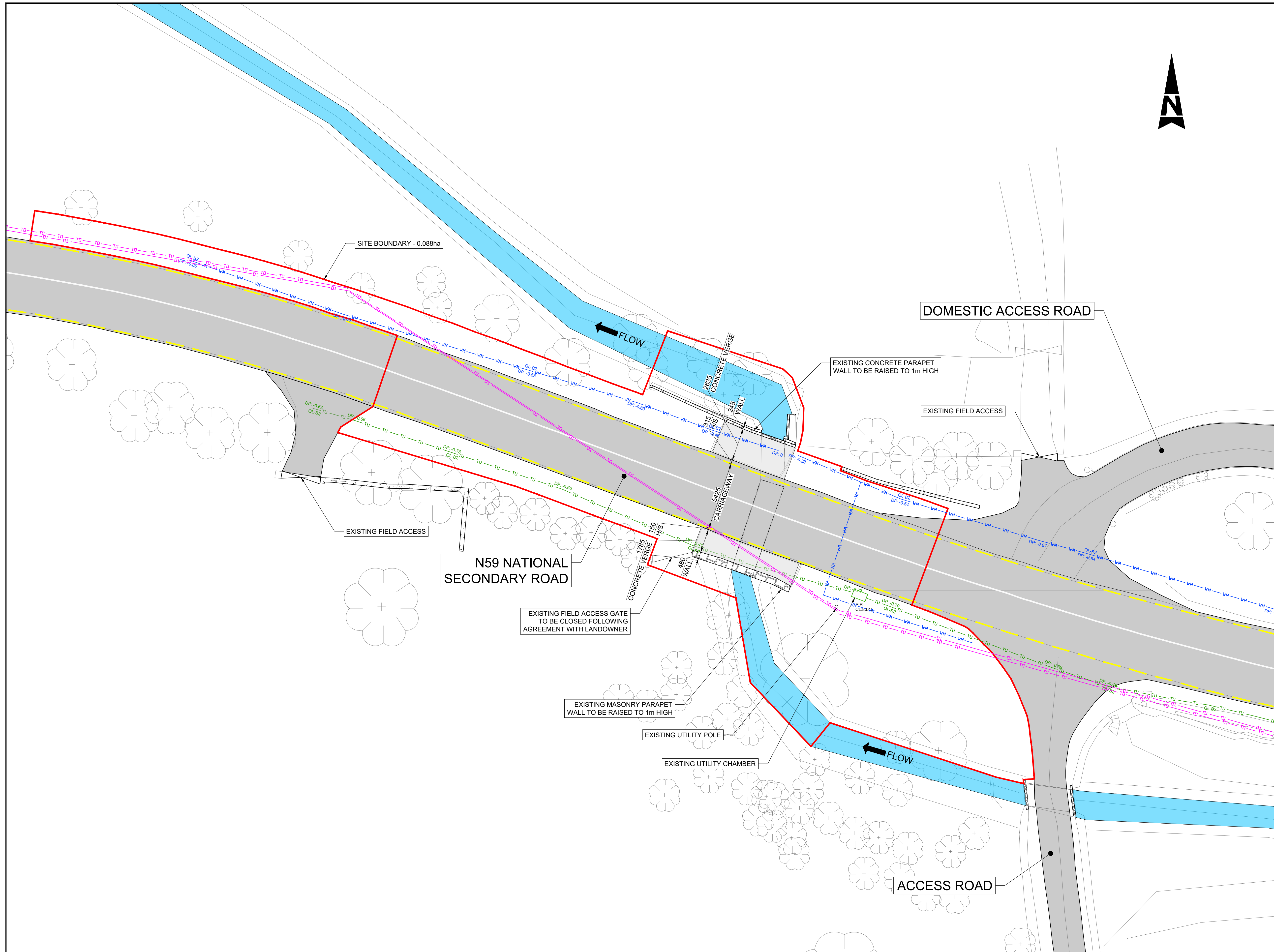
Unit 2B, 2200 Cork Airport
Business Park, Cork
Tel (+353) 021 429 0300
Fax (+353) 021 429 0360

1st Floor Technology House
Parkmore Technology Park, Galway
Tel (+353) 091 786 050
Fax (+353) 091 779 830

CARROWREVAGH BRIDGE
REHABILITATION WORKS

Plotted by: SEPT160

File: 0088572-ATK-10-XX-DR-CE-900111.dwg
Date: Jul 03, 2025 - 3:54pm



- ### GENERAL NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
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 5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

LEGEND :

- | | |
|---|-------------------------|
|  | SITE BOUNDARY |
|  | EXISTING CARRIAGEWAY |
|  | EXISTING CONCRETE VERGE |
|  | EXISTING MASONRY WALL |
|  | EXISTING CONCRETE WALL |
|  | EXISTING SERVICE DUCT |
|  | EXISTING WATERMAIN |
|  | BURIED AURORA SERVICES |
|  | OVERHEAD EIR CABLE |

Purpose	ISSUED FOR PLANNING
---------	---------------------

EXISTING LAYOUT PLAN

Original Scale		Drawn		Checked		Reviewed		Authorised		
1:150		AGL		MG		MG		M.		
Date		14.05.25		Date		14.05.25		Date		
14.05.25				14.05.25				14.05.25		
Status		Drawing Number							Rev	
A2		0088572-ATK-10-XX-DR-CE-900112							P0	

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ASSESSMENTS AND STRENGTHENING 2023



Comhairle Contae Mhaigh Eo
Mayo County Council

P0	ISSUED FOR REVIEW	KS	07.25	MG	MG	MJ		
Rev	Description	By	Date	Chk'd	Rev'd	Auth		



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Fax (+353) 01 810 8001	Fax (+353) 021 429 0360	Fax (+353) 091 779 830



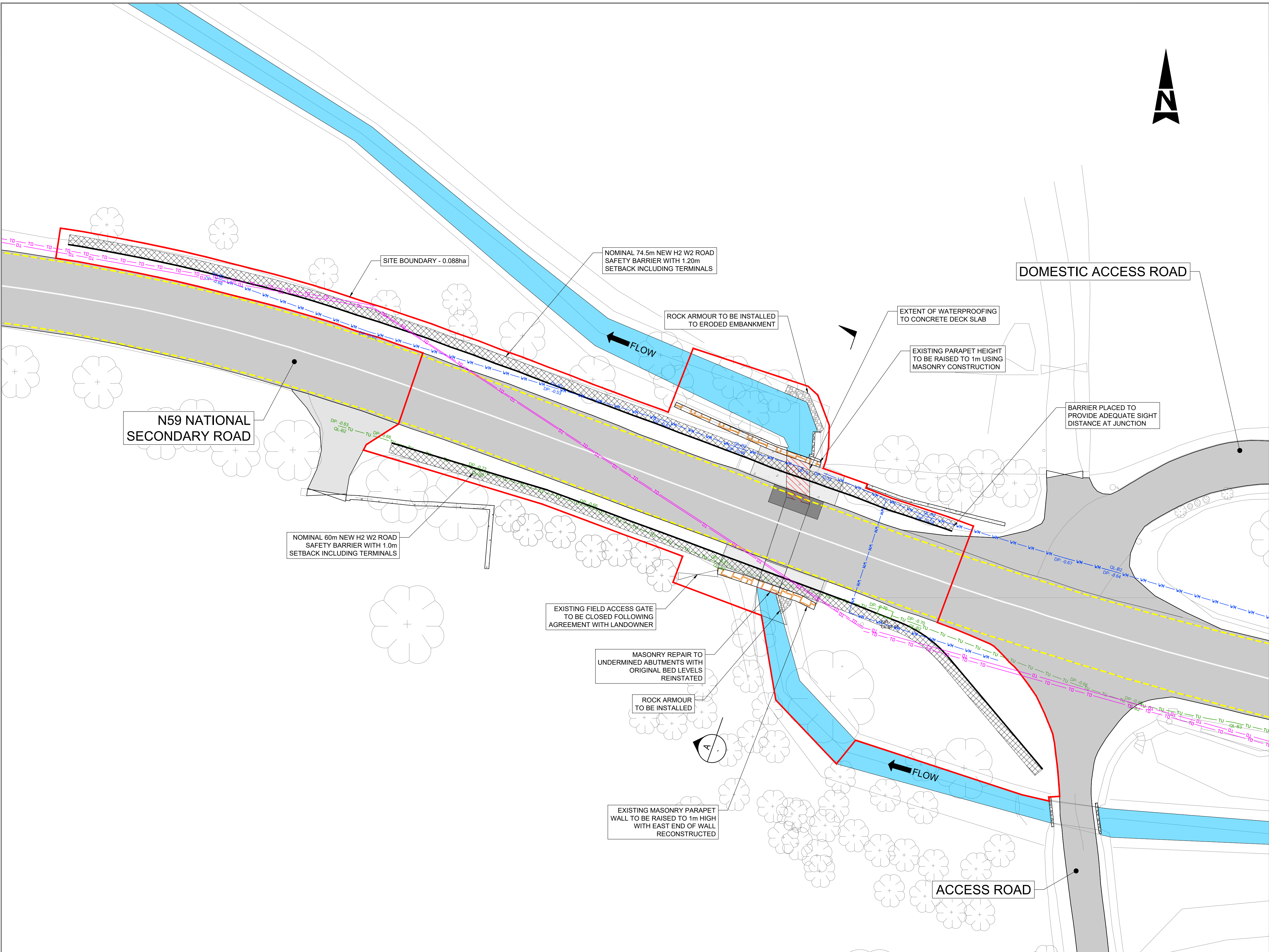
Comhairle Contae Mhaigh Eo
Mayo County Council

CARROWREVAGH BRIDGE REHABILITATION WORKS

A1

DO NOT SCALE

File: 0088572-ATK-10-XX-DR-CE-900113 to 900114.dwg
Date: Jul 03, 2025 - 5:59pm
Plotted by: STEP1160



- GENERAL NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
 2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
 3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
 4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
 5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

- LEGEND :
- SITE BOUNDARY
 - EXISTING CARRIAGEWAY
 - EXISTING CONCRETE VERGE
 - EXISTING MASONRY WALL TO BE RAISED
 - EXISTING CONCRETE WALL
 - NEW ROAD SAFETY BARRIER
 - NEW ROCK ARMOUR
 - NEW CONCRETE VERGE
 - EXTENT OF WATERPROOFING
 - NEW SURFACING
 - EXISTING WATERMAIN
 - BURIED AURORA SERVICES
 - OVERHEAD EIR CABLE

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Risk Level	X	Atkins Base Line - Low Risk
		Atkins Sensitive - Medium Risk
		Atkins Private - High Risk
		Client Critical - Already Marked



PO	ISSUED FOR REVIEW	KS	07.25	MG	MG	MJ
Rev	Description	By	Date	Chk'd	Rev'd	Auth



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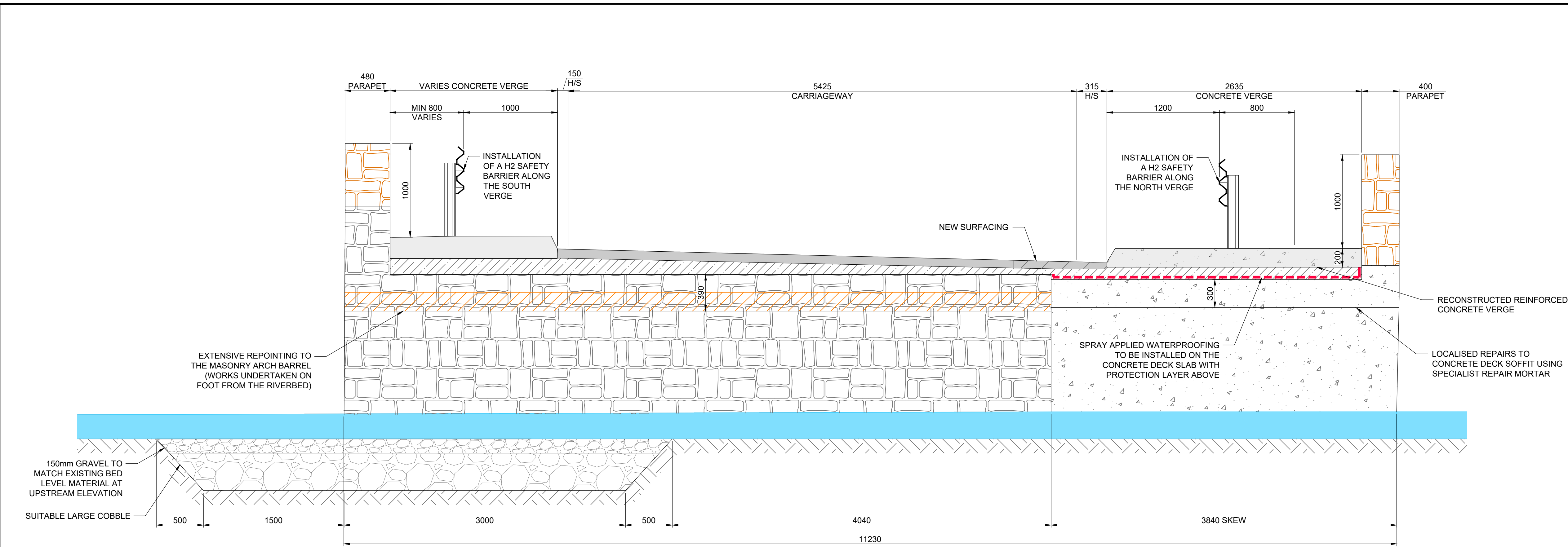
CARROWREVAGH BRIDGE REHABILITATION WORKS

Purpose		ISSUED FOR PLANNING							
Title		PROPOSED LAYOUT PLAN							
Original Scale		Drawn		Checked		Reviewed		Authorised	
		AGL		MG		MG		MJ	
1:150		Date	09.05.25	Date	09.05.25	Date	09.05.25	Date	13.03.25
Status	Drawing Number							Rev	
A2	0088572-ATK-10-XX-DR-CE-900113							P0	

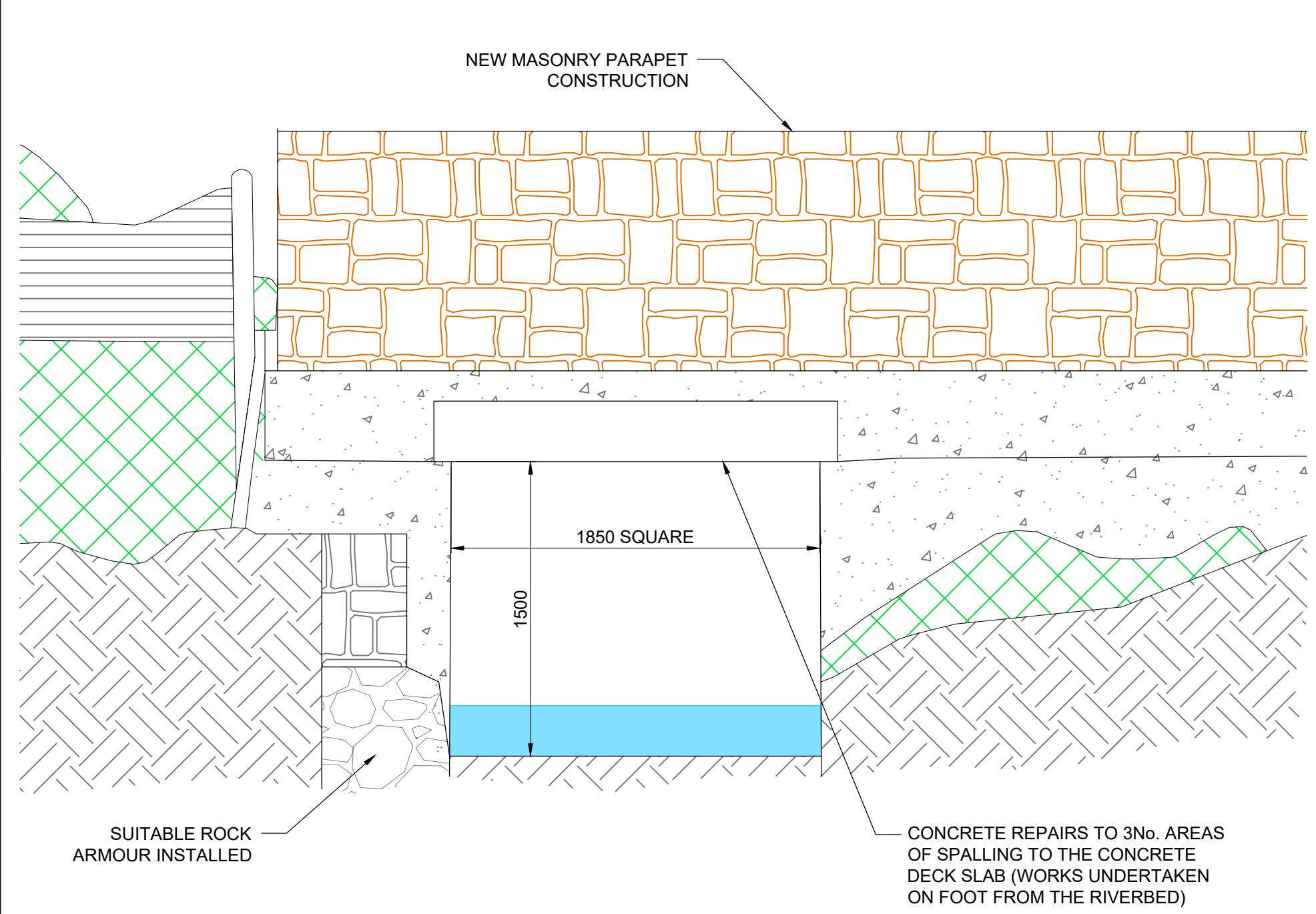
100
0 10
A1

DO NOT SCALE

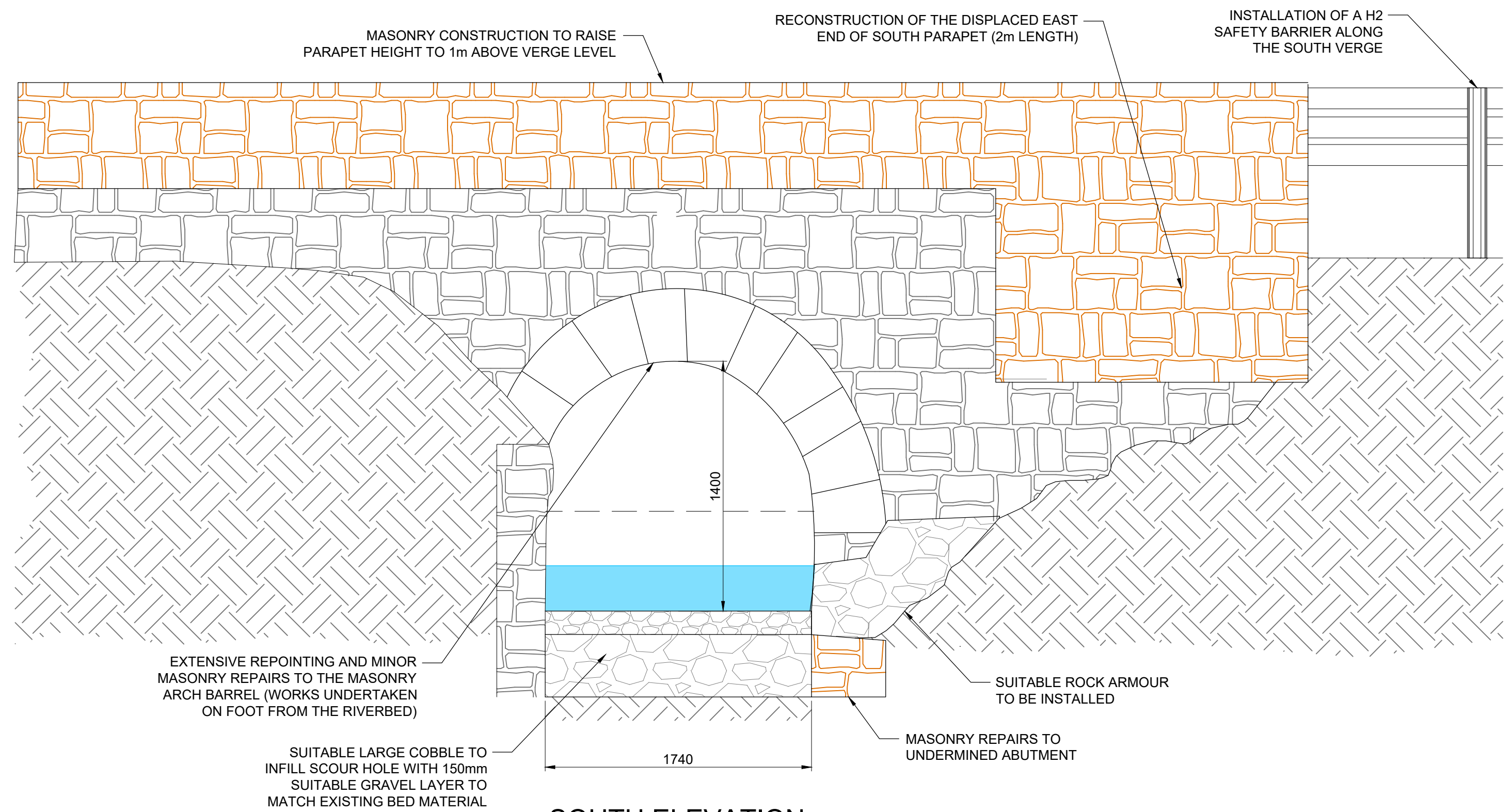
File: 008572-ATK-10-XX-DR-CE-900113 to 900114.dwg
Date: Jul 03, 2025 - 5:03pm
Plotted by: STEPT160



SECTION A
Scale at A1 1:25
Scale at A3 1:50



NORTH ELEVATION
Scale at A1 1:25
Scale at A3 1:50



SOUTH ELEVATION
Scale at A1 1:25
Scale at A3 1:50

- GENERAL NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
 2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
 3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
 4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
 5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

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Risk Level	Atkins Base Line - Low Risk
Atkins Sensitive - Medium Risk	
Atkins Private - High Risk	
Client Critical - Already Marked	



Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	07.25	MG	MG	MJ



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CARROWEVAGH BRIDGE REHABILITATION WORKS

Purpose		ISSUED FOR PLANNING								
Title		PROPOSED ELEVATIONS AND SECTION								
Original Scale	1:25	Drawn	AGL	Checked	MG	Reviewed	MG	Authorised	MJ	
		Date	09.05.25	Date	09.05.25	Date	09.05.25	Date	09.05.25	
Status	Drawing Number								Rev	
A2	0088572-ATK-10-XX-DR-CE-900114								P0	

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T12 R279

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